A Pedagogical Intervention to Support Social and Emotional Development and Health in Early Childhood: An Intervention Mapping Approach

Claire Alicia Blewitt

BEng (Hons), GradDip (PsychSci), BPsych (Hons)

A thesis submitted for the degree of Doctor of Philosophy at
Monash University in 2019

School of Public Health and Preventive Medicine

Copyright Notice

Abstract

High-quality Early Childhood Education and Care (ECEC) programs can strengthen the social, emotional, and cognitive competencies that are crucial for children's ongoing learning and development. The provision of nurturing and responsive educator-child interactions is particularly vital, with potential to mitigate the impact of child, familial, and community risk factors. As such, building the capability and skill of early childhood educators to foster children's social and emotional growth is essential. The aim of this thesis was to integrate health and educational perspectives to co-design, implement, and evaluate a pedagogical intervention that supports educators to foster children's social and emotional skills using Intervention Mapping (IM) methodology. IM is a six-step program design, implementation, and evaluation framework, underpinned by theoretical and evidence-based decision making, a systems-science perspective, and participatory design approach.

Specific program goals were established based on findings from a comprehensive needs assessment. Four literature reviews examined the effectiveness of ECEC-based Social and Emotional Learning (SEL) intervention. SEL programs target children's knowledge, skill and attitudes relating to one or more of the following competencies: self-awareness, social awareness, self-management, relationships, and responsible decision making. Reviews considered: (i) universal programs delivered at a class-wide level; (ii) targeted programs delivered to children showing signs of social, emotional or behavioural difficulties; (iii) programs offered to children with diagnosed mental health challenges or developmental delays; and (iv) the impact of universal SEL programming on teaching practice and quality. The findings of these reviews suggested that universal SEL programs benefit children's social, emotional, behavioural, and early learning skills, with fewer interventions targeting children experiencing social, emotional or behavioural difficulties; there appears to be a

paucity of research examining programs for preschoolers with internalising problems, such as anxiety or withdrawal.

Qualitative research with early childhood professionals revealed that educators sought explicit and practical techniques to support children's social and emotional skills that could be embedded into their everyday interactions and practice. Greater support to nurture the diverse learning outcomes of all children attending early learning programs was also emphasised. A conceptual model was developed to synthesise learning from the needs assessment and inform intervention design; in this model, intentional language, conversational techniques and responsive practices underpin high quality educator–child interactions within a multi-tiered framework of SEL strategies.

The Cheshire Social-Emotional Engagement and Development (SEED) Educational Program was subsequently co-designed by a team of early childhood and primary school educators, experienced in working with children with social, emotional, and behavioural challenges, along with paediatric psychologists and researchers, following the IM protocol steps. Cheshire SEED is an online learning platform offering strategies tailored to educator and child need, that educators can use within their everyday interactions and practice. A waitlist-controlled pilot study and feasibility evaluation examined the impact on educators' relationship with children, self-efficacy, and knowledge of strategies to foster social-emotional skills within the playroom. Cheshire SEED has been offered to kindergartens through the Victorian Government's School Readiness Funding initiative. Broader research and practice implications are explored by considering SEL in ECEC settings as a public health approach, and the challenges and opportunities in translating evidence to practice in the early childhood sector.

Research Activity During Candidature

Published Manuscripts

O'Connor, A., **Blewitt, C.,** Nolan, A., & Skouteris, H. (2018). Using Intervention Mapping for Child Development and Wellbeing Programs in Early Childhood Education and Care Settings. *Evaluation and Program Planning*, *68*, 57-63.

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., ... & Skouteris, H. (2018). Social and Emotional Learning Associated with Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open*, *1*(8), e185727.

Blewitt, C., Morris, H., Nolan, A., Jackson, K., Barrett, H., & Skouteris, H. (2018). Strengthening the Quality of Educator-Child Interactions in Early Childhood Education and Care Settings: A Conceptual Model to Improve Mental Health Outcomes for Preschoolers. *Early Child Development and Care*.

Blewitt, C., O'Connor, A., Morris, H., May, T., Mousa, A., Bergmeier, H., Nolan, A., Jackson, K., Barrett, H. Skouteris, H. (2019). A Systematic Review of Targeted Social and Emotional Learning Interventions in Early Childhood Education and Care Settings. *Early Child Development and Care.*

Blewitt, C., O'Connor, A., May, T., Morris, H., Mousa, A., Bergmeier, H., Jackson, K., Barrett, H., Skouteris, H. (2019). Strengthening the Social and Emotional Skills of Pre-schoolers with Mental Health and Developmental Challenges in Inclusive Early Childhood Education and Care Settings: A Narrative Review of Educator-Led Interventions. *Early Child Development and Care.*

Submitted Manuscripts

Blewitt, C., O'Connor, A., Morris, H., Mousa, A., Bergmeier, H., Nolan, A., Jackson, K., Barrett, H., Skouteris, H. (2019). Do Curriculum-Based Social and Emotional Learning

Programs in Early Childhood Education and Care Strengthen Teacher Outcomes? A Systematic Literature Review. Manuscript submitted for publication to International Journal of Public Health and Environmental Research on 2 December 2019.

Blewitt, C., O'Connor, A., Morris, H., Nolan, A., Mousa, A., Green, R., Ifanti, A., Jackson, K., Skouteris, H. (2019). "It's Embedded in What We Do for Every child": A Qualitative Exploration of How Australian Early Childhood Educators Support Preschoolers' Social and Emotional Learning. Manuscript submitted for publication to Early Childhood Education Journal on 31 December 2019.

Blewitt, C., Morris, H., Jackson, K., Barrett, H., Bergmeier, H., O'Connor, A., Mousa, A., Nolan, A., Skouteris, H. (2019). Integrating Health and Educational Perspectives to Promote Preschoolers' Social and Emotional Learning: Development of a Multi-Faceted Program Using an Intervention Mapping Approach. Manuscript submitted for publication to International Journal of Public Health and Environmental Research on 19 December 2019.

Conference Presentations

Blewitt, C., & Skouteris, H. (2019). Fostering Social and Emotional Learning in the Preschool Years. A Systematic Review and Meta-Analysis of Universal Programs in Early Childhood Education and Care Settings. Paper presented at the *International Society on Early Intervention Conference,* June*,* Sydney, Australia.

Blewitt, C., & Barrett, H. (2019). Integrating Health and Educational Perspectives to Co-Design a Social and Emotional Learning Intervention for Early Childhood Educators. Paper presented at *Early Childhood Education Conference,* May, Melbourne, Australia.

Blewitt, C., & Skouteris, H. (2019). It's Embedded in What We Do for Every Child": A Qualitative Exploration of how Australian Early Childhood Educators support Preschoolers' Social and Emotional Development. Poster presented at *International Society on Early Intervention Conference,* June, Sydney, Australia.

Blewitt, C., & Skouteris, H. (2019). Mental health pedagogical intervention in early childhood: Integrating health and educational perspectives to co-design, trial and evaluate a

social-emotional learning program for early childhood educators. Poster presented at *National Association of the Education of Young Children Annual Conference*, November, Nashville, United States.

Other Research Activities During Candidature

Blewitt, C., Bergmeier, H., Macdonald, J. A., Olsson, C. A., & Skouteris, H. (2016). Associations between parent–child relationship quality and obesogenic risk in adolescence: a systematic review of recent literature. *Obesity reviews*, *17*(7), 612-622.

Bergmeier, H., Hill, B., Haycraft, E., **Blewitt, C.,** Lim, S., Meyer, C., & Skouteris, H. (2019). Maternal body dissatisfaction in pregnancy, postpartum and early parenting: An overlooked factor implicated in maternal and childhood obesity risk. *Appetite*.

Blewitt, C., Bergmeier, H., O'Connor, A., & Skouteris, H. Chapter 8 Social and emotional development. In A. Kilderry, & B. Raban (Eds.), *Strong Foundations*. Victoria: ACER Press. Book chapter submitted for review on 11 November 2019.

Blewitt, C., & Anderson, M. (2018). Establishing a Communities of Learning Framework among bestchance Early Childcare and Education Educators. Paper presented at *ELAA Growing Tomorrow Conference*, May, Melbourne, Australia.

Thesis Including Published Works Declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes five original papers published in peer reviewed journals and three submitted publications. The core theme of the thesis is the co-design, implementation, and evaluation of a pedagogical intervention to support educators to foster children's social and emotional skills using Intervention Mapping methodology. With the exception of the paper included in Chapter Two which was led by another researcher, and the content in Chapter Nine which was led by myself and prepared with a team of co-authors for submission in January 2020, the ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the Monash Centre for Health Research and Implementation under the supervision of Professor Helen Skouteris, Dr Heather Morris, Dr Aya Mousa, and Professor Andrea Nolan.

The inclusion of co-authors reflects the fact that the work came from active collaboration between researchers and acknowledges input into team-based research.

In the case of Chapters 2, 3, 4, 5 and 6, my contribution to the work involved the following:

2	Using Intervention Mapping for child development and wellbeing programs in early childhood	Published	40%. Concept and writing first draft	Other authors: 60% Dr Amanda O'Connor: concept, writing first draft, finalising draft Andrea Nolan: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No

	education and care settings				
3	Social and Emotional Learning associated with universal curriculum-based interventions in early childhood education And care centers: A systematic review and meta-analysis	Published	70%. Primary responsibility for literature search, data extraction, data analysis, writing draft, finalising draft	Other authors: 30% Matthew Fuller-Tyszkiewicz: input into data analysis and manuscript Andrea Nolan: input into manuscript Heidi Bergmeier: input into concept, literature search and manuscript David Vicary: input into manuscript Terry Huang: input into manuscript Paul McCabe: input into manuscript Tracey McKay: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No
3	Systematic review of targeted social and emotional learning interventions in early childhood education and care settings.	Published	80%. Primary responsibility for literature search, data extraction, writing draft, finalising draft	Other authors: 20% Amanda O'Connor: input into concept, literature search and manuscript Heather Morris: input into manuscript Tamara May: input into manuscript Aya Mousa: input into manuscript Heidi Bergmeier: input into manuscript Andrea Nolan: input into manuscript Kylie Jackson: input into manuscript Helen Barrett: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No
3	Strengthening the social and emotional skills of pre-schoolers with mental health	Published	70%. Primary responsibility for literature search, data extraction,	Other authors: 30% Amanda O'Connor: input into concept, literature search, data extraction and manuscript	No

	and developmental challenges in inclusive early childhood education and care settings: A narrative review of educator-led interventions		writing draft, finalising draft	Tamara May: input into concept, study aims and manuscript Heather Morris: input into manuscript Aya Mousa: input into manuscript Heidi Bergmeier: input into manuscript Kylie Jackson: input into manuscript Helen Barrett: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	
3	Do curriculum-based social and emotional learning programs in early childhood education and care strengthen teacher outcomes	Submitted	80%. Primary responsibility for literature search, data extraction, writing draft, finalising draft	Other authors: 20% Amanda O'Connor: input into concept, literature search and manuscript Heather Morris: input into manuscript Aya Mousa: input into manuscript Heidi Bergmeier: input into manuscript Andrea Nolan: input into manuscript Kylie Jackson: input into manuscript Helen Barrett: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No
4	Strengthening the quality of educator-child interactions in early childhood education and care settings: a conceptual model to improve mental	Published	70%. Primary responsibility for literature review, writing draft, finalising draft	Other authors: 30% Heather Morris: input into concept, literature review and manuscript Andrea Nolan: input into manuscript Kylie Jackson: input into manuscript Helen Barrett: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No

	health outcomes for preschoolers				
5	It's embedded in what we do for every child": A qualitative exploration of how Australian early childhood educators support preschoolers' social and emotional learning	Submitted	70%. Primary responsibility for stakeholder interviews, transcription, coding, writing draft, finalising draft	Other authors: 30% Amanda O'Connor: input into coding and manuscript Heather Morris: input into concept and manuscript Andrea Nolan: input into manuscript Aya Mousa: input into manuscript Rachael Green: input into manuscript Amalia Ifanti: input into manuscript Kylie Jackson: input into manuscript Helen Skouteris: concept, supervision of research, input into focus groups and manuscript	No
6	Integrating health and educational perspectives to promote preschoolers' social and emotional learning: Development of a multi-faceted program using an intervention mapping approach	Submitted	80%. Primary responsibility for concept, writing draft, finalising draft	Other authors: 20% Heather Morris: input into concept and manuscript Kylie Jackson: input into manuscript Helen Barrett: input into manuscript Heidi Bergmeier: input into manuscript Amanda O'Connor: input into manuscript Aya Mousa: input into manuscript Andrea Nolan: input into manuscript Helen Skouteris: concept, supervision of research, input into manuscript	No

I have renumbered sections of submitted or published papers in order to generate a consistent presentation within the thesis. In addition, English spelling (American/British) and referencing styles vary across the submitted or published papers due to specific journal requirements.

Student name: Claire Blewitt

Student signature:

Date: 31 December 2019

I hereby certify that the above declaration correctly reflects the nature and extent of the student's and co-authors' contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisor name: Professor Helen Skouteris

Main Supervisor signature:

Date: 31 December 2019

Acknowledgements

First and foremost, I wish to extend my sincere and heartfelt thanks to Professor Helen Skouteris. It is difficult to convey how grateful I am for your unwavering support. The experiences, learning and relationships I've gained over the past three years have surpassed all expectations I had for this PhD. Thank you for your vision and leadership, for encouraging the best work I am capable of, and for helping me navigate this path with a young family. I am truly grateful. I also wish to thank my wonderful supervisory team. To Dr Heather Morris, I never left a conversation with you without feeling motivated and energised. Without doubt, your feedback strengthened every part of this project. Dr Aya Mousa, I'm so grateful to have had the opportunity to work with you. Thank you for your terrific advice and guidance. And to Professor Andrea Nolan, you have been so generous with your expertise and knowledge of early childhood education, thank you for your constant support over the past three years.

To Dr Kylie Jackson, Helen Barrett, David Greenwood, Angela North, Melissa NeSmith, Andrew Garas, and the brilliant team at The Cheshire School and bestchance, I can't thank you enough for allowing me the opportunity to be part of this project. You are such a skilled, dedicated and compassionate group, and I am grateful to have seen first-hand the impact you have on children and families. Thank you for the endless hours you have put in, and for supporting every aspect of this research. I also wish to extend my sincere thanks to the educators, advisors, leadership team, and other staff at bestchance Child Family Care who supported this research project, especially the two teams who took part in the feasibility study.

I have been lucky to work alongside a talented team at the Monash Centre for Health Research and Implementation. Much of this thesis builds on the innovative research by Dr Amanda O'Connor, who has provided advice and support every step of the way. I'd also like to especially thank Dr Heidi Bergmeier and Dr Cate Bailey for their wise counsel and encouragement. Last, but most importantly, thank you to my wonderful family and friends who have never wavered in their interest and positivity, and have helped in so many ways. To Helen, Philip, Trish, and David, you provide support like no other, thank you. To Loretta and Mabel, thank you for brightening every single day. And to dear Paul, this would not have been possible without you. You're one amazing teammate.

Table of Contents

CHAPTER ONE

Introduction

The experiences and relationships that occur in early childhood form the foundation for ongoing health and wellbeing (Organisation for Economic Co-operation and Development [OECD], 2015; Shonkoff & Phillips, 2000). Exposure to a nurturing and responsive interpersonal environment directly shapes a child's brain architecture, and the social and emotional competencies that underpin lifelong learning and development (Center on the Developing Child, 2016). While recognising family as the first and foremost influence on a child's development (Bronfenbrenner & Morris, 2006), theory and research evidence highlight the benefits of high-quality Early Childhood Education and Care (ECEC) for children's social, emotional and cognitive skills (Barnett, 2011; Camilli, Vargas, Ryan, & Barnett, 2010; Oberklaid, Baird, Blair, Melhuish, & Hall, 2013; Yoshikawa et al., 2013). Substantial growth in the number of children attending early learning programs (OECD, 2019) and advances in scientific understanding of early childhood development has led to a surge of programs, policies, and supports to encourage social and emotional skills within the ECEC environment (Institute of Medicine and National Research Council, 2015; National Scientific Council on the Developing Child, 2007; OECD, 2019; Shonkoff & Phillips, 2000).

Despite the important progress made, there are inconsistencies in the design, implementation, and delivery of programs that seek to promote children's positive health outcomes, with limited data to identify, replicate, and scale "best practices" (Center on the Developing Child, 2016). This highlights the challenge for educators, policy-makers, and researchers in translating scientific knowledge to improved educational practices (Malouf & Taymans, 2016; Metz & Bartley, 2012; Odom, 2009). There is a need for systematic, multi-disciplinary approaches that integrate health and educational perspectives to break through

the silos that can exist between disciplines and enhance the translation of health research to practice with regards to children's social and emotional development.

This introductory chapter provides an overview of social and emotional development in early childhood and the risk factors for social-emotional difficulties. It describes the ECEC sector in Australia, and a growing focus on fostering children's social and emotional skills through Social and Emotional Learning (SEL) programming in early learning settings. The Intervention Mapping (IM) protocol (Bartholomew Eldredge et al., 2016) guided the methodology outlined in this thesis. It is briefly described, followed by the research aims and an outline of the thesis structure.

1.1 A Note on Terminology

The chapters and publications in this thesis refer to children's social and emotional development, social and emotional learning, and mental health and wellbeing. For the purpose of this thesis, social and emotional development describes "the developing capacity of the child from birth through five years of age to form close and secure adult and peer relationships; experience, regulate, and express emotions in socially and culturally appropriate ways; and to explore the environment and learn—all in the context of family, community, and culture" (Center on the Social Emotional Foundations for Early Learning, 2008, p. 1). Social and emotional learning describes the way in which children acquire and apply social and emotional skills including self-awareness, social awareness, self-management, relationship skills, and responsible decision making (Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Mental health is broadly considered, "a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community. In

this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community" (World Health Organisation, 2004, p. 12).

The chapters in this thesis refer to early childhood 'teachers' and 'educators'. Acknowledging different terminology is used across countries, unless explicitly noted, both terms are used to capture ECEC professionals working directly with children in a teaching, education, or care role, including ECEC professionals with Bachelor, Diploma and Certificate qualifications. Chapters also refer to studies conducted in both Australian and international settings. In Australia, preschool is generally offered to children in the one to two years before they start formal schooling, involving a qualified teacher leading structured, play-based learning programs. It is important to note different states and territories use different terminology to describe preschool services. In Victoria for example, preschool is often called 'Kindergarten' and the first year of formal education is called 'Foundation' or 'Prep' while in New South Wales, the first year of schooling is called 'Kindergarten'. Similarly, in the United States, the first year of elementary school is termed 'Kindergarten', and preschool services may be described as 'Pre-K' programs.

1.2 Social and Emotional Development in Early Childhood

Children's social and emotional competencies develop rapidly in early childhood. During their preschool years, children learn to understand and regulate emotion, attention, and behaviour, equipping them to form pro-social relationships and engage with peers and teachers when they commence school (Denham & Brown, 2010; Institute of Medicine and National Research Council, 2015). In contrast, difficulty navigating early social-emotional milestones can hinder a child's emotional regulation, social behaviour, and school readiness (Bornstein, Hahn, & Haynes, 2010; Denham, 2006; Fantuzzo, Bulotsky, McDermott, & Lutz, 2003; OECD, 2015).

Social-emotional competence is a multifaceted concept based on emotional, cognitive, and behavioural knowledge and skill (Domitrovich, Cortes, & Greenberg, 2007). Scholars often suggest domains of development and discrete skills that sit within each (Campbell et al., 2016; Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). Denham and colleagues (2009) propose social competence, emotional competence, attachment, self-perceived competence, and temperament/personality singly and additively predict positive outcomes from infancy to young adulthood. Another conceptual model includes three distinct but overlapping domains of cognitive, emotional, and social skill (Jones & Bouffard, 2012). Based on a review of social-emotional domains most often captured in theoretical models, Halle and Darling-Churchill (2016) offer social competence, emotional competence, self-regulation, and behaviour problems as central to understanding and assessing child development. Executive functioning is increasingly included as a distinct but related dimension, referring to the cognitive processes that enable children to organise their thinking and behaviour, facilitating self-regulation and learning (Bierman & Motamedi, 2015; Bierman, Torres, Domitrovich, Welsh, & Gest, 2009; Blair, 2002; Jones & Bouffard, 2012).

Broadly, social competence refers to the ability to form and maintain positive interpersonal relationships, and emotional competence describes the capacity to express emotions, understand the feelings of self and others, and regulate emotional responses (Bierman & Welsh, 2000; Denham, 1998; Denham, Ferrier, Howarth, Herndon, & Bassett, 2016; Saarni, 1999). Interaction between the social, emotional, and self-regulatory dimensions of development are evident across early childhood. Rudimentary social-emotional skills emerge in the first year of life when a secure attachment between infant and caregiver encourages a child to feel safe and explore the social world. An adult who responds to the child with sensitivity and warmth provides a model for competent social interaction on which to build future relationships (Cassidy & Shaver, 2008). From toddlerhood, the child's

ability to understand emotions typically develops in a linear fashion (Izard, Trentacosta, King, & Mostow, 2004). The increasing capacity to recognise, differentiate, and label emotions encourages the child to bring feelings to consciousness, in turn enabling self-regulation and empathy to the feelings of others (Denham, 1998). This early understanding of affect assists the child to form positive relationships and work with peers to solve problems (Denham & Burton, 1996).

1.3 Social and Emotional Challenges in Early Childhood

A comprehensive approach to understanding and describing children's social-emotional development should include assessment of both social and emotional strengths, as well as behaviours that reflect poor regulation and emotional problems (Campbell et al., 2016). Social-emotional difficulties that emerge during early childhood can be persistent over time (Carter, Briggs-Gowan, & Davis, 2004; Gardner & Shaw, 2008), and contribute to oppositional behaviours, attention difficulties, and emotional problems between birth and five years (Carter et al., 2004; Denham et al., 2009; Gardner & Shaw, 2008; Sroufe, 2009). Longitudinal data show these are key risk factors that can mark the beginning of escalating academic challenges and antisocial behaviour during middle childhood and adolescence (Aviles, Anderson, & Davila, 2006; Smart et al., 2005), long-term maladaptive outcomes including depression, obesity, diabetes and heart disease, lower rates of tertiary education, and reduced vocational opportunities (Institute of Medicine and National Research Council, 2015; OECD, 2015).

It is estimated 9.5% to 14.2% of children aged zero to five years will experience serious emotional and behavioural disturbance (Brauner & Stephens, 2006), with rates higher in children from disadvantaged backgrounds (Huaqing Qi & Kaiser, 2003). Further, accumulating evidence suggests mental disorders traditionally identified in primary school-

aged children can emerge in the preschool years (Atladottir et al., 2015; Bayer et al., 2012; Carter et al., 2010; Egger & Angold, 2006; Merikangas, Nakamura, & Kessler, 2009). In Australia, for example, 13.6% of children aged 4 to 11 years meet diagnostic criteria for a mental health disorder (encompassing anxiety disorder, major depressive disorder, attention deficit hyperactivity disorder, and conduct disorder) (Lawrence et al., 2015).

1.4 Risk Factors for Children's Social-Emotional Development

Low socioeconomic status (SES) is an important predictor of delayed social-emotional and behavioural functioning (Huaqing Qi & Kaiser, 2003; Kiernan & Huerta, 2008; Shonkoff & Phillips, 2000; West, Denton, & Reaney, 2001; Yoshikawa, Aber, & Beardslee, 2012). It has been suggested that SES influences social-emotional and behavioural outcomes through both social causation (SES leads to variations in functioning, e.g., parental SES and family stress influence the level of emotional and material support provided to offspring, influencing problem behaviour) and social selection (individual differences influence SES and health and wellbeing, e.g., parental adolescent problems predict later SES, family stress and parental emotional investment, as well as offspring problem behaviour) (Martin et al., 2010).

Financial disadvantage is often associated with other parental and family risk factors that may negate a caregiver's ability to nurture their child's development. For example, postnatal maternal anxiety has been associated with behavioural problems and child psychopathology in early childhood (Glasheen, Richardson, & Fabio, 2010) and maternal postnatal depression has been shown to relate negatively to children's emotional outcomes at age three (Kiernan & Huerta, 2008) and behavioural problems at age two (Avan, Richter, Ramchandani, Norris, & Stein, 2010). Exposure to inter-parental violence can lead to disruption in preschoolers' psychosocial functioning (Kitzmann, Gaylord, Holt, & Kenny,

2003). Parenting stress, parenting behaviours and insecure attachment histories can also influence social-emotional development and behavioural problems (Anthony et al., 2005; Groh, Fearon, van IJzendoorn, Bakermans-Kranenburg, & Roisman, 2017), in addition to individual factors such as genetics, temperament, physical health and cognitive functioning (Bayer et al., 2011; Goldfeld, Kvalsvig, Incledon, O'Connor, & Mensah, 2014).

1.5 Early Childhood Education and Care in Australia

Socio-ecological perspectives of child development (Bronfenbrenner & Morris, 2006) offer a framework to review the multiple environments and interactions in which child development occurs. While family is recognised as the first and foremost influence on children's wellbeing, other individuals, such as early childhood educators, can play an important role in supporting their success. This is corroborated by a robust body of research evidence that shows participation in high-quality ECEC can improve the social, emotional, and cognitive skills that support positive developmental trajectories (Barnett, 2011; Camilli et al., 2010; Oberklaid et al., 2013). This is especially evident for children experiencing economic disadvantage (Duncan & Sojourner, 2013), where ECEC can help lessen social equity gaps and facilitate workforce participation (Early Learning: Everyone Benefits, 2019).

In Australia, ECEC includes both childcare and preschool services. Childcare programs provide education and care to children from birth to 12 years through long day-care, family day-care, outside school hours care, and occasional care. Preschool involves a qualified teacher leading structured, play-based learning programs for children in the one to two years before they commence school (Early Learning: Everyone Benefits, 2019). In 2018, 55.1% of two year olds, 62.2% of three year olds, 55.2% of four year olds and 36.8% of five year olds attended childcare services (Australian Government Productivity Commission, 2019), while 86% of children aged four years and 21% aged five years were enrolled in a

preschool program (Australian Bureau of Statistics, 2019).

Recognition of the importance of ECEC is reflected in Australian Government policy and guidelines. Australian ECEC providers operate under the National Quality Framework (Australian Children's Education & Care Quality Authority, 2012), incorporating national law and regulations, the National Quality Standard, the assessment and quality rating process, and learning frameworks including Being, Belonging, Becoming: Early Years Learning Framework 2009 (EYLF; Department of Education Employment and Workplace Relations [DEEWR], 2009). The EYLF defines the principles and practices to deliver quality early childhood curriculum to children from birth to five years. 'Curriculum' in the EYLF encompasses all experiences, routines and events that take place in the ECEC environment, both planned and unplanned, with a strong focus on social, emotional, communication, and language skills. Five learning outcomes describe the expectations for children: that they have a strong sense of identity, are connected with and contribute to their world, have a strong sense of wellbeing, are confident and involved learners, and effective communicators. Principles that underpin educator practice are also specified; these include: secure, respectful and reciprocal relationships, partnerships, high expectations and equity, respect for diversity, and ongoing learning and reflective practice. Additionally, the framework highlights pedagogical practices that promote children's learning including adopting holistic approaches, responsivity to children, intentional teaching, creating physical and social learning environments, planning and implementing learning through play, and assessing and monitoring learning to support developmental outcomes (DEEWR, 2009).

The Victorian Early Years Learning and Development Framework: For All Children from Birth to Eight Years (VEYLDF; Department of Education and Training, 2016) also reflects the important role that early childhood educators play in supporting children's development and wellbeing. The VEYLDF informs the practice of Victorian professionals

working with young children. It is aligned to the pedagogy of the EYLF, sharing the five learning outcomes, while also linking to the first three levels of the Victorian Curriculum F - 10 (the first formal year of schooling – Year 10, the third last year of secondary/high school) (Victorian Curriculum and Assessment Authority, 2015). Child-centered and integrated teaching approaches facilitate knowledge and skill acquisition while recognising children learn at different rates, in different ways and at different times. Specifically, the VEYLDF describes learning through child-directed play (the child leads the learning through exploration, investigation, and imagination), guided play and learning (the educator is involved in play and responds to spontaneous learning opportunities) and adult-led learning (the educator directs and structures the learning experience by introducing a concept for exploration, providing instruction and setting boundaries). Contemporary knowledge of early social and emotional development underpins this learning and development philosophy.

1.6 Fostering Healthy Development in Early Childhood Education and Care

ECEC programs are often defined by process and structural quality components (Howes et al., 2008; Sylva et al., 2006). Process quality refers to the proximal-level interactions and emotional, organisational and instructional support offered within the program. Structural quality includes educator-to-child ratio, space, resources, staff qualifications, programmes and curricula. Research indicates educator-child interactions (an indicator of process quality) are particularly vital in promoting children's social and emotional functioning (Early, Pan, Maxwell, & Ponder, 2017; Howes et al., 2008; Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). However, studies across countries highlight that many children are not consistently exposed to the quality of interactions required for healthy development (Early et al., 2007; Hamre, 2014; Justice, Mashburn, Hamre, & Pianta, 2008; Pianta, Barnett, Burchinal, & Thornburg, 2009; Stuck, Kammermeyer, & Roux, 2016).

In Australia, the Effective Early Education Experiences for Kids (E4Kids) Study followed over 2,500 children aged three to four years attending early childhood learning services (Tayler, 2016). This longitudinal study found the quality of educator-child interactions had a significant impact on children's achievement after controlling for their home learning environment, child and community characteristics, and family SES. Researchers also reported that while educators generally provided high levels of emotional support and moderate levels of room organisation to encourage children's learning and participation, they offered lower levels of intentional teaching across service types. Intentional teaching (also referred to as Instructional Support) includes fostering children's understanding of concepts through analysing, creating and integrating knowledge, relating to the child's world, bi-directional exchanges using scaffolding and encouragement, promoting children's thinking, and role-modelling language through deliberate and reciprocal conversations (Tayler, 2016).

1.7 Social and Emotional Learning in ECEC Settings

Social and Emotional Learning (SEL) is an approach that relies on both high-quality teacher-child interactions and pedagogy to encourage children's social and emotional skill growth through teaching, modelling and practice. The Collaborative for Academic, Social and Emotional Learning (CASEL) describes SEL as the acquisition and application of knowledge and skills across five areas of social-emotional competence: self-awareness, social awareness, self-management, relationship skills, and responsible decision-making (Weissberg et al., 2015). SEL encompasses various approaches including explicit social-emotional skill instruction through structured lessons, teaching practices that promote cooperation and prosocial behaviour, integration within a wider pedagogy and curricula, and promotion of SEL as a centre-wide initiative (Bierman & Motamedi, 2015). Programs can be delivered to

all children within the group, or may target children with social, emotional or behavioural challenges. SEL approaches are often described as explicit or implicit. Interventions that focus primarily on changing the quality of educator-child interactions, modifying the room environment or processes, or introducing different ways to structure peer interactions have an *implicit* focus on SEL. Explicit programs typically emphasise curriculum-based methods, targeting social and emotional skills through instructional practices (Weissberg et al., 2015).

There are several reasons why SEL intervention in preschool may be particularly beneficial. Importantly, SEL may play a role as an early intervention or prevention approach for children experiencing behavioural difficulties, economic vulnerability or other risk factors. In addition, neuroscience research indicates SEL has unique leverage for children aged three to six years when language and executive functions are rapidly developing (Blair, 2002; Riggs, Jahromi, Razza, Dillworth-Bart, & Mueller, 2006). Finally, SEL intervention in preschool targets an age when children are especially receptive to external guidance and support (Bierman & Motamedi, 2015).

1.7.1 Theoretical Foundations of SEL Programming

SEL programs in ECEC settings vary in the degree to which they target behavioural, cognitive, and/or emotional skills, and may be underpinned by knowledge of social cognition, emotional and/or motivational processes, and self-regulation (Bierman & Motamedi, 2015). The SEL programs described below were developed in the United States.

Social Cognition

Most early childhood SEL programs are built upon social learning theory (Bandura, 1969; Bandura, 1971) which explains how children learn social behaviour through experience, observation, imitation, instruction, and reinforcement. As children learn how to

relate to others and manage their emotions, they apply these strategies in new situations. In early childhood, family-child relationships are the primary source of learning experiences and a significant body of research shows intervention directed towards improving parenting behaviour benefits child behaviour (e.g., Bakermans-Kranenburg, van Ijzendoorn, & Juffer, 2003; de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, 2008; DeGarmo, Patterson, & Forgatch, 2004; Reid, Webster-Stratton, & Beauchaine, 2001). SEL programs posit that early childhood educators can similarly provide social skills instruction, modeling, and feedback with opportunity for practice and rehearsal resulting in social-emotional skill development that can be generalised beyond the ECEC classroom.

The social information processing (SIP) model (Crick & Dodge, 1994) also focuses on the role of cognitive processes in social behaviour, however does so by addressing the covert thinking that links social perception, social goals and social problem-solving (Bierman & Motamedi, 2015). According to SIP, a child's ability to identify social problems, generate and evaluate potential options, and select a pro-social response underpins adaptive social functioning. Difficulty with social information processing may lead the child to misinterpret social cues and react in a way that puts them at increased risk of problematic behaviour (Crick & Dodge, 1994; Pakaslahti, 2000; Quiggle, Garber, Panak, & Dodge, 1992). As a result, children are more likely to engage in maladaptive social behaviour that can provoke negative reactions from others, therefore reducing their potential for reinforcing, socially beneficial interactions.

An example of a SEL program based in social cognitive theory is I Can Problem Solve (ICPS, Shure 2001). This universal intervention for children from Pre-k to Grade 5 focuses on interpersonal cognitive problem-solving skills. The program considers children's thought processes to be more important than their belief system in determining behaviour, and therefore focuses on teaching children how to think, generate solutions, anticipate

consequences and solve interpersonal problems, rather than teaching specific solutions to specific problems (Boyle & Hassett-Walker, 2008). Content is delivered by the classroom teacher through 59 structured lessons in the pre-K version and 83 lessons in the Kindergarten program, each taking around 20 minutes to complete. Within each lesson, key concepts are introduced, followed by explicit skill instruction that is supported by dialoguing, pictures, puppets, drama and role-play. Educators are encouraged to embed learning from the program into the daily classroom practice, and parents are provided strategies and activities that can be applied at home.

Emotions Based Approaches

SEL programs may also emphasise emotional development implicitly through the educator-child relationship, and explicitly through lesson-based content focused on emotional knowledge and skill. Ecological systems theory suggests the presence of a nurturing educator-child relationship can influence SEL outcomes (Bronfenbrenner & Morris, 2006). Notwithstanding the importance of a child's attachment to their primary caregiver, young children can benefit from emotional bonds with other caregiving adults who are nurturing and consistent (Reis, Collins, & Berscheid, 2000). The sense of security instilled through these relationships encourages the child to manage their emotional responses, demonstrate empathy and care towards others and initiate social interactions (Denham & Burton, 2003). Research shows the early educator-child relationship can have important implications for the child over time. For example, in a study involving over 240 pre-kindergarten programs, Burchinal et al. (2008) reported sensitive and stimulating interactions between educator and child predicted the acquisition of language, pre-academic, and social skills. As such, most SEL programs recognise that the quality of the educator-child relationship is imperative in creating a learning environment that fosters social, emotional and behavioural development.

In differential emotions theory, Izard and Malatesta (1987) proposed social experiences shape a child's social-emotional skills by improving their ability to recognise internal and external cues associated with differentiated emotions, and promoting ability to discuss feelings. Izard described an emotional experience as the interaction between neurobiological arousal, cognitive inference and verbal labeling processes. A child's ability to regulate their emotions is therefore dependent on the connections between emotional affect and their linguistic and cognitive control systems (Izard et al., 2008; Izard et al., 2004). Detrimental behavioural outcomes can result when emotional feelings are connected with maladaptive thoughts and actions, or when a child's explicit and implicit emotional knowledge is influenced by child or contextual factors that contribute to inaccurate or biased emotional perception (Izard et al., 2008).

The Emotions Course is a teacher-led, emotions-centred intervention based on differential emotions theory that targets children's understanding, regulation and use of discrete emotions. It was developed for low-income pre-schoolers attending Head Start centres (early childhood education services provided to low-income children and families in the United States) and focuses on four emotions: happiness, sadness, anger, and fear, with 22 lessons delivered once a week. The lessons are designed to help children identify cues to recognise and label these emotions, as well as develop self-regulation strategies. Lesson methods included puppet vignettes illustrating emotion-eliciting events, emotion expressions, discussion about emotions, and emotion utilisation, using posters, games, and interactive story-books (Izard et al., 2008; Izard et al., 2004).

Focus on Self-Regulation

The skills that indicate school readiness (e.g., the ability to organise thinking, goal setting, attention, motivation, and self-regulated behaviour) are heavily reliant on executive

regulatory systems (Blair, 2002; Riggs et al., 2006). A recent review of research and theory suggests self-regulation and school readiness are the result of both biological and behavioural development (Blair & Raver, 2015). The developmental psychobiologic approach proposes individual differences in temperament reflect the give and take between biologically-based tendencies and regulation evident through behaviour strategies and attention (Rothbart & Posner, 2000). Children are therefore school ready when they are able to manage this attention to enable sustained engagement in learning activities (Blair & Raver, 2015). To date, there has been limited research on the links between SEL and executive functioning. Increasingly however, SEL programs are putting greater emphasis on self-regulation and the ways in which learning experiences that promote executive functioning, self-regulation, and school readiness can be embedded within SEL approaches (Bierman & Motamedi, 2015).

Tools of the Mind is a pre-kindergarten and kindergarten program that is embedded into the classroom. Adopting a comprehensive system of activities, educators take an active role in supporting children to develop the mental "tools" (cultural-based and symbolic text or graphics) to help children manage their own psychological functioning, including their perception, memory, and attention. The curriculum includes 40 activities, each designed to teach self-regulation and promote early literacy and math skill. The program focuses on mature dramatic play, self-regulatory private speech, and encourages the use of external aids to facilitate attention and memory (Barnett et al., 2008).

1.8 Emerging Evidence for SEL in ECEC

The benefits of SEL intervention in school settings have been extensively examined and established in recent decades (Durlak, Weissberg, Dymnicki, Taylor, and Schellinger, 2011). Increasingly, attention has turned to the potential for SEL intervention in the preschool environment (Bierman & Motamedi, 2015). Intervention programs with demonstrated

efficacy targeting social-emotional skill development in preschool were reviewed by McCabe and Altamura (2011). Whilst the authors acknowledged the potential for long-term outcomes, they suggested further research was needed to identify the practices and approaches that make substantive and lasting impact on social and emotional competence. In a review examining how the intensity and specificity of social-emotional programs impacted children's aggression in ECEC settings, Schindler et al. (2015) found programs with a clear and intensive focus on social-emotional development led to greater reduction in externalising behaviour compared with those without an explicit focus on social-emotional skills.

In contrast, Sabey, Charlton, Pyle, Lignugaris-Kraft, and Ross (2017) reviewed 26 studies examining class-wide social, emotional, and behavioural programs for kindergarten children and found programs focusing on behaviour management strategies, that is, reinforcement, punishing, prompting and manipulating antecedent stimuli, had the greatest impact on increased prosocial behaviour and decreased antisocial behaviour. The authors found social-emotional learning interventions (11 studies) consistently demonstrated weaker effects and lower research quality compared with programs focusing on behaviour, coping or other social-emotional skills (Sabey et al., 2017). Whilst the theoretical argument for SEL intervention in early learning programs is evident, further examination of its impact on children's outcomes is needed and warranted.

1.9 Thesis Rationale

Early childhood is a vital window for social, emotional, and cognitive growth. Recognition of the importance of high-quality ECEC is embedded into early learning policy and developmental frameworks. The E4Kids study highlighted that quality and responsiveness of educator-child interactions are a significant driver of children's development and cognitive growth (Tayler, 2016), and the Victorian Government's Early

Childhood Reform Plan has committed to strengthening quality of service provision, reducing disadvantage, and providing early years services that are inclusive and capable of addressing each child and family's needs (Victorian Government Department of Education and Training, 2017).

There are, however, significant challenges to achieving these goals. Foundation teachers report approximately one in five children commence school at risk (experiencing some challenges) or vulnerable (experiencing a number of challenges and poor overall skills) due to social or emotional difficulties (Australian Early Development Census, 2018). High-quality ECEC programming is reliant on the availability of qualified and supported educators, yet turnover is estimated to be between 30 and 50% (Early Learning: Everyone Benefits, 2019). Further, pre-service qualifications, level of experience, and professional development vary substantially across the sector (Social Research Centre, 2014), and most educators are not exposed to systematic training in how to support children's social and emotional learning (Bierman & Motamedi, 2015). While there has been significant progress in the identification and development of evidence-based practices to support children's social and emotional development, evidence of high-fidelity implementation is limited (Center on the Developing Child, 2016; Metz & Bartley, 2012). It is anticipated a multi-disciplinary approach that combines: (i) theory and evidence-based decision making; (ii) the insight and perspective of educators and the broader community; and (iii) a focus on implementation science principles will go some way to addressing this challenge (Konings, Seidel, & van Merrienboer, 2013; Penuel, Fishman, Cheng, & Sabelli, 2011).

1.10 Intervention Mapping Methodology

Intervention Mapping (IM) is a program planning, implementation and evaluation framework underpinned by theoretical and evidence-based decision making, a participatory-

based research approach to ensure program development is based on input and involvement from a wide range of stakeholders, and ecological perspective that explicitly addresses individual, interpersonal, community, and societal influences on behaviour and health outcomes (Bartholomew Eldredge et al., 2016). IM has has been applied extensively to design health-related behaviour change programs (Bartholomew Eldredge et al., 2016) and more recently adopted to guide the development of educational curricula (e.g. Kraag, Kok, Abu-Saad, Lamberts, & Fekkes, 2005; Newby, Bayley, & Wallace, 2011; Schutte et al., 2016; Stewart, Campbell, & Wheeler, 2016).

The IM framework describes a six-step iterative process where each step builds on the decisions and products produced in the preceding steps (Bartholomew Eldredge et al., 2016). As shown in Figure 1.1, Step 1 (Logic Model of the Problem) includes the establishment of an intervention design group who provide input and expertise throughout the process, and a full examination of the problem through an epidemiologic, behavioral, and social analysis of the target group. In Step 2 (Program Outcomes and Objectives), who and what will change to prevent the problem is defined. Change matrices are created by identifying program outcomes ("what will change as a result of the program?"), performance objectives for each outcome ("what does someone need to do to accomplish this outcome?") and determinants of each performance outcome based on theory and empirical evidence. Matrices are formed by cross-tabulating performance objectives with determinants and creating a change objective ("what are the specific goals to be achieved as a result of the intervention?") for each relevant cell.

In Step 3 (theory-based methods and practical applications) the theoretical methods and strategies that will achieve the change objectives are identified. The scope, sequence and content of program components, materials and protocols are created, trialed and refined in Step 4 (Program Production), and a plan for implementation established in Step 5

(Implementation Plan). Finally, Step 6 (Evaluation Plan) guides the creation of an evaluation

approach. At this point, the program is implemented and indicators assessed.
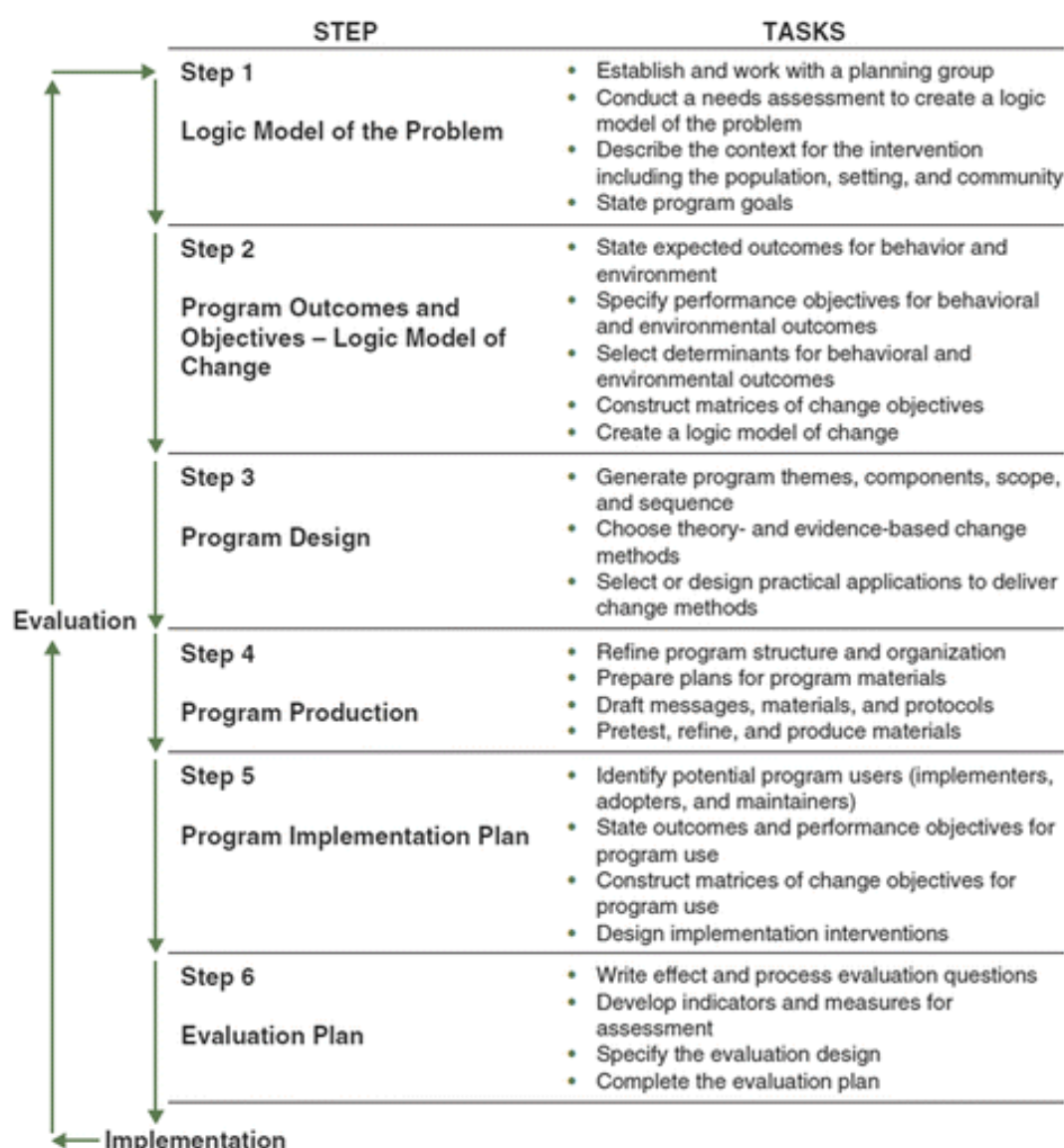
Figure 1.1. Intervention Mapping Steps (Bartholomew Eldredge et al., 2016).

1.11 Thesis Aims and Outline

The overall aim of this thesis was to use IM methodology to co-design, implement,

and evaluate a pedagogical intervention, the Cheshire Social-Emotional Engagement and

Development (SEED) Educational Program, to support positive mental health (i.e., social and

emotional development and health) in preschoolers. This research, therefore, seeks to address

an important public health issue through the lens of early childhood by integrating health and education perspectives.

The thesis is comprised of a series of published peer reviewed studies and studies that have been submitted for peer review, aligned to the steps of the Intervention Mapping Framework (Figure 1.2). Chapter Two includes a position paper (published in *Evaluation and Program* Planning) offering a rationale for using IM to develop ECEC interventions to address children's social and emotional development. This chapter also describes the formation of a multi-disciplinary intervention design group, including the industry partners bestchance Child Family Care ('bestchance' is deliberately not capitalised throughout this thesis) and The Cheshire School who collaborated in the research and development of the intervention.

The findings of a comprehensive needs assessment are captured in Chapters Three, Four and Five. The response-to-intervention model was used as a framework to review the availability and outcomes associated with SEL programs delivered at a class-wide level, and interventions offered to children with social, emotional or behavioural challenges. Chapter Three includes the following four publications: (i) systematic literature review and meta-analysis examining the social, emotional, and early learning outcomes associated with universal (Tier 1) curriculum-based SEL programs delivered to children aged two to six years in ECEC settings (published in *JAMA Network Open*); (ii) systematic literature review examining the effectiveness of universal (Tier 1) SEL programs on educator outcomes, including teaching quality and practice (submitted to *International Journal of Environmental Research and Public Health*); (iii) systematic literature review examining the effectiveness of targeted (Tier 2) SEL programs on child outcomes (published in *Early Child Development and Care*); and (iv) a narrative review to explore the breadth and benefits of educator-led

(Tier 3) SEL intervention delivered to children with mental health or developmental challenges in inclusive ECEC settings (published in *Early Child Development and Care*).

Chapter Four offers a qualitative analysis based on key informant interviews and focus group discussions with early childhood educators and other early childhood professionals (submitted to *Early Childhood Education Journal*); this study sought to ascertain participants' knowledge of children's social and emotional development in early childhood, approaches or strategies to support children's social and emotional development, enablers that support knowledge and skills, perceived barriers to SEL, and potential pathways to overcome these barriers.

A conceptual model that was developed to synthesise the learning from the needs assessment, and inform the intervention design process, is presented in Chapter Five (published in *Early Child Development and Care)*. This model describes the relationship between educator attributes, educator-child interactions, social-emotional learning, and children's social, emotional and cognitive outcomes, providing a framework to develop a program that targets the quality and intentionality of teacher-child interactions.

Chapter Six describes the development of the Cheshire SEED Educational Program, based on Steps 1 to 5 of the IM protocol (submitted to *International Journal of Environmental Research and Public Health*). It also summarises the content, resources and materials included in the Cheshire SEED approach. Chapter Seven describes the pre-testing of the program, and Chapter Eight, a feasibility evaluation that examined the impact of the Cheshire SEED intervention on educators' relationship with children, positive and negative educator-child interactions, self-efficacy, and beliefs with regards to fostering social-emotional skills within the playroom. This pilot study also explored the feasibility of implementing the program by analysing the resources and capabilities required, the acceptability and suitability of the program, educators' experiences in applying the strategies

during their interactions with children, and experiences of those delivering the coaching component.

Chapter Nine translates the learning from this research project into the broader research and practice context by proposing SEL in ECEC settings as a public health approach. Finally, Chapter Ten provides a summary and general discussion of the findings of this thesis, the limitations of the studies conducted, and future directions enabled by this body of work.

CHAPTER	CONTENT	KEY FINDINGS
Chapter 1	Introduction: Background, aims and research significance	There is a need for pedagogical intervention to support preschoolers' social and emotional development.
Chapter 2	Intervention Planning: IM and Industry Partner. Paper 1	IM is a suitable methodology to co-design pedagogical interventions focused on children's social and emotional development.
Chapter 3	Needs Assessment: Outcomes associated with Tier 1, Tier 2 and Tier 3 programs. Papers 2,3,4,5	Universal SEL can improve social-emotional competence, self regulation and learning outcomes, and reduce behavioural and emotional challenges. Tier 2 and 3 programs also appear to improve social skill and challenging behaviour, however focus on children with externalising behaviours; very few programs target children with internalising behaviour.
Chapter 4	Needs Assessment: SEL in Victorian ECEC settings. Paper 6	Sector seeks explicit and practical strategies that can be embedded into daily practice and interactions.
Chapter 5	Conceptual model to inform intervention design. Paper 7	A framework to develop a program that targets the quality and intentionality of teacher-child interactions.
Chapter 6	Detailed description of intervention. Paper 8	Content, techniques and strategies presented through an online interactive portal.
Chapter 7	Pre-testing program concept and materials	Intervention improved based on feedback.
Chapter 8	Design-based research to examine whether the intervention is feasible and leads to improvement in educator knowledge, skill and practice	Educators reported intervention was feasible and beneficial. Feedback informed design and deliver model.
Chapter 9	Broader learning for research and practice	SEL intervention in ECEC offers a public health model to mental health.
Chapter 10	Summary and conclusions, implications for future research	Industry-research collaboration and co-design across disciplines enabled us to address an important public health issue through the lens of early childhood, enhancing the translation of health research to practice. Continued focus on supporting implementation at educator, classroom, service and broader community levels is vital.

Figure 1.2. Overview of Thesis Chapters.

1.12 Chapter References

Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S. (2005). The relationships between parenting stress, parenting behaviour and preschoolers' social competence and behaviour problems in the classroom. *Infant and Child Development: An International Journal of Research and Practice*, *14*(2), 133-154.

Atladottir, H., Gyllenberg, D., Langridge, A., Sandin, S., Hansen, S., Leonard, H., . . . Parner, E. (2015). The increasing prevalence of reported diagnoses of childhood psychiatric disorders: a descriptive multinational comparison. *European Child & Adolescent Psychiatry, 24*(2), 173-183.

Australian Bureau of Statistics. (2019). *Preschool Education in Australia 2018* (Issue 4240.0). Retrieved from https://www.abs.gov.au/ausstats/abs@.nsf/mf/4240.0

Australian Children's Education & Care Quality Authority. (2012). *The National Quality Standard*. Retrieved from https://www.acecqa.gov.au/nqf/national-quality-standard

Australian Early Development Census. (2018). 2018 Early Development Instrument. Retrieved from http://www.aedc.gov.au/data/data-explorer

Australian Government Productivity Commission. (2019). *Report on Government Services 2019: Early childhood education and care*. Retrieved from https://www.pc.gov.au/research/ongoing/report-on-government-services/2019/child-care-education-and-training/early-childhood-education-and-care

Avan, B., Richter, L. M., Ramchandani, P. G., Norris, S. A., & Stein, A. (2010). Maternal postnatal depression and children's growth and behaviour during the early years of life: exploring the interaction between physical and mental health. *Archives of Disease in Childhood*, 95(9), 690–695.

Aviles, A. M., Anderson, T. R., & Davila, E. R. (2006). Child and Adolescent Social-Emotional Development Within the Context of School. *Child and Adolescent Mental Health, 11*(1), 32-39.

Bakermans-Kranenburg, M. J., van Ijzendoorn, M. H., & Juffer, F. (2003). Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*(2), 195-215.

Bandura, A. (1969). *Principles of behavior modification*. New York ; London : Holt, Rinehart and Winston.

Bandura, A. (1971). *Psychological Modeling*. Chicago: Atherton Press.

Barnett, W. S., Jung, K., Yarosz, D. J., Thomas, J., Hornbeck, A., Stechuk, R., & Burns, S. (2008). Educational effects of the Tools of the Mind curriculum: A randomized trial. *Early Childhood Research Quarterly, 23*(3), 299-313.

Bartholomew Eldredge, L. K., Markham, C. M., Ruiter, R. A. C., Fernandez, M. E., Kok, G., & Parcel, G. S. (2016). *Planning health promotion programs: An Intervention Mapping approach* (4th ed.). San Francisco, CA: Jossey-Bass.

Bayer, J. K., Ukoumunne, O. C., Lucas, N., Wake, M., Scalzo, K., & Nicholson, J. M. (2011). Risk factors for childhood mental health symptoms: National Longitudinal Study of Australian Children. *Pediatrics, 128*(4), e865-e879.

Bayer, J. K., Ukoumunne, O. C., Mathers, M., Wake, M., Abdi, N., & Hiscock, H. (2012). Development of children's internalising and externalising problems from infancy to five years of age. *Australian and New Zealand Journal of Psychiatry, 46*(7), 659-668.

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on Social and Emotional Learning: Research and Practice*. New York: The Guilford Press.

Bierman, K. L., Torres, M. M., Domitrovich, C. E., Welsh, J. A., & Gest, S. D. (2009).

    Behavioral and Cognitive Readiness for School: Cross-domain Associations for

    Children Attending Head Start. *Social Development, 18*(2), 305-323.

Bierman, K. L., & Welsh, J. A. (2000). Assessing Social Dysfunction: The Contributions of

    Laboratory and Performance-Based Measures. *Journal of Clinical Child Psychology,*

    29(4), 526-539.

Blair, C. (2002). School readiness: Integrating cognition and emotion in a neurobiological

    conceptualization of children's functioning at school entry. *American Psychologist,*

    57(2), 111-127.

Blair, C., & Raver, C. C. (2015). School readiness and self-regulation: A developmental

    psychobiological approach. *Annual review of psychology, 66*, 711-731.

Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science, 333*(6045),

    975-978.

Bornstein, M. H., Hahn, C. S., & Haynes, O. M. (2010). Social competence, externalizing,

    and internalizing behavioral adjustment from early childhood through early

    adolescence: Developmental cascades. *Development and Psychopathology, 22*(4),

    717-735.

Boyle, D., & Hassett-Walker, C. (2008). Reducing overt and relational aggression among

    young children: The results from a two-year outcome evaluation. *Journal of School*

    Violence, 7(1), 27-42.

Brauner, C. B., & Stephens, C. B. (2006). Estimating the prevalence of early childhood

    serious emotional/behavioral disorders: Challenges and recommendations. *Public*

    Health Reports, 121(3), 303-310.

Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human

    Development. In R. M. Lerner, W. Damon, R. M. Lerner, & W. Damon (Eds.),

Handbook of Child Psychology (6th ed.): Vol 1, Theoretical models of human development. (pp. 793-828). Hoboken, NJ, US: John Wiley & Sons Inc.

Burchinal, M., Howes, C., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Predicting child outcomes at the end of kindergarten from the quality of pre-kindergarten teacher–child interactions and instruction. *Applied Development Science, 12*(3), 140-153.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-Analysis of the Effects of Early Education Interventions on Cognitive and Social Development. *Teachers College Record, 112*(3), 579-620.

Campbell, S. B., Denham, S. A., Howarth, G. Z., Jones, S. M., Yudron, M., Whittaker, J. V., . . . Darling-Churchill, K. (2016). Commentary on the review of measures of early childhood social and emotional development: Conceptualization, critique, and recommendations. *Journal of Applied Developmental Psychology, 45*, 19-41.

Carter, A. S., Briggs-Gowan, M. J., & Davis, N. O. (2004). Assessment of young children's social-emotional development and psychopathology: recent advances and recommendations for practice. *Journal of Child Psychology and Psychiatry, 45*(1), 109-134.

Carter, A. S., Wagmiller, R. J., Gray, S. A. O., McCarthy, K. J., Horwitz, S. M., & Briggs-Gowan, M. J. (2010). Prevalence of DSM-IV Disorder in a Representative, Healthy Birth Cohort at School Entry: Sociodemographic Risks and Social Adaptation. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(7), 686-698.

Cassidy, J., & Shaver. (2008). Handbook of Attachment: Theory, Research, and Clinical Applications (3rd ed.). Guilford Press, New York.

Center on the Developing Child. (2016). *From Best Practices to Breakthrough Impacts: A Science-Based Approach to Building a More Promising Future for Young Children*

and Families. Cambridge, MA: Harvard University, Center on the Developing Child.

Retrieved from https://developingchild.harvard.edu/resources/from-best-practices-to-

breakthrough-impacts/

Center on the Social Emotional Foundations for Early Learning. (2008). *Module 1 Handout*

1.2 Definition of Social Emotional Development. Retrieved from

http://csefel.vanderbilt.edu/resources/inftodd/mod1/1.7.pdf

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-

processing mechanisms in children's social adjustment. *Psychological Bulletin,*

115(1), 74-101.

de Graaf, I., Speetjens, P., Smit, F., de Wolff, M., & Tavecchio, L. (2008). Effectiveness of

the triple P positive parenting program on behavioral problems in children: A meta-

analysis. *Behavior Modification, 32*(5), 714-735.

DeGarmo, D. S., Patterson, G. R., & Forgatch, M. S. (2004). How Do Outcomes in a

Specified Parent Training Intervention Maintain or Wane Over Time? *Prevention*

Science, 5(2), 73-79.

Denham, S. A. (1998). *Emotional development in young children*: New York : Guilford

Press.

Denham, S. A. (2006). Social-Emotional Competence as Support for School Readiness: What

Is It and How Do We Assess It? *Early Education and Development, 17*(1), 57-89.

Denham, S. A., & Brown, C. (2010). 'Plays Nice with Others': Social-Emotional Learning

and Academic Success. Early Education and Development, *21*(5), 652-680.

Denham, S. A., & Burton, R. (1996). A Social-Emotional Intervention for At-Risk 4-Year-

Olds. *Journal of School Psychology, 34*(3), 225-245.

Denham, S. A., & Burton, R. (2003). *Social and emotional prevention and intervention*

programming for preschoolers. New York: Kluwer Academic/Plenum.

Denham, S. A., Ferrier, D. E., Howarth, G. Z., Herndon, K. J., & Bassett, H. H. (2016). Key considerations in assessing young children's emotional competence. *Cambridge Journal of Education, 46*(3), 399-317.

Denham, S. A., Wyatt, T. M., Bassett, H. H., Echeverria, D., & Knox, S. S. (2009). Assessing social-emotional development in children from a longitudinal perspective. *Journal of Epidemiology and Community Health, 63* (Suppl 1), i37-i52.

Department of Education and Training (DET). (2016). *Victorian early years learning and development framework for all children from birth to eight years.* East Melbourne: DET.

Department of Education Employment and Workplace Relations. (2009). *Belonging, being & becoming the early years learning framework for Australia*. Canberra, A.C.T. Retrieved from http://nla.gov.au/nla.arc-109966

Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool 'PATHS' curriculum. *The Journal of Primary Prevention, 28*(2), 67-91.

Duncan, G. J., & Sojourner, A. J. (2013). Can Intensive Early Childhood Intervention Programs Eliminate Income- Based Cognitive and Achievement Gaps? *Journal of Human Resources, 48*(4), 945-968.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*(1), 405-432.

Early Learning: Everyone Benefits. (2019). *State of Early Learning in Australia 2019*. Canberra, ACT: Early Childhood Australia.

Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., ... & Henry, G. T. (2007). Teachers' education, classroom quality, and young children's academic

skills: Results from seven studies of preschool programs. *Child development*, *78*(2), 558-580.

Early, D. M., Pan, Y., Maxwell, K. L., & Ponder, B. B. (2017). Improving teacher-child interactions: A randomized controlled trial of making the most of classroom interactions and My Teaching Partner professional development models. *Early Childhood Research Quarterly*, *38,* 57–70.

Egger, H. L., & Angold, A. (2006). Common Emotional and Behavioral Disorders in Preschool Children: Presentation, Nosology, and Epidemiology. *Journal of Child Psychology and Psychiatry*, 47(3), 313-337.

Fantuzzo, J., Bulotsky, R., McDermott, P., Mosca, S., & Lutz, M. N. (2003). A Multivariate Analysis of Emotional and Behavioral Adjustment and Preschool Educational Outcomes. *School Psychology Review, 32*(2), 185-203.

Gardner, F., & Shaw, D. (2008). Behavioral problems of infancy and preschool children (0-5). In M. Rutter et al. (Eds.), *Rutter's child and adolescent psychiatry* (5th ed., pp. 882–893). Massachusetts: Blackwell Publishing.

Glasheen, C., Richardson, G. A., & Fabio, A. (2010). A systematic review of the effects of postnatal maternal anxiety on children. *Archives of Women's Mental Health*, *13*(1), 61-74.

Goldfeld, S., Kvalsvig, A., Incledon, E., O'Connor, M., & Mensah, F. (2014). Predictors of mental health competence in a population cohort of Australian children. *Journal of Epidemiology and Community Health*, *68*(5), 431–437.

Groh, A. M., Fearon, R. P., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Roisman, G. I. (2017). Attachment in the early life course: Meta-analytic evidence for its role in socioemotional development. *Child Development Perspectives, 11*(1), 70-76.

Halle, T. G., & Darling-Churchill, K. E. (2016). Review of measures of social and emotional

    development. *Journal of Applied Developmental Psychology, 45*, 8-18.

Hamre, B. K. (2014). Teachers' daily interactions with children: An essential ingredient in

    effective early childhood programs. *Child Development Perspectives*, *8*(4), 223–230.

Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O.

    (2008). Ready to learn? Children's preacademic achievement in pre-kindergarten

    programs. *Early Childhood Research Quarterly*, *23*(1), 27–50.

Huaqing Qi, C., & Kaiser, A. P. (2003). Behavior Problems of Preschool Children From

    Low-Income Families: Review of the Literature. *Topics in Early Childhood Special*

    Education, 23(4), 188-216.

Institute of Medicine and National Research Council. (2015). *Transforming the workforce for*

    children birth through age 8: A unifying foundation. Washington, DC: The National

    Academies Press.

Izard, C. E., King, K. A., Trentacosta, C. J., Morgan, J. K., Laurenceau, J.-P., Krauthamer-

    Ewing, E. S., & Finlon, K. J. (2008). Accelerating the development of emotion

    competence in Head Start children: Effects on adaptive and maladaptive behavior.

    Development and Psychopathology, 20(1), 369-397.

Izard, C. E., & Malatesta, C. Z. (1987). Perspectives on emotional development I:

    Differential emotions theory of early emotional development. In J. D. Osofsky & J. D.

    Osofsky (Eds.), *Handbook of infant development, 2nd ed.* (pp. 494-554). Oxford,

    England: John Wiley & Sons.

Izard, C. E., Trentacosta, C. J., King, K. A., & Mostow, A. J. (2004). An Emotion-Based

    Prevention Program for Head Start Children. *Early Education and Development,*

    15(4), 407-422.

Jones, S. M., & Bouffard, S. M. (2012). Social and Emotional Learning in Schools: From Programs to Strategies and commentaries. *Social Policy Report*, 26(4), 1-33.

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early childhood research quarterly*, *23*(1), 51-68.

Kiernan, K. E., & Huerta, M. C. (2008). Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood 1. *The British Journal of Sociology*, *59*(4), 783-806.

Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child witnesses to domestic violence: a meta-analytic review. *Journal of Consulting and Clinical Psychology, 71*(2), 339-352.

Könings, K. D., Seidel, T., & van Merriënboer, J. J. (2014). Participatory design of learning environments: integrating perspectives of students, teachers, and designers. *Instructional Science*, *42*(1), 1-9.

Kraag, G., Kok, G., Abu-Saad, H. H., Lamberts, P., & Fekkes, M. (2005). Development of a stress management programme—Learn Young, Learn Fair—for fifth and sixth formers in the Netherlands using intervention mapping. *International Journal of Mental Health Promotion*, *7*(3), 37-44.

Lawrence, D., Johnson, S., Hafekost, J., Boterhoven de Haan, K., Sawyer, M., Ainley, J., & Zubrick, S. R. (2015). *The Mental Health of Children and Adolescents: Report on the Second Australian Child and Adolescent Survey of Mental Health and Wellbeing*. Canberra, ACT: Australian Government Department of Health.

Malouf, D. B., & Taymans, J. M. (2016). Anatomy of an evidence base. *Educational Researcher*, *45*(8), 454-459.

Martin, M. J., Conger, R. D., Schofield, T. J., Widaman, K. F., Dogan, S. J., Donnellan, M. B., & Neppl, T. K. (2010). Evaluation of the interactionist model of socioeconomic status and problem behavior: A developmental cascade across generations. *Development and Psychopathology, 22*(3), 695-713.

McCabe, P. C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools, 48*(5), 513-540.

Merikangas, K. R., Nakamura, E. F., & Kessler, R. C. (2009). Epidemiology of mental disorders in children and adolescents. *Dialogues in Clinical Neuroscience, 11*(1), 7-20.

Metz, A., & Bartley, L. (2012). Active Implementation Frameworks for Program Success: How to Use Implementation Science to Improve Outcomes for Children. *Zero to Three*, *32*(4), 11-18.

National Scientific Council on the Developing Child. (2007). *The Science of Early Childhood Development: Closing the Gap Between What We Know and What We Do.* Cambridge, MA: Harvard University, Center on the Developing Child. Retrieved from www.developingchild.harvard.edu

Newby, K., Bayley, J., & Wallace, L. M. (2011). "What Should We Tell the Children About Relationships and Sex?": Development of a Program for Parents Using Intervention Mapping. *Health Promotion Practice*, *12*(2), 209-228.

Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: approaches to early identification and intervention. *Archives of Disease in Childhood, 98*(12), 1008-1011.

Odom, S. L. (2009). The tie that binds: Evidence-based practice, implementation science, and outcomes for children. *Topics in Early Childhood Special Education*, *29*(1), 53-61.

Organisation for Economic Co-operation and Development (OECD). (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. Paris: OECD Publishing.

Organisation for Economic Co-operation and Development (OECD). (2019). *Education at a Glance 2019: OECD Indicators*. Paris: OECD Publishing.

Pakaslahti, L. (2000). Children's and adolescents' aggressive behavior in context: The development and application of aggressive problem-solving strategies. *Aggression and Violent Behavior, 5*(5), 467-490.

Penuel, W. R., Fishman, B. J., Haugan Cheng, B., & Sabelli, N. (2011). Organizing research and development at the intersection of learning, implementation, and design. *Educational Researcher*, *40*(7), 331-337.

Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, *10*(2), 49-88.

Ponitz, C. C., Rimm-Kaufman, S. E., Grimm, K. J., & Curby, T. W. (2009). Kindergarten classroom quality, behavioral engagement, and reading achievement. *School Psychology Review*, *38*(1), 102–120.

Quiggle, N. L., Garber, J., Panak, W. F., & Dodge, K. A. (1992). Social information processing in aggressive and depressed children. *Child Development, 63*(6), 1305-1320.

Reid, M. J., Webster-Stratton, C., & Beauchaine, T. P. (2001). Parent Training in Head Start: A Comparison of Program Response Among African American, Asian American, Caucasian, and Hispanic Mothers. *Prevention Science, 2*(4), 209-227.

Reis, H. T., Collins, W. A., & Berscheid, E. (2000). The relationship context of human behavior and development. *Psychological Bulletin, 126*(6), 844-872.

Riggs, N. R., Jahromi, L. B., Razza, R. P., Dillworth-Bart, J. E., & Mueller, U. (2006). Executive function and the promotion of social-emotional competence. *Journal of Applied Developmental Psychology, 27*(4), 300-309.

Rothbart, M. K., & Posner, M. I. (2000). Developing mechanisms of self-regulation. *Development and Psychopathology, 12*(3), 427-441.

Saarni, C. (1999). *The development of emotional competence*: New York: Guilford Press.

Sabey, C. V., Charlton, C. T., Pyle, D., Lignugaris-Kraft, B., & Ross, S. W. (2017). A Review of Classwide or Universal Social, Emotional, Behavioral Programs for Students in Kindergarten. *Review of Educational Research, 87*(3), 512-543.

Schindler, H. S., Kholoptseva, J., Oh, S. S., Yoshikawa, H., Duncan, G. J., Magnuson, K. A., & Shonkoff, J. P. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology, 53*(3), 243-263.

Schutte, L., Van den Borne, M., Kok, G., Meijer, S., & Mevissen, F. E. (2016). Innovatively supporting Teachers' implementation of school-based sex education: developing a web-based coaching intervention from problem to solution. *Journal of Medical Internet Research, 18*(7), e136.

Shonkoff, J. P., & Phillips, D. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

Shure, M. B. (2001). *I Can Problem Solve (ICPS). An Interpersonal Problem-Solving Program (kindergarten/primary grades), 2nd Edition.* Champaign, IL: Research Press.

Smart, D., Richardson, N., Sanson, A., Dussuyer, I., Marshall, B., Toumbourou, J. W.,...

Oberklaid, F. (2005). *Patterns and precursors to adolescent antisocial behaviour: Outcomes and connections*. Melbourne, Australia: Australian Institute of Family Studies.

Social Research Centre. (2014). *2013 National Early Childhood Education and Care Workforce Census Report*. Canberra: Department of Education.

Sroufe, L. A. (2009). The concept of development in developmental psychopathology. *Child Development Perspectives, 3*(3), 178-183.

Stewart, V., Campbell, M., & Wheeler, A. J. (2016). Developing a postgraduate work-based curriculum using an Intervention Mapping Approach. *Studies in Continuing Education*, *38*(3), 318-333.

Stuck, A., Kammermeyer, G., & Roux, S. (2016). The reliability and structure of the Classroom Assessment Scoring System in German pre-schools. *European Early Childhood Education Research Journal*, *24*(6), 873-894.

Sylva, K., Siraj-Blatchford, I., Taggart, B., Sammons, P., Melhuish, E., Elliot, K., & Totsika, V. (2006). Capturing quality in early childhood through environmental rating scales. *Early Childhood Research Quarterly*, *21*, 76–92.

Tayler, C. (2016). *The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs: Overview of findings at 2016*. Melbourne: University of Melbourne.

Victorian Curriculum and Assessment Authority (VCCA). (2015). *Victorian Curriculum F–10.* Melbourne: VCCA.

Victorian Government Department of Education and Training. (2017). *Early Childhood Reform Plan*. Melbourne: Author.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak (Ed.), *Handbook of Social and Emotional Learning*. New York: The Guilford Press.

West, J., Denton, K., & Reaney, L. M. (2001). The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99. *Education Statistics Quarterly*, *2*(4), 25–30.

World Health Organisation. (2004). *Promoting mental health: Concepts, emerging evidence, practice: Summary report.* Geneva: Author.

Yoshikawa, H., Aber, J. L., & Beardslee, W. R. (2012). The effects of poverty on the mental, emotional, and behavioral health of children and youth: implications for prevention. *American Psychologist*, 67(4), 272-284.

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., ... & Zaslow, M. J. (2013). *Investing in our future: The evidence base on preschool education*. New York, NY: Foundation for Child Development.

CHAPTER TWO

Implementation Planning

2.1 Introduction

Chapter One described the importance of social and emotional development in early childhood. It highlighted the need for intervention to support educators to foster children's social and emotional learning in the ECEC environment, and introduced the IM methodology. Chapter Two presents a published position paper which provides the rationale for using IM to design child development and wellbeing programs (Section 2.2). An important task in Step 1 of the IM protocol is the formation of a multidisciplinary intervention design group to provide advice, expertise, and oversight throughout the design process. The Cheshire SEED Educational Program was co-designed with bestchance Child Family Care. A description of the industry partner is provided in Section 2.3 and the intervention design group in Section 2.4.

2.2 Rationale for Intervention Mapping to Design Child Development and Wellbeing Programs

Programs for early learning settings designed using IM methodology have predominately addressed health-related behaviour change (e.g., physical activity, sedentary behaviour, healthy eating). The success of the methodology for these programs suggests it may offer a valuable framework to create programs that target other developmental outcomes. A position paper considered the potential benefits and challenges of the IM approach to develop social and emotional interventions in the ECEC environment. The underlying perspectives of IM, specifically: (i) theory and evidence-informed decision making (where evidence includes both research studies *and* the experience and opinions of

stakeholders); (ii) social-ecological paradigm focusing on the interrelationships between individuals and their environments; and (iii) broad and inclusive community participation are similarly relevant to pedagogical program design. This position paper recommended that IM be utilised to design programs for ECEC settings that promote children's social and emotional development. The paper was led by another researcher (Dr Amanda O'Connor) and published in *Evaluation and Program Planning* in 2018. It is presented in its published format within this thesis.

Contents lists available at ScienceDirect

Evaluation and Program Planning

Using Intervention Mapping for child development and wellbeing programs in early childhood education and care settings

Amanda O'Connor[a], Claire Blewitt[c], Andrea Nolan[b], Helen Skouteris[c],*

[a] *School of Psychology, Deakin University, Geelong, Victoria, Australia*
[b] *Faculty of Arts and Education, Deakin University, Geelong, Victoria, Australia*
[c] *Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University*

ABSTRACT

Supporting children's social and emotional learning benefits all elements of children's development and has been associated with positive mental health and wellbeing, development of values and life skills. However, literature relating to the creation of interventions designed for use within the early childhood education and care settings to support children's social and emotional skills and learning is lacking. Intervention Mapping (IM) is a systematic intervention development framework, utilising principles centred on participatory co-design methods, multiple theoretical approaches and existing literature to enable effective decision-making during the development process. Early childhood pedagogical programs are also shaped by these principles; however, educators tend to draw on implicit knowledge when working with families. IM offers this sector the opportunity to formally incorporate theoretical, evidence-based research into the development of early childhood education and care social and emotional interventions. Emerging literature indicates IM is useful for designing health and wellbeing interventions for children within early childhood education and care settings. Considering the similar underlying principles of IM, existing applications within early childhood education and care and development of interventions beyond health behaviour change, it is recommended IM be utilised to design early childhood education and care interventions focusing on supporting children's social and emotional development.

1. Introduction

Intervention programs for children's social and emotional development and wellbeing are traditionally designed for use within health care settings, parenting programs and community settings (Mortensen & Mastergeorge, 2014; Nores & Barnett, 2010). Many programs targeting children's health have been developed using Intervention Mapping (IM) protocols (Bartholomew Eldredge et al., 2016), however, this approach has not been previously utilised to create children's social and emotional interventions within early childhood education and care (ECEC) settings (preschool, kindergarten, long day care, occasional care, family day care). Therefore, the purpose of this paper is to bring together the existing research and knowledge of children's social and emotional development, the benefits of ECEC, IM protocols, current and emerging IM interventions and the benefits and limitations of using the IM within ECEC settings. We seek to provide developers, researchers and ECEC professionals with an integrated overview of these multi-disciplinary areas to support future development of social and emotional interventions in the ECEC environment.

1.1. Children's social and emotional development

Children's early years (birth to five years) provide a foundation for future growth and opportunities to strengthen cognitive, social and emotional skills (Conti & Heckman, 2013). Fostering children's development and wellbeing during these critical early years has been associated with positive adult health and wellbeing, learning and economic outcomes (Barnett & Frede, 2010; Conti & Heckman, 2013; Jones, Greenberg, & Crowley, 2015). Predictors of future success have been related strongly to characteristics of social and emotional development and include self-discipline, low levels of externalising behaviours, emotional regulation and expression, self-control, perseverance, empathy, conflict resolution, problem solving, goal setting and decision making (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Heckman, 2006; Levin, 2012; Nores & Barnett, 2010). Insufficient levels of social and emotional functioning have been linked to multiple public

---

health problems including substance abuse, obesity and violence (Jones et al., 2015). In general, social and emotional interventions developed for use with young children are reported as beneficial, with research recognising that interventions underpinned by theoretical approaches such as social learning theory, pretend-play, coercion theory and cognitive regulation models are effective in improving children's social-emotional competence, cognitive regulation and literacy and reducing children's problem behaviours and aggression (Domitrovich, Cortes, & Greenberg, 2007; McClelland, Tominey, Schmitt, & Duncan, 2017; Webster-Stratton, Jamila Reid, & Stoolmiller, 2008). However, detailed research specifically focusing on the development of interventions supporting children's social and emotional development is lacking (Nores & Barnett, 2010). This was highlighted by the National Scientific Council on the Developing Child who point to a need for science-based innovation, combining advances in knowledge of early childhood with cross-sector collaboration and co-creation processes, in order to achieve breakthrough outcomes for children (Center on the Developing Child at Harvard University, 2016).

1.2. Early childhood education and care (ECEC)

High quality ECEC has been found to be the most effective early childhood intervention (Oberklaid, Baird, Blair, Melhuish, & Hall, 2013). According to Organization for Economic Cooperation and Development (OECD) data, an average of 78% of 3-year olds across OECD countries are enrolled in early childhood education and 87% of 4-year olds are enrolled in pre-primary education (or primary education in a few countries) (OECD, 2016). Intervention timing is a crucial factor, with earlier implementation increasing the probability of counteracting disadvantage and providing children with enriching and nurturing environments (Conti & Heckman, 2013). Early life experiences, particularly interpersonal relationships, impact brain development, which contributes to children's ability to develop positive social and emotional skills (Shonkoff, Boyce, & McEwen, 2009; Siegel, 2012). Quality interactions between ECEC educators and children have been found to positively influence children's social and emotional development, with significant effects on reducing children's conduct problems, increasing social competence and self-regulation and advanced interactions with other adults and peer play reported (Shonkoff & Phillips, 2000). Multi-disciplinary, broad-based early interventions, such as ECEC services, are well positioned to provide a platform for targeted social and emotional development interventions, utilising the expertise of early years professionals as program facilitators and promoters (Oberklaid et al., 2013). ECEC services have been found to be useful settings to deliver IM developed interventions, nutrition and physical activity programs where the ECEC environment and educators were important agents in encouraging changes in children's behaviour (De Craemer et al., 2014; Manios et al., 2014). Hence, it is possible ECEC educators and professionals can design and deliver social and emotional interventions using IM protocols.

1.3. Intervention Mapping (IM)

IM is a well-established methodology for the development of interventions targeting health-related behaviour change initiatives. Examples include nutrition (Springvloet, Lechner, & Oenema, 2014), obesity prevention (Walthouwer, Oenema, Soetens, Lechner, & De Vries, 2013), children's physical activity (Brug, Oenema, & Ferreira, 2005; De Craemer et al., 2014) and smoking cessation (Brendryen, Kraft, & Schaalma, 2010). Interventions designed using IM protocols are guided by multiple theoretical approaches and empirical evidence to target changes in behaviours and practices. IM systematically guides identification of determinants of behavioural and environmental causes of problems and appropriate change methods, through description of intervention characteristics, implementation and evaluation (Bartholomew Eldredge et al., 2016).

Promotion of health and wellbeing begins in the early years of life and research detailing the impact of early life conditions on long-term health outcomes is robust and scientifically comprehensive (Shonkoff et al., 2009). Use of theoretically driven, scientifically based empirical research and intervention development is routinely used in addressing health outcomes within health promotion and behaviour change settings (Bartholomew Eldredge et al., 2016). Engaging with theories during the intervention development process ensures steps and activities within the intervention are developed using systematically examined and explained bodies of knowledge (Kok, 2014). Incorporating empirical findings into the development process assists with identification of existing interventions, practical strategies, outcomes, evaluations, benefits and limitations (Bartholomew, Parcel, & Kok, 1998). A systematic intervention development approach also ensures key stakeholders are involved collaboratively in the process; multi-disciplinary perspectives help define the issue, intervention goals, strategies and solutions by providing more complex depth of knowledge and expertise (Shonkoff et al., 2009).

2. The Intervention Mapping framework

The IM framework describes a structured, iterative approach to program development, where each stage builds on the preceding decisions and products. Six steps, each comprising several tasks, provide a roadmap for interventions underpinned by theoretical, practical and empirical knowledge, see Fig. 1. (Bartholomew Eldredge et al., 2016). In Step 1 ("needs assessment"), the problem the intervention seeks to address is examined through an epidemiological, behavioural and social analysis of the target population. IM draws on the principles of community-based participatory research and describes the establishment of a planning group consisting of stakeholders who will implement the program and benefit from participation, and broader community members as a critical initial task (Bartholomew Eldredge et al., 2016). The National Institute for Health and Clinical Excellence (2007) advocate this involvement of user, stakeholder and community as vital in creating programs that are relevant and embed the broad ownership needed for long-term sustainability (National Institute for Health and Clinical Excellence, 2007). Bartholomew Eldredge et al. (2016) recommend program designers base their needs assessment on the PRECEDE framework (Green, Kreuter, & Green, 2005). The PRECEDE approach is centred around a logic model of the problem, considering causation at multiple levels (individual, interpersonal, organisational, community and societal) and the multiple determinants of health related-behaviour and environment. To build the logic model, the quality of life and health outcomes associated with the issue are considered at the outset. A behavioural and environmental analysis examines the factors that increase the risk of an individual experiencing the problem, and the personal determinants related to each behaviour and environmental factor are investigated. This assessment generally calls for multiple methods research; program designers may draw upon quantitative and qualitative data including literature reviews, focus groups and surveys. Finally, an assessment of community capacity in relation to the needs assessment is considered and outcome goals established (Bartholomew Eldredge et al., 2016).

In Step 2 ("matrices of change objectives"), who and what needs to change to prevent the problem is defined. Change matrices are created by identifying program outcomes ("what behaviours or environmental conditions will change due to the intervention?"), performance objectives for each outcome ("what does someone need to do to accomplish this outcome?") and the significant and modifiable determinants of each performance outcome based on theory and empirical evidence (Bartholomew Eldredge et al., 2016). Determinants may include perceived norms, attitudes, skills and knowledge, which have been derived from the theoretically-based evidence and identification of stakeholders needs in Step 1, ensuring that the intervention directly targets the relevant issues. A separate matrix is formed for each level of intervention

40

STEP	TASKS
Step 1 **Logic Model of the Problem**	• Establish and work with a planning group • Conduct a needs assessment to create a logic model of the problem • Describe the context for the intervention including the population, setting, and community • State program goals
Step 2 **Program Outcomes and Objectives – Logic Model of Change**	• State expected outcomes for behavior and environment • Specify performance objectives for behavioral and environmental outcomes • Select determinants for behavioral and environmental outcomes • Construct matrices of change objectives • Create a logic model of change
Step 3 **Program Design**	• Generate program themes, components, scope, and sequence • Choose theory- and evidence-based change methods • Select or design practical applications to deliver change methods
Step 4 **Program Production**	• Refine program structure and organization • Prepare plans for program materials • Draft messages, materials, and protocols • Pretest, refine, and produce materials
Step 5 **Program Implementation Plan**	• Identify potential program users (adopters, implementers, and maintainers) • State outcomes and performance objectives for program use • Construct matrices of change objectives for program use • Design implementation interventions
Step 6 **Evaluation Plan**	• Write effect and process evaluation questions • Develop indicators and measures for assessment • Specify the evaluation design • Complete the evaluation plan

Fig. 1. Intervention Mapping Steps.

planning by cross-tabulating performance objectives with determinants and creating a change objective ("what are the specific goals to be achieved as a result of the intervention?") for each relevant cell (Bartholomew Eldredge et al., 2016).

The third step ("theory informed methods and practical applications") focuses on selecting methods and applications capable of changing the determinants and subsequently the change objectives. The change objectives are grouped by determinant and theoretical methods (general techniques or processes capable of influencing change) are identified and selected based on existing empirical evidence and theories of change. The planning group then selects or designs practical applications (specific techniques to apply the theoretical methods) that best fit the situational context (Bartholomew Eldredge et al., 2016).

The scope, sequence and content of program components, materials and protocols are created, trialed and refined in Step 4 (Bartholomew Eldredge et al., 2016). This can be a complex process; interventions are often multifactorial, targeting both behavioural and environmental

agents, and individualised materials may support different components of the program. The involvement of program beneficiaries is especially critical here, both to encourage the creative thinking needed to develop effective program materials and to ensure cultural relevance (Bartholomew Eldredge et al., 2016; Kreuter, Lukwago, Bucholtz, Clark, & Sanders-Thompson, 2003; Resnicow, Baranowski, Ahluwalia, & Braithwaite, 1999).

Step 5 ("program adoption, implementation and sustainability") addresses how the intervention will reach its target audience. The earlier tasks are replicated with a focus on program adoption, implementation and sustainability. Program designers identify potential users of the intervention, create a matrix of change objectives relating to program adoption, implementation and maintenance, identify and select theoretical methods and practical applications to achieve these change objectives and design the scope, sequence and content of materials to encourage program use (Bartholomew Eldredge et al., 2016).

Finally, the logic model and change matrices inform the

development of an evaluation plan, incorporating program outcomes, evaluation questions, indicators and measures. The evaluation design, protocol and resources are defined before the program is implemented and assessed (Bartholomew Eldredge et al., 2016).

3. Feasibility of using IM within ECEC settings

Recognising that IM significantly benefits the development of interventions for health behaviour and promotion within health settings suggests IM may be a promising methodology to consider in the development of early childhood social and emotional interventions within ECEC settings. Working along the same fundamental principles as IM, ECEC programs have been shaped by theoretically diverse frameworks, scientific traditions and multidisciplinary collaborations (Shonkoff & Phillips, 2000). Existing commonalities between IM and ECEC settings include use of socio-ecological approaches, theoretically driven knowledge and collaborative practices.

Firstly, early childhood settings are encouraged to engage in socio-ecological approaches (interaction of personal and environmental factors that influence behaviours and practices) in order to support children's education and care (Australian Government, 2009; Hanafin, Brooks, McDonnell, Rouine, & Coyne, 2009). The socio-ecological model underpinning IM requires intervention planners to acknowledge and explore multiple influences on the different levels – individual, interpersonal, organisation/community and environment. Socio-ecological theories underpin both the care of children in ECEC settings and IM methodologies, with Bronfenbrenner's ecological systems theory often used to explain environmental and interactional influences on children's development and to understand a health problem and its causes (Bartholomew Eldredge et al., 2016; Bronfenbrenner, 1979). Using the same socio-ecological approach may enable IM developers and ECEC professionals to collaborate together, speak the same language and focus on supporting the best possible outcomes for children's social and emotional development.

In addition, the training and practices of early childhood educators are influenced by multiple overlapping theories that address all aspects of a child's development and learning (Nolan & Raban, 2015). Similar to IM developers, pedagogical planners and educators recognise that theories offer a generalisation of the real-world and as such, any one theory is not capable of explaining a real-world problem (Bruunk & Van Vugt, 2008; Kok, Bartholomew, Parcel, Gottlieb, & Fernández, 2014). Whilst educators recognise the importance influence of theories and current empirical research in understanding children's development, they tend to draw on their implicit knowledge when engaging with children and parents; that is they tend to draw on an understanding, intuition or *'knowing'* learnt through repeated exposure to personal and context specific experiences, observations and practices. (O'Connor, Nolan, Bergmeier, Williams-Smith, & Skouteris, 2017). Given that IM encourages a multi-theoretical and evidence-based approach to program design, this may provide educators with the opportunity to incorporate explicit theoretical, evidence-based knowledge into their existing implicit knowledge to create stronger, more relatable and sustainable professional learning and ECEC interventions.

Finally, the iterative nature of IM ensures key stakeholders are involved continuously in a co-design approach, increasing the likelihood that usable, scalable and sustainable programs will be created (Bartholomew Eldredge et al., 2016). Working directly within ECEC settings and encouraging educators to work collaboratively drawing on theoretical perspectives and current evidence during the IM process will ensure interventions are built on a foundation of existing social and emotional development knowledge and connections with children and families in order to promote children's development and wellbeing.

4. Current and emerging IM interventions

4.1. IM in ECEC settings

The IM methodology has informed the development of several ECEC-based programs, focusing on children's eating, physical activity and obesity prevention. Examples include the "Toy-Box Study" in Belgium, Bulgaria, Germany, Greece, Poland and Spain (Androutsos et al., 2014; De Craemer et al., 2014; De Decker et al., 2014; Manios et al., 2014); "Keys to Healthy Family Child Care Homes" in United States of America (Mann et al., 2015); "Join the Healthy Boat" in Germany (Kobel et al., 2017), and "Beastly Healthy at School" in Belgium (Vereecken et al., 2009) With the exception of Vereecken et al. (2009), these studies described their application of the IM protocol, discussed the inclusion of an interdisciplinary stakeholder advisory group, drew on mixed methods research and targeted the intervention across multiple environmental levels. The abovementioned ECEC-based programs reported effectiveness for participating children by reducing sedentary activities (Latomme et al., 2017), improving dietary quality and equilibrium (Pinket et al., 2017), and increasing fruit consumption (Vereecken et al., 2009).

IM provides a clear, transparent and systematic approach to intervention development that is capable of integrating the opinions of stakeholders, including educators and educational leaders, with empirical evidence. Furthermore, the explicit description of goals and action, and an emphasis on evaluation encourages relevance, accountability and transparency within educational systems.

4.2. IM in other education settings

There is emerging evidence suggesting the suitability of IM for interventions that not only target health-related behaviour change, but seek to foster learning, skill growth and improved relationships. Several studies describe the creation of educational pedagogy based on the IM framework. For example, Stewart, Campbell, and Wheeler (2016) developed, delivered and evaluated a praxis-based, online postgraduate mental health curriculum in Australia. Schutte et al. (2016), also in The Netherlands, developed a web-based coaching intervention to support teachers to implement a relationship and sexual health curriculum. Stewart et al. identified the particular value of the IM design principles in the education and learning environment, where curricula can be based on ad-hoc evidence, personal experience and anecdotal knowledge. These newly developed programs require evaluations to determine efficacy. Kraag, Kok, Abu-Saad, Lamberts, and Fekkes (2005) created Learn Young, Learn Fair, a class-based stress management program to help 5th and 6th grade children in The Netherlands with coping strategies. Evaluation of this program found positive effects for children's emotion focused coping, increased stress awareness and reduced symptoms of stress and anxiety (Kraag, Van Breukelen, Kok, & Hosman, 2009).

4.3. IM and relationship-based interventions

Programs that seek to address the parent-child relationship have also benefited from the IM methodology. An early example was the parent education component of 'Padres Trabajando por la Paz', a curriculum-based intervention to reduce and prevent violence among Hispanic middle-school students by targeting parental monitoring (Murray, Kelder, Parcel, & Orpinas, 1998). Murray et al. (1998) notes the IM framework enabled the development of a module that reflected the specific needs, cultural considerations and developmental stage of parents and children and reported increases in parental monitoring. Another program in the United Kingdom, "What Should We Tell the Children About Relationships and Sex?", discussed the value of an empirical and theoretical approach in developing a skill-based program that did not assume knowledge alone was sufficient for lasting

42

behaviour change (Newby, Bayley, & Wallace, 2011). Preliminary findings suggest parents improved their knowledge, skills and confidence to discuss sex and relationships with their child (Bayley, 2009). More recently a program designed specifically to support educators working in ECEC settings to promote and nurture parent-child relationships (E-PCR) was developed using IM methodologies, with preliminary evaluations indicating improvements in parent-child interactions and educators' confidence to support parents (O'Connor, Skouteris, et al., 2017).

The evidence presented here suggests that interventions developed using IM protocols are moving beyond the traditional health focused programs in community and health settings. The development of a range of interventions conducted in ECEC and other education settings indicates the possibility of successful creation of social and emotional interventions for children in ECEC settings. Researchers may be recognising that the benefits of IM methodology are useful and applicable to support other areas of behaviour change across a variety of settings.

5. Benefits of IM for intervention development

In considering the potential application of IM for social and emotional wellbeing programs in ECEC settings, there is value in examining the benefits reported by program designers across a range of settings and program types. Studies that describe IM-based interventions widely acknowledge IM's systematic approach to evidence and theory-based decision-making as critical in developing programs capable of addressing the needs of the priority population (De Craemer et al., 2014; Gray-Burrows, 2016; Kobel et al., 2017; Mann et al., 2015; Schutte, van den Borne, Kok, Meijer, & Mevissen, 2016; Suzuki et al., 2012). Dera-de Bie, Gerver, and Jansen (2013) suggest the matrices that represent a core output of the IM methodology are an important means to increase the transparency of an intervention. Considering significantly greater attention is directed towards reporting effectiveness of interventions compared to the methodology of intervention and evaluation design (Kobel et al., 2017; Kwak et al., 2007), the growing body of IM literature making this information available encourages continued standardisation and enhancement of behaviour-change efforts (De Craemer et al., 2014; Kobel et al., 2017). IM has also been applied in a post intervention capacity by Brendryen et al. (2010) to disentangle the rationale of an established program offering digital therapy for smoking cessation. Brendryen et al. report IM was effective at unraveling the program logic by linking its objectives, theories, materials and activities, while also highlighting potential flaws in program design, which may benefit future iterations of the program and inform the development of subsequent programs.

IM's participatory-based approach is recognised as a defining strength of the protocol. Collaboration with the priority community and a multidisciplinary team of stakeholders encourage the development of interventions that are pragmatic and feasible (Gray-Burrows et al., 2016; McEachan, Lawton, Jackson, Conner, & Lunt, 2008), clearly defined and meeting the needs of program beneficiaries (Schutte et al., 2016; Suzuki et al., 2012), and responsive to stakeholder skills and resources (Pérez-Rodrigo et al., 2005). Furthermore, IM guides designers to work with their planning group to consider the multiple levels of change. While this adds to the complexity of the process, it supports the creation of multi-component programs capable of addressing complex behaviour-change needs (Corbie-Smith et al., 2010; De Craemer et al., 2014; Kwak et al., 2007), and the formation of novel approaches (Prins, van Empelen, Beenackers, Brug, & Oenema, 2010). Finally, it has been argued there is potential for programs based on the IM methodology, with clear goals, strategies, materials and procedures, to be transferrable across different countries and differing population groups (De Craemer et al., 2014; Dera-de Bie et al., 2013).

6. Limitations of using IM for the development of interventions

Evaluations of intervention development using IM were found to report some common limitations including: time factors, complexity issues, need for experienced staffing, intervention design and theoretical challenges; these limitations will be explored further here. It is important to note the limitations of applying IM protocols were reported across multiple contexts and program aims. The most acknowledged limitation was that the IM process was time consuming, with significant time and effort required to engage in all of the steps of the protocol, and some planners using modified versions of the protocol to fit into existing time frames (Pérez-Rodrigo et al., 2005; Verbestel et al., 2011). Other planners specified that engaging in the second step and using the iterative process, moving back and forth between steps, was the most time-consuming elements of the process (Collard, Chinapaw, van Mechelen, & Verhagen, 2009; De Decker et al., 2014). Several planners described IM as a resource intensive requiring scientific staff, budgeting and time, but did not elaborate on the aspects of the IM process they found to require these elements (Ammendolia et al., 2009; Dera-de Bie et al., 2013; Suzuki et al., 2012; Verbestel et al., 2011).

Another routinely acknowledged limitation was the complexity in using the IM protocol and detailing the performance and change objectives (De Decker et al., 2014; Suzuki et al., 2012). Planners recognised data created during the process can become cumbersome, unwieldy and overwhelming due to almost unlimited evidence gathered during the needs assessment(Gray-Burrows et al., 2016; McEachan et al., 2008; Newby et al., 2011). Engaging in multi-level implementation and multi-behaviours also created complexity for planners (De Craemer et al., 2014; Verbestel et al., 2011). The IM protocol was reported to be unclear when dealing with complex behaviours, recognising IM is typically applied to simple uni-dimensional behaviours and becomes more complex when applied to multi-dimensional behaviours (Gray-Burrows et al., 2016; Kwak et al., 2007; McEachan et al., 2008; Prins et al., 2010). These complexities may have contributed to a perception of IM being challenging to use (McEachan et al., 2008).

Experienced staff were recognised as vital members of both the intervention development group and intervention implementers team (De Craemer et al., 2014; Gray-Burrows et al., 2016). Evaluations acknowledged experienced staff, with scientific and IM methodological expertise, were critical to IM when: (i) incorporating theoretical approaches with determinants and practical strategies; (ii) developing program, performance and change objectives; (iii) collecting evidence, and (iv) training implementers (Brendryen et al., 2010; De Craemer et al., 2014; De Decker et al., 2014; Gray-Burrows et al., 2016). Some planners reported staffing difficulties and challenges in: (i) communicating levels of detail and complexity within the intervention development group; (ii) using IM vocabulary, even for staff experienced in health behaviour theory and program planning; (iii) high staff turnover in community settings impacting collaboration; (iv) different partners understanding each others professional languages and perspectives, and (v) balancing general information if more than one country was involved (Corbie-Smith et al., 2010; Gray-Burrows et al., 2016; Suzuki et al., 2012; Verbestel et al., 2011). Limitations in staffing may influence intervention development, implementation and maintenance impacting on program accessibility, costs and recruitment (Brendryen et al., 2010; Suzuki et al., 2012).

Another limitation recognised by planners was that, given the details of the intervention are unknown at the beginning of the IM process, engagement may be inhibited in programs and this might influence funding commitments provided by external organisations (McEachan et al., 2008; Pérez-Rodrigo et al., 2005). For example, concerns were raised about the time and costs associated with further needs assessments to be conducted during later stages of planning if unexpected elements arise (Gray-Burrows et al., 2016). Preferences for

43

well-specified interventions at proposal stage may be contributing to a lack of theoretical and evidence based interventions (McEachan et al., 2008). Theoretical challenges have also been noted as limitations in using IM, recognising that appropriate theories on *how to change* are used rather than *what to change* (Brug et al., 2005). The subjective nature of interpreting evidence, theories and experience may result in program variance and finding and applying appropriate theories to intervention design can be bewildering, leading planners to guess and turn to existing interventions and techniques (Ammendolia et al., 2009; Taylor, Conner, & Lawton, 2012).

7. Lessons learned

In order to address these limitations, recommendations for future planners and researchers have been provided. These include ensuring cooperation between intervention designers and implementers is established from the outset and an awareness of additional time, resources and funding may be required during the IM process (Brendryen et al., 2010; De Craemer et al., 2014; Gray-Burrows et al., 2016; McEachan et al., 2008). Using specific focus and working groups to gather information and plan for cultural and local adaptations was suggested (De Craemer et al., 2014; Verbestel et al., 2011). An element of reflexivity was recommended to prioritise performance and change objectives, manage the complexities that arise during the process and ensure process evaluations are planned to assess success in reaching program aims and objectives (Brendryen et al., 2010; Gray-Burrows et al., 2016).

Limitations noted here span across contexts and program aims, with some reported for interventions designed for use in ECEC settings, however, no specific limitations were reported relating to the use of IM protocols for interventions in ECEC settings. At present, not all possible limitations for the development of interventions in ECEC settings using IM are known. Although, it is anticipated intervention planners using IM for children's social and emotional development within ECEC settings will also experience many of the same limitations. Being informed of these limitations prior to engagement in IM prepares intervention development teams and invites them to address these concerns as a priority as they move through the stages of IM.

8. Conclusion

The demand for high-quality ECEC, trends in attendance and investment, and substantial research pointing to the importance of children's early social, emotional and cognitive development has resulted in increasing interest from ECEC educators, researchers, program designers and governments in effective educator-led interventions to support children's social and emotional growth. The successful application of IM in ECEC classrooms for health-related behaviour change indicates IM can be an effective protocol for intervention development. There is value in considering IM for ECEC-based programs to promote children's social-emotional wellbeing and overall development. Considering ECEC programs are developed and conducted by educators using similar principles to IM protocols (participatory collaboration, use of multiple theoretical paradigms and empirically-based evidence), we argue that IM provides an opportunity to formally incorporate theory and evidence-based research into the development of children's social and emotional interventions in ECEC settings. Use of a framework for intervention development grounded in the needs of the child, theory explicitly linked to program outcomes, and a participatory design approach is more likely to result in interventions being acceptable and adopted by early childhood education and care providers.

Funding

Conflicts of interest

None.

References

Ammendolia, C., Cassidy, D., Steensta, I., Soklaridis, S., Boyle, E., Eng, S., ... Côté, P. (2009). Designing a workplace return-to-work program for occupational low back pain: An intervention mapping approach. *BMC Musculoskeletal Disorders, 10.* http://dx.doi.org/10.1186/1471-2474-10-65 65–65.

Androutsos, O., Apostolidou, E., Iotova, V., Socha, P., Birnbaum, J., Moreno, L., ... Manios, Y. (2014). Process evaluation design and tools used in a kindergarten-based: Family-involved intervention to prevent obesity in early childhood. The ToyBox-study. *Obesity Reviews, 15*(s3), 74–80.

Australian Government (2009). *Belonging, being and becoming: The early years learning framework for Australia.* Canberra, ACT: DEEWR. Retrieved from: http://www.education.gov.au/early-years-learning-framework.

Barnett, W. S., & Frede, E. (2010). The promise of preschool: Why we need early education for all. *American Educator, 34*(1), 21–29.

Bartholomew Eldredge, L. K., Markham, C. M., Ruiter, R. A. C., Fernandez, M. E., Kok, G., & Parcel, G. S. (2016). *Planning health promotion programs: An intervention mapping approach* (4th ed.). San Francisco, CA: Jossey-Bass.

Bartholomew, L. K., Parcel, G. S., & Kok, G. (1998). Intervention mapping: A process for developing theory- and evidence-based health education programs. *Health Education & Behavior, 25*(5), 545–563. http://dx.doi.org/10.1177/109019819802500502.

Bayley, J. (2009). What should we tell the children?–Preliminary evaluation of an evidence-based programme to promote parent-child communication about relationships and sex. *Paper presented at the IVth Biennial International Sex and Relationships Education Conference.*

Brendryen, H., Kraft, P., & Schaalma, H. (2010). Looking inside the black box: Using intervention mapping to describe the development of the automated smoking cessation intervention 'happy ending.'. *Journal of Smoking Cessation, 5*(1), 29–56. http://dx.doi.org/10.1375/jsc.5.1.29.

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge: Harvard University Press.

Brug, J., Oenema, A., & Ferreira, I. (2005). Theory, evidence and intervention mapping to improve behavior nutrition and physical activity interventions. *The International Journal of Behavioral Nutrition and Physical Activity, 2.*

Bruunk, B., & Van Vugt, M. (2008). *Applying social psychology: From problems to solutions.* Los Angeles; London: SAGE.

Center on the Developing Child at Harvard University (2016). *From best practices to Breakthrough impacts: A science-based approach to building a more promising future for young children and families.* Retrieved from: http://www.developingchild.harvard.edu/.

Collard, D. C. M., Chinapaw, M. J. M., van Mechelen, W., & Verhagen, E. A. L. M. (2009). Design of the iPlay study systematic development of a physical activity injury prevention programme for primary school children. *Sports Medicine, 39*(11), 889–901.

Conti, G., & Heckman, J. J. (2013). The developmental approach to child and adult health. *Pediatrics, 131*(Suppl. 2), S133–S141. http://dx.doi.org/10.1542/peds.2013-0252d.

Corbie-Smith, G., Akers, A., Blumenthal, C., Council, B., Wynn, M., Muhammad, M., & Stith, D. (2010). Intervention mapping as a participatory approach to developing an HIV prevention intervention in rural African American communities. *AIDS Education & Prevention, 22*(3), 184–202. http://dx.doi.org/10.1521/aeap.2010.22.3.184.

De Craemer, M., De Decker, E., De Bourdeaudhuij, I., Verloigne, M., Duvinage, K., Koletzko, B., ... Cardon, G. (2014). Applying the intervention mapping protocol to develop a kindergarten-based: Family-involved intervention to increase European preschool children's physical activity levels: The ToyBox-study. *Obesity Reviews, 15*(s3), 14–26.

De Decker, E., De Craemer, M., De Bourdeaudhuij, I., Verbestel, V., Duvinage, K., Iotova, V., ... Cardon, G. (2014). Using the intervention mapping protocol to reduce European preschoolers' sedentary behavior, an application to the ToyBox-Study. *International Journal of Behavioral Nutrition & Physical Activity, 11*, 1–35. http://dx.doi.org/10.1186/1479-5868-11-19.

Dera-de Bie, E., Gerver, W. J., & Jansen, M. (2013). Training program for overweight prevention in the child's first year: Compilation and results. *Nursing & Health Sciences, 15*(3), 387–397. http://dx.doi.org/10.1111/nhs.12051.

Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool 'PATHS' curriculum. *The Journal of Primary Prevention, 28*(2), 67–91. http://dx.doi.org/10.1007/s10935-007-0081-0.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432. http://dx.doi.org/10.1111/j.1467-8624.2010.01564.x.

Gray-Burrows, K. A., Day, P. F., Marshman, Z., Aliakbari, E., Prady, S. L., & McEachan, R. R. C. (2016). Using intervention mapping to develop a home-based parental-supervised toothbrushing intervention for young children. *Implementation Science, 11*, 1–14. http://dx.doi.org/10.1186/s13012-016-0416-4.

Green, L. W., Kreuter, M. W., & Green, L. W. (2005). *Health program planning: An educational and ecological approach.* New York: McGraw-Hill.

Hanafin, S., Brooks, A., McDonnell, F., Rouine, H., & Coyne, I. (2009). A whole-child perspective assessment guide for early years settings. *Community Practitioner, 82*(10), 22–25.

Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science, 312*(5782), 1900–1902. http://dx.doi.org/10.1126/science.1128898.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning

44

and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*(11), 2283–2290. http://dx. doi.org/10.2105/AJPH.2015.302630.

Kobel, S., Wartha, O., Wirt, T., Dreyhaupt, J., Lämmle, C., Friedemann, E.-M., ... Steinacker, J. M. (2017). Design, implementation, and study protocol of a kindergarten-based health promotion intervention. *BioMed Research International,* 1–9. http://dx.doi.org/10.1155/2017/4347675.

Kok, G., Bartholomew, L. K., Parcel, G. S., Gottlieb, N. H., & Fernández, M. E. (2014). Finding theory- and evidence-based alternatives to fear appeals: Intervention mapping. *International Journal of Psychology, 49*(2), 98–107. http://dx.doi.org/10.1002/ijop.12001.

Kok, G. (2014). A practical guide to effective behavior change: How to apply theory- and evidence-based behavior change methods in an intervention. *European Health Psychologist, 16*(5), 156–170.

Kraag, G., Kok, G., Abu-Saad, H. H., Lamberts, P., & Fekkes, M. (2005). Development of a stress management programme – learn young, learn fair – for fifth and sixth formers in The Netherlands using intervention mapping. *International Journal of Mental Health Promotion, 7*(3), 37–44. http://dx.doi.org/10.1080/14623730.2005.9721873.

Kraag, G., Van Breukelen, G. J. P., Kok, G., & Hosman, C. (2009). 'Learn Young, Learn Fair', a stress management program for fifth and sixth graders: Longitudinal results from an experimental study. *Journal of Child Psychology & Psychiatry, 50*(9), 1185–1195. http://dx.doi.org/10.1111/j.1469-7610.2009.02088.x.

Kreuter, M. W., Lukwago, S. N., Bucholtz, D. C., Clark, E. M., & Sanders-Thompson, V. (2003). Achieving cultural appropriateness in health promotion programs: Targeted and tailored approaches. *Health Education & Behavior, 30*(2), 133–146.

Kwak, L., Kremers, S. P. J., Werkman, A., Visscher, T. L. S., van Baak, M. A., & Brug, J. (2007). The NHF-NRG in balance-project: The application of intervention mapping in the development, implementation and evaluation of weight gain prevention at the worksite. *Obesity Reviews, 8*(4), 347–361. http://dx.doi.org/10.1111/j.1467-789X.2006.00304.x.

Latomme, J., Cardon, G., De Bourdeaudhuij, I., Iotova, V., Koletzko, B., Socha, P., ... De Craemer, M. (2017). Effect and process evaluation of a kindergarten-based, family-involved intervention with a randomized cluster design on sedentary behaviour in 4- to 6- year old European preschool children: The ToyBox-study. *Plos One, 12*(4), http://dx.doi.org/10.1371/journal.pone.0172730 e0172730–e0172730.

Levin, H. H. L. (2012). More than just test scores. *Prospects (00331538), 42*(3), 269–284. http://dx.doi.org/10.1007/s11125-012-9240-z.

Manios, Y., Androutsos, O., Katsarou, C., Iotova, V., Socha, P., Geyer, C., ... Bourdeaudhuij, I.d. (2014). Designing and implementing a kindergarten-based, family-involved intervention to prevent obesity in early childhood: The ToyBox-study. *Obesity Reviews, 15*(s3), 5–13.

Mann, C. M., Ward, D. S., Vaughn, A., Neelon, S. E. B., Vidal, L. J. L., Omar, S., ... Namenek Brouwer, R. J. (2015). Application of the intervention mapping protocol to develop Keys, a family child care home intervention to prevent early childhood obesity. *BMC Public Health, 15*(1), 1–13. http://dx.doi.org/10.1186/s12889-015-2573-9.

McClelland, M. M., Tominey, S. L., Schmitt, S. A., & Duncan, R. (2017). SEL interventions in early childhood. *Future of Children, 27*(1), 33–47.

McEachan, R. R., Lawton, R. J., Jackson, C., Conner, M., & Lunt, J. (2008). Evidence, theory and context: Using intervention mapping to develop a worksite physical activity intervention. *BMC Public Health, 8*(1) 326–326.

Mortensen, J. A., & Mastergeorge, A. M. (2014). A meta-analytic review of relationship-based interventions for low-income families with infants and toddlers: Facilitating supportive parent-child interactions. *Infant Mental Health Journal, 35*(4), 336–353. http://dx.doi.org/10.1002/imhj.21451.

Murray, N., Kelder, S., Parcel, G., & Orpinas, P. (1998). Development of an intervention map for a parent education intervention to prevent violence among Hispanic middle school students. *Journal of School Health, 68*(2), 46–52. http://dx.doi.org/10.1111/j.1746-1561.1998. tb07189.x.

National Institute for Health and Clinical Excellence (2007). *Behaviour change at population, community and individual levels. NICE public health guidance 6.*

Newby, K., Bayley, J., & Wallace, L. M. (2011). What should we tell the children about relationships and sex?: Development of a program for parents using intervention mapping. *Health Promotion Practice, 12*(2), 209–228. http://dx.doi.org/10.1177/1524839909341028.

Nolan, A., & Raban, B. (2015). *Theories into practice: Understanding and rethinking our work with young children and the EYLF.* Albert Park, Australia: Teaching Solutions.

Nores, M., & Barnett, W. S. (2010). Benefits of early childhood interventions across the world: (Under) investing in the very young. *Economics of Education Review, 29*(2), 271–282. http://www.sciencedirect.com/science/journal/02727757.

O'Connor, A. V., Nolan, A., Bergmeier, H., Williams-Smith, J., & Skouteris, H. (2017). Early childhood educators' perceptions of parent-child relationships: A qualitative study. *Australasian Journal of Early Childhood, 43*(1).

O'Connor, A. V., Skouteris, H., Nolan, A., Hooley, M., Cann, W., & Williams-Smith, J. (2017). Applying intervention mapping to develop an early childhood educators' intervention promoting parent-child relationships. *Early Child Development and Care.* http://dx.doi.org/10.1080/03004430.2017.1362401.

Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: Approaches to early identification and intervention. *Archives of Disease in Childhood, 98*(12), 1008–1011. http://dx.doi.org/10.1136/archdischild-2013-304091.

(OECD) Organisation for Economic Co-operation and Development (2016). *Education at a glance 2016: OECD indicators.* Paris: OECD Publishing.

Pérez-Rodrigo, C., Wind, M., Hildonen, C., Bjelland, M., Aranceta, J., Klepp, K.-I., & Brug, J. (2005). The pro children intervention: Applying the intervention mapping protocol to develop a school-based fruit and vegetable promotion programme. *Annals of Nutrition & Metabolism, 49*(4), 267–277. http://dx.doi.org/10.1159/000087249.

Pinket, A. S., De Craemer, M., Huybrechts, I., De Bourdeaudhuij, I., Deforche, B., Cardon, G., & Iotova, V. (2017). Multibehavioural interventions with a focus on specific energy balance-related behaviours can affect diet quality in preschoolers from six european countries: The ToyBox-Study. *Nutrients, 9*(5), 479.

Prins, R. G., van Empelen, P., Beenackers, M. A., Brug, J., & Oenema, A. (2010). Systematic development of the YouRActionprogram, a computer-tailored physical activity promotion intervention for Dutch adolescents, targeting personal motivations and environmental opportunities. *BMC Public Health, 10*(1), 474–486.

Resnicow, K., Baranowski, T., Ahluwalia, J. S., & Braithwaite, R. L. (1999). Cultural sensitivity in public health: Defined and demystified. *Ethnicity & Disease, 9*(1), 10–21.

Schutte, L., van den Borne, M., Kok, G., Meijer, S., & Mevissen, F. E. F. (2016). Innovatively supporting teachers' implementation of school-based sex education: Developing a web-based coaching intervention from problem to solution. *Journal of Medical Internet Research, 18*(7), http://dx.doi.org/10.2196/jmir.5058 14–14.

Shonkoff, J. P., & Phillips, D. A. (2000). *From neurons to neighborhoods: The science of early childhood development.* Washington DC: National Academy Press.

Shonkoff, J. P., Boyce, W. T., & McEwen, B. S. (2009). Neuroscience, molecular biology, and the childhood roots of health disparities: Building a new framework for health promotion and disease prevention. *JAMA: Journal of the American Medical Association, 301*(21), 2252–2259. http://dx.doi.org/10.1001/jama.2009.754.

Siegel, D. J. (2012). *The developing mind: How relationships and the brain interact to shape who we are* (2nd ed.). New York, NY, US: Guilford Press.

Springvloet, L., Lechner, L., & Oenema, A. (2014). Planned development and evaluation protocol of two versions of a web-based computer-tailored nutrition education intervention aimed at adults, including cognitive and environmental feedback. *BMC Public Health, 14*(1), http://dx.doi.org/10.1186/1471-2458-14-47 47–47.

Stewart, V., Campbell, M., & Wheeler, A. J. (2016). Developing a postgraduate work-based curriculum using an intervention mapping approach. *Studies in Continuing Education, 38*(3), 318–333.

Suzuki, R., Peterson, J. J., Weatherby, A. V., Buckley, D. I., Walsh, E. S., Kailes, J. I., & Krahn, G. L. (2012). Using intervention mapping to promote the receipt of clinical preventive services among women with physical disabilities. *Health Promotion Practice, 13*(1), 106–115. http://dx.doi.org/10.1177/1524839910382624.

Taylor, N., Conner, M., & Lawton, R. (2012). The impact of theory on the effectiveness of worksite physical activity interventions: A meta-analysis and meta-regression. *Health Psychology Review, 6*(1), 33–73. http://dx.doi.org/10.1080/17437199.2010.533441.

Verbestel, V., De Henauw, S., Maes, L., Haerens, L., Mårild, S., Eiben, G., ... De Bourdeaudhuij, I. (2011). Using the intervention mapping protocol to develop a community-based intervention for the prevention of childhood obesity in a multi-centre European project: The IDEFICS intervention. *International Journal of Behavioral Nutrition & Physical Activity, 8.* http://dx.doi.org/10.1186/1479-5868-8-82 15p-15p.

Vereecken, C., Huybrechts, I., Houte, H.v., Martens, V., Wittebroodt, I., & Maes, L. (2009). Results from a dietary intervention study in preschools Beastly Healthy at School. *International Journal of Public Health, 54*(3), 142–149.

Walthouwer, M. J. L., Oenema, A., Soetens, K., Lechner, L., & De Vries, H. (2013). Systematic development of a text-driven and a video-driven web-based computer-tailored obesity prevention intervention. *BMC Public Health, 13*(1), http://dx.doi.org/10.1186/1471-2458-13-978 978–978.

Webster-Stratton, C., Jamila Reid, M., & Stoolmiller, M. F. (2008). Preventing conduct problems and improving school readiness: Evaluation of the incredible years teacher and child training programs in high-risk schools. *Journal of Child Psychology & Psychiatry, 49*(5), 471–478.

Amanda O'Connor is a Research Fellow in the School of Psychology at Deakin University, Melbourne, Australia. Her research focuses on supporting early childhood educators to promote children's social and emotional development during the early years. She has worked as a researcher within early childhood education and care settings exploring children's health and well being for five years. Amanda has also collaborated with a national intermediary research organisation to inform development of an early childhood education and care working with parents practice model and framework.

Claire Blewitt is a PhD Candidate in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia, working on the co-design, delivery and evaluation of curricula to support early childhood educators foster social and emotional learning in the preschool classroom. Claire also works as a researcher within early childhood and support, and specialised primary education settings, with a focus on the monitoring and evaluation of programs for young children and families.

Andrea Nolan is currently Professor of Early Childhood Education, in the School of Education, Deakin University, Melbourne, Australia. She has had extensive experience teaching in early childhood education settings as well as in primary schools, and has taught in the Technical and Further Education (TAFE) and University sectors. Andrea has worked on a number of State, National and international projects concerning professional learning for teachers, program evaluation, and social and emotional learning. Her research is framed around workforce capabilities, focusing on the practice of teachers. She has researched teacher professional identities and educator practice, mentoring, inter-professional work, and reflective practice.

Helen Skouteris is the Monash Warwick Professor in Healthcare Improvement and Implementation Science in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is an expert in child and parental health and wellbeing and has worked extensively with early childhood service organisations over the past 10 years.

45

2.3 Industry Partnership

The Cheshire SEED Educational Program was created in partnership with bestchance Child Family Care ("bestchance"). bestchance are an independent, not-for-profit ECEC provider with over 500 staff and 100 volunteers who deliver a range of educational programs accredited under the Victorian Government Department of Education and Training. These include long day-care centres, kindergartens, family day-care services and a primary school for children with social, emotional and behavioural difficulties (The Cheshire School). In addition, bestchance offer a range of support services for children, parents, and families including accredited Early Childhood Intervention under the National Disability and Insurance Scheme, and Family and Community Support, in addition to nationally accredited early childhood training and education.

2.3.1 The Cheshire School

The Cheshire School is a program of bestchance that provides an intervention program for children from Foundation to Grade Four who have demonstrated significant social, emotional, and behavioural problems in mainstream schools. In a supportive and nurturing environment, the program helps to identify and successfully manage the fundamental causes of a child's disruptive and antisocial behaviours, and develop children's self-esteem, resilience and coping strategies. Parents/caregivers are recognised as the experts in identifying their child's needs and how these may best be met. As such, Cheshire staff work in close partnership with the family of every child who attends the program.

Children are typically enrolled in The Cheshire School for 18-months with students beginning and graduating each term. The school has a maximum of 22 students at any one time across two class levels (Foundation to Grade 2 and Grades 3 to 4/5). Each class has a maximum of 11 students, with one teacher and two teacher aides. The school has a full-time

principal, and a part time psychologist/accredited play therapist and clinical psychologist. A supervising psychologist and education and training specialist oversee the program, with support for speech pathology and occupational therapy services through bestchance's Early Childhood Intervention team.

Cheshire students often present with a range of diagnoses including Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder and trauma related conditions. A structured behaviour management plan and learning plan is in place for every student. The school has a comprehensive and structured intake procedure. To be eligible to join the program, children must have a significant social/emotional or behavioural disorder that impacts their ability to maintain a place in the mainstream school system, an IQ of 80 or above, speech and language skills within normal limits (i.e., the student does not have a severe speech and language disorder) and must not be exhibiting signs of acute mental illness. Acceptance into the program also considers the commitment of parents/caregivers to support the placement of their child, a team assessment as to whether the child will benefit from the program, and consideration of the current cohort of students.

2.4 Intervention Design Group

An intervention design group was convened to provide input, guidance, and oversight throughout the development process. Eight participants formed the group: two educators, one with experience in early childhood settings, and the other with experience in both early childhood and primary programs, including The Cheshire School, three paediatric psychologists working within The Cheshire School, one of whom was also a play therapist, one ECEC pedagogical leader, and two researchers with expertise in developmental psychology. Regular input was provided by individuals who could inform intervention design

and delivery, including ECEC educators, senior ECEC managers/directors and a speech

therapist.

CHAPTER THREE

Social and Emotional Learning in Early Childhood Education and Care Settings

3.1 Introduction

Chapter Two provided the rationale for developing pedagogical interventions for early learning settings using the IM protocol, introduced the industry partner, and formation of an intervention design group. In Step 1 of the IM protocol, a thorough needs assessment is conducted in order to create a logic model of the problem that the intervention will attempt to address. Chapters Three, Four and Five of this thesis include findings from the needs assessment that informed the development of the Cheshire SEED Educational Program. The current chapter includes four literature reviews of SEL programs delivered in ECEC settings.

SEL interventions have been described within a response-to-intervention framework (Greenberg, Domitrovich, Weissberg, & Durlak, 2017; Shepley & Grisham-Brown, 2019). Response-to-intervention includes a multi-tiered approach to identify and support children's learning and behavioural needs through evidence-based intervention. It aligns intervention to the needs of each child by increasing intensity from one tier to the next. The first tier provides universal curricula to all children. For SEL, these programs offer a proactive and preventative approach to encourage social-emotional capabilities at the classroom scale. Children requiring more intensive support than what is offered by universal approaches are the focus of Tier 2; targeted programs delivered to select children experiencing, social, emotional, or behavioural challenges, who may not have responded to universal supports. Targeted programs typically aim to prevent the escalation of more serious mental health concerns. Finally, Tier 3 interventions are delivered to children requiring intensive and

individualised assistance. These children may display characteristics of mental health and developmental challenges (Macklem, 2011) (Figure 3.1).

The response-to-intervention model was used as a framework to review the availability and outcomes associated with SEL programs. The following reviews are included in this chapter:

- systematic literature review and meta-analysis examining the social, emotional, and early learning outcomes associated with universal (Tier 1) curriculum-based SEL programs delivered to children aged two to six years in ECEC settings (Section 3.2);

- systematic literature review examining the effectiveness of universal (Tier 1) SEL programs on educator outcomes, including teaching quality and practice (Section 3.3);

- systematic literature review examining the effectiveness of targeted (Tier 2) SEL programs on child outcomes (Section 3.4); and

- narrative review to explore the breadth and benefits of educator-led Tier 3 SEL intervention delivered to children with mental health or developmental challenges in inclusive ECEC settings (Section 3.5).
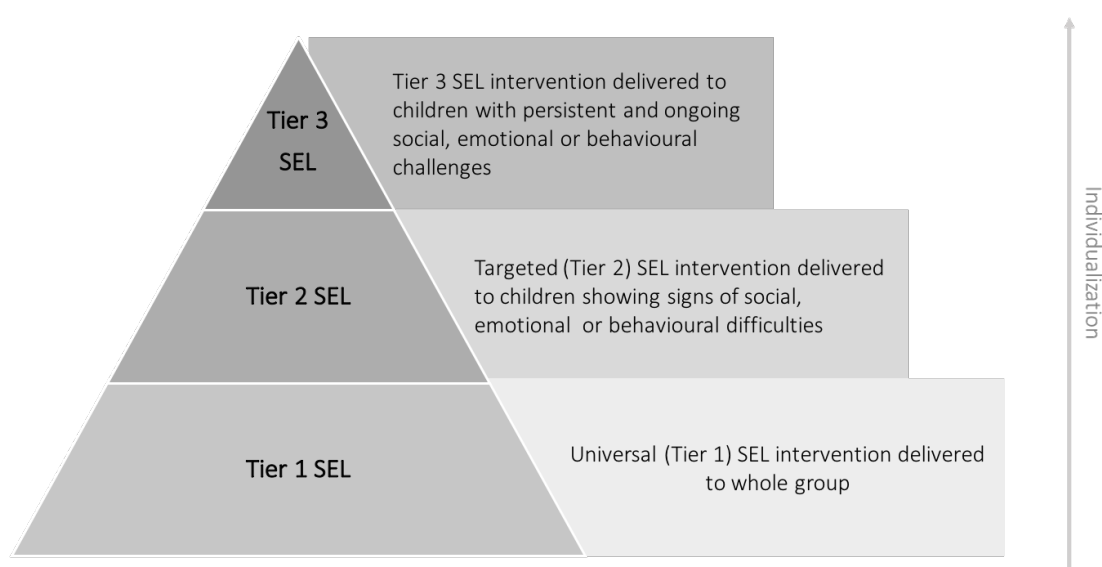
Figure 3.1. Response-to-intervention model for social and emotional learning.

3.2 Universal (Tier 1) Curriculum-Based SEL Intervention and Child Outcomes

A systematic literature review, meta-analysis, and meta-regression of 79 studies (capturing 361 individual effect sizes) examining the social, emotional, behavioural, and early learning outcomes associated with universal (Tier 1) curriculum-based SEL programs delivered to children aged 2 to 6 years in ECEC settings was published in *JAMA Network Open* in 2018 and is presented in its published form. This review found that children who participated in curriculum-based programs displayed improved social competence, emotional competence, behavioural self-regulation, and early learning skills, and reduced emotional and behavioural problems compared to control peers. Several variables appeared to moderate program impact including child age, who led the intervention (i.e., educator or other early years professional), the type of assessment used, the informant, and study quality. Supporting data for this paper are provided in Appendix A.

Original Investigation | Pediatrics

Social and Emotional Learning Associated With Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers
A Systematic Review and Meta-analysis

Claire Blewitt, B Psych Sci (Hons); Matthew Fuller-Tyszkiewicz, PhD; Andrea Nolan, PhD; Heidi Bergmeier, PhD; David Vicary, PhD; Terry Huang, PhD; Paul McCabe, PhD; Tracey McKay, BSc CIS; Helen Skouteris, PhD

Abstract

IMPORTANCE Social-emotional competence in early childhood influences long-term mental health and well-being. Interest in the potential to improve child health and educational outcomes through social and emotional learning (SEL) programs in early childhood education and care (ECEC) settings is increasing.

OBJECTIVE To conduct a systematic review and meta-analysis of studies examining the social, emotional, and early learning outcomes associated with universal curriculum-based SEL programs delivered to children aged 2 to 6 years in center-based ECEC settings.

DATA SOURCES Keyword searches of Education Resources Information Center (ERIC), MEDLINE Complete, PsycINFO, and Proquest Dissertations and Theses Global databases were conducted to identify all relevant studies published from January 1, 1995, through December 31, 2017.

STUDY SELECTION Studies included in this review examined universal curriculum-based SEL intervention delivered to children aged 2 to 6 years in a center-based ECEC setting. All assessed individual-level social and/or emotional skill after the SEL intervention and used an experimental or quasi-experimental design (ie, studies that did not or were not able to randomly allocate participants to intervention and control groups) with a control group.

DATA EXTRACTION AND SYNTHESIS A total of 13 035 records were screened, of which 362 were identified for full-text review. A systematic literature review was conducted on 79 studies. Multilevel random-effects meta-analyses were conducted on 63 eligible studies from October 2 through 18, 2018.

MAIN OUTCOMES AND MEASURES Social competence, emotional competence, behavioral self-regulation, behavior and emotional challenges, and early learning outcomes.

RESULTS This review identified 79 unique experimental or quasi-experimental studies evaluating the effect of SEL interventions on preschooler outcomes, including a total of 18 292 unique participants. Sixty-three studies were included in this meta-analysis. Compared with control participants, children in intervention conditions showed significant improvement in social competence (Cohen *d* [SE], 0.30; [0.06]; 95% CI, 0.18-0.42; *P* < .001), emotional competence (Cohen *d* [SE], 0.54 [0.16]; 95% CI, 0.22-0.86; *P* < .001), behavioral self-regulation (Cohen *d* [SE], 0.28 [0.09]; 95% CI, 0.11-0.46; *P* < .001), and early learning skills (Cohen *d* [SE], 0.18 [0.08]; 95% CI,

(continued)

Key Points

Question How effective are universal curriculum-based social and emotional learning programs delivered in early childhood education and care centers at improving children's social and emotional development?

Findings A systematic review and meta-analysis of 79 unique studies with 18 292 unique participants found children exposed to a universal social and emotional learning intervention showed significant improvement in social competence, emotional competence, behavioral self-regulation, emotional and behavioral problems, and early learning outcomes compared with control participants.

Meaning Early childhood is a crucial period for children's social, emotional, and cognitive development, and these findings highlight what appears to be benefit of social and emotional learning interventions for young children across developmental domains.

+ Supplemental content

Abstract (continued)

0.02-0.33; *P* = .03) and reduced behavioral and emotional challenges (Cohen *d* [SE], 0.19 [0.04]; 95% CI, 0.11-0.28; *P* < .001). Several variables appeared to moderate program outcomes, including intervention leader, type of assessment, informant, child age, and study quality.

CONCLUSIONS AND RELEVANCE According to results of this study, social and emotional learning programs appeared to deliver at a relatively low intensity may be an effective way to increase social competence, emotional competence, behavioral self-regulation, and early learning outcomes and reduce behavioral and emotional difficulties in children aged 2 to 6 years. Social and emotional learning programs appear to be particularly successful at increasing emotional knowledge, understanding, and regulation.

Introduction

The preschool period presents a unique opportunity to support children's social and emotional development. During their formative years, children learn to understand and regulate emotion, attention, and behavior, equipping them to form prosocial relationships and engage in learning when they commence school.[1,2] Difficulty navigating early social-emotional milestones can hinder a child's emotional regulation, social behavior, and school readiness[3-6] and lead to the development of mental health disorders.[7-10]

With an average of 78% of 3-year-old and 87% of 4-year-old children from 36 Organisation for Economic Co-operation and Development countries (27 European nations, United States, Canada, Australia, New Zealand, Chile, Japan, Israel, Korea, and Mexico) enrolled in early childhood or preprimary education,[11] demand is growing from educators, researchers, and policy makers for evidence-based preventative and early-intervention early childhood education and care (ECEC) programs that target social, emotional, and behavioral outcomes for preschool children.[1,12,13] Strengthening social and emotional competencies through teaching, modeling, and practice underpins social and emotional learning (SEL), defined by the Collaborative for Academic, Social, and Emotional Learning as the acquisition and application of knowledge and skills across 5 areas of social-emotional competence, including self-awareness, social awareness, self-management, relationship skills, and responsible decision making.[14] Neuroscience research[15-17] indicates SEL may have unique leverage for children aged 3 to 6 years when language and executive functions are rapidly developing; in addition, SEL intervention in preschool targets an age when children are especially receptive to external guidance and support.[18]

Several reviews have focused on the effects of SEL intervention in the preschool years. McCabe and Altamura[19] revealed 10 intervention programs with demonstrated efficacy, but they also suggested further research was needed to identify the practices and approaches that a make substantive and lasting impression on social-emotional competence. Schindler et al[20] found that SEL programs led to greater reduction in externalizing behavior compared with those without an explicit focus on SEL. In contrast, Sabey et al[21] found that SEL interventions (11 of 26 studies they reviewed) demonstrated weaker effects and lower research quality compared with programs focusing on behavior, coping, or other social-emotional skills. Bierman and Motamedi[18] identified only 2 preschool-based SEL programs with a robust evidence base (Promoting Alternative Thinking Strategies [PATHS] and the Incredible Years Teaching Program) and 3 that showed promise (Tools of the Mind, I Can Problem Solve, and Al's Pal's: Kids Making Healthy Choices). Another recent review reported the small-to-medium effects from SEL intervention in early childhood were encouraging, but highlighted the challenge in comparing programs that are based on different theoretical frameworks, target different skills, and often use different outcome measures.[22]

53

Research that unpacks the active ingredients of successful SEL approaches is needed.[23] Hence, the objective of this review was to address the following research questions: (1) What social, emotional, behavioral, and early learning outcomes have been achieved by universal curriculum-based SEL interventions implemented in ECEC settings? (2) What program-level characteristics are associated with positive outcomes? and (3) What are the methodologic limitations of research investigating the outcomes achieved by curriculum-based SEL interventions in ECEC settings? We conclude with recommendations for future research.

Methods

Search Strategy and Study Selection

This systematic review and meta-analysis was conducted in accordance with the recommendations and standards set by the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guideline.

Published, peer-reviewed reports were sourced through computerized database searches of Education Resources Information Center (ERIC), MEDLINE Complete, and PsycINFO (January 1, 1995, through December 31, 2017). No language limits were applied. The key terms included in the database searches and an example search strategy are provided in the eFigure in the Supplement. These searches identified 10 189 articles after the removal of duplicates. A manual search of references cited in selected reports and relevant reviews and meta-analyses of intervention programs targeting early childhood social and emotional development was undertaken, and suitable reports were included. To address possible file-drawer effects,[24] a systematic search of dissertations through the Proquest Dissertations and Theses Global database was conducted. Abstracts were searched using combinations of terms, with a further 2846 reports identified, resulting in a total of 13 035 reports screened.

Studies met inclusion criteria if (1) they delivered a universal curriculum-based SEL program to children aged 2 to 6 years in a center-based ECEC setting (ie, included explicit teaching of SEL skills); (2) the primary stated purpose of the SEL program was to increase children's social-emotional skill development; (3) they assessed individual-level social, emotional, behavioral, and/or learning skills after the SEL intervention; and (4) they used an experimental or quasi-experimental design (ie, studies that did not or were not able to randomly allocate participants to intervention and control groups) with a control group. All titles and abstracts were screened for possible inclusion by 1 author (C.B.). A trained research assistant independently coscreened 10% (n = 1300) of the titles and abstracts; agreement for the inclusion of articles to be read in full was 100%.

Data Extraction

Extracted data included (1) publication status; (2) sample size; (3) design; (4) whether pretest measurements were recorded; (5) age of children; (6) sex distribution; (7) nationality of children; (8) child's socioeconomic status; (9) age of SEL program; (10) frequency and duration of sessions/lessons; (11) whether the intervention was teacher, specialist, or researcher led; (12) whether the intervention was delivered to the classroom or a small group; (13) whether the intervention included parental involvement; (14) informant (parent, teacher, or other); (15) whether outcome reflected skill acquisition, assessed through structured test or task; and (16) whether implementation fidelity was considered. To ensure accuracy and reliability, 2 independent reviewers (including C.B.) coded 70% of studies, with any discrepancies resolved by consensus reached after discussion.

The child outcomes from each study were assigned a category, informed by 4 social-emotional subdomains and constructs identified by Jones et al[25] and the Federal Interagency Forum on Child and Family Statistics,[26] including social competence, emotional competence, behavior/emotional challenges, and behavioral self-regulation. A fifth category reflecting early learning outcomes was also included with measures of oral language, vocabulary, early literacy, and math ability. This

54

categorization reflects current knowledge of early childhood social-emotional development and offers a relevant framework to understand and compare SEL intervention across outcomes.

In the instance where an outcome could be allocated to more than 1 category, we assigned the category that most closely matched the description of the measure. To determine the quality of included studies, each study was assessed against the Effective Public Health Practice Project quality assessment tool for quantitative studies with respect to selection bias, study design, confounders, blinding, data collection methods, withdrawals, dropouts, intervention integrity, and analyses.[27]

Calculation of Effect Sizes

For each outcome, the standardized mean difference (Cohen *d*) was calculated by dividing the difference between posttest SEL scores of the control group and intervention group by the pooled SD.[28] The first measurement recorded after program completion has been included in the analyses. Many studies provided sufficient data to calculate the standardized mean difference between the intervention and control groups before the intervention. To account for potential differences at baseline, this pretest effect size was subtracted from the postintervention effect where available. According to Cohen,[29] a value of 0.2 is considered a small effect; 0.5, a moderate effect; and 0.8, a large effect. Effect size measures were allocated a positive sign if the data indicated the intervention had higher, more positive scores on the variable of interest relative to the control group. Some studies reported the total or composite score in addition to subscale scores on standardized tests. Where subscale scores that were meaningful in the context of this review were included in the calculation of total or composite scale scores, we selected only the subscale score to avoid duplicate effects.

When the data needed to compute the standardized mean difference between posttest intervention and control group scores were not available within published studies, we requested these data from the corresponding author. If we were unable to contact the corresponding author or the study authors were unable to provide such data, the report was retained in the systematic review but excluded from the meta-analysis (**Figure**).

Statistical Analysis

Data were analyzed from October 2 through 18, 2018. Several reports included in this study had multiple estimates of the same effect. Given that these effect sizes are drawn from the same sample of children, they violate the assumption of statistical independence.[30] To account for the nesting of effect sizes within studies, a multilevel model framework was used to determine (1) the mean effect size across all studies and (2) the mean effect size across each outcome category while controlling for nonindependence due to multiple estimates within the same study.[31] The heterogeneity of effect sizes across studies was assessed using the intraclass correlation (ICC) and I^2 and τ^2 tests. In addition, the significance of the heterogeneity of each group of effect sizes was examined with the Q statistic, where a significant Q value indicates studies are not derived from a common population.

To examine the moderation effect of study-level characteristics, a metaregression was undertaken when ICC values were greater than 0.25 (25% of variance explained by across-study variation in effect sizes). Where heterogeneity of effect sizes was detected, each moderator was examined separately to identify the characteristics that might explain these differences. Where multiple moderators were shown to be significant, they were modeled simultaneously to address potential confounding. Only significant moderators from this step were included in the final model. Statistical significance was set at 2-tailed $P < .05$. All analyses were performed using the metafor package[32] in RStudio (version 1.1.383).

Publication Bias

We addressed the potential for publication bias in 3 ways. First, we included unpublished dissertations as described above. Second, we included publication status as a moderator to determine whether a significant difference between outcomes reported in published studies and

dissertations existed. Third, we applied the Egger regression test[33] to test for publication bias. When the intercept of this test deviates significantly from zero (at P = .10),[33] the overall association between the precision and size of studies is considered asymmetrical, with potential for bias.

Results

Systematic Review Results

The Figure shows a flow diagram of our systematic review and meta-analysis conducted in accordance with the PRISMA guidelines. Seventy-nine unique studies were deemed relevant for this review, including a total 18 292 unique participants. Sixty-three studies were available for the meta-analysis. The pooled sample characteristics for all studies and the characteristics within each domain of social-emotional functioning are provided in **Table 1** and detailed further in eTable 1 in the Supplement.[34-112]

We found variability in study quality. Twelve studies[41,44,54,67,73,76,82,83,87,106,109,111] (16.0%) were rated as high quality; 33 studies[37,40,45-48,50,56-60,63,64,66,74,78,80,85,86,90-93,96,97,99,103-105,108,110,112] (44.0%), moderate quality; and 30 studies[34,36,38,39,42,43,49,51-53,55,61,62,65,68,69,71,72,75,79,84,88,89,94,95,98,100-102,107] (40.0%), poor quality. Four non-English studies[35,70,77,81] were excluded from the quality assessment. Most studies were downgraded owing to the lack of blinding, which can be difficult to achieve in educational research. Lower-quality studies were also less likely to report and control for confounding variables in their analyses. The constructs assessed within each domain of social-emotional development and the

Figure. Selection of Studies Included in the Meta-analysis Identification
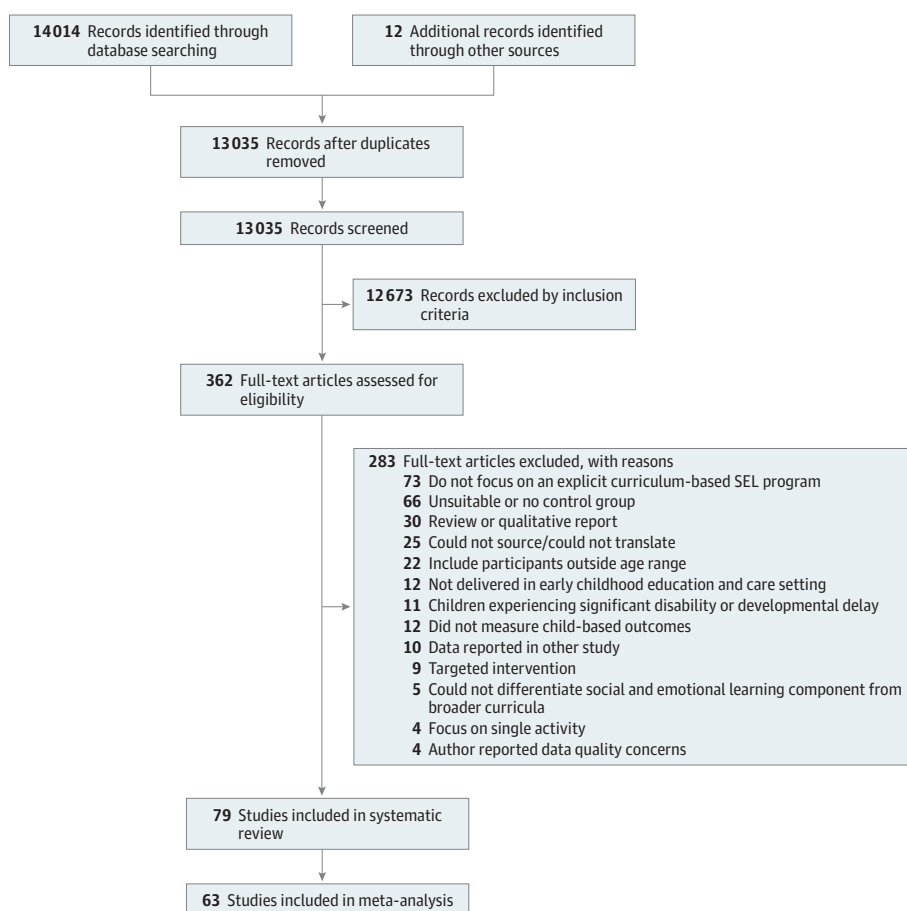
SEL indicates social and emotional learning.

56

Table 1. Descriptive Characteristics of 79 Studies Examining SEL in ECEC Settings

Characteristics	Studies, No. (%) of Participants[a]					
	All (n = 79)	Social Competence (n = 61)	Emotional Competence (n = 41)	Problem Behaviors and Emotions (n = 58)	Behavioral Self-regulation (n = 16)	Early Learning Outcomes (n = 16)
Geographic location						
Africa	1 (1.3)	1 (1.6)	0	1 (1.7)	0	0
Australia	4 (5.1)	4 (6.6)	2 (4.9)	4 (6.9)	1 (6.2)	1 (6.2)
Europe	21 (26.6)	17 (27.9)	15 (36.6)	13 (22.4)	0	2 (12.5)
Middle East	1 (1.3)	1 (1.6)	0	0	0	0
North America	51 (64.6)	38 (62.3)	23 (56.1)	40 (69.0)	15 (93.8)	13 (81.3)
South America	1 (1.3)	0	1 (2.4)	0	0	0
Date of report						
1995-2007	21 (26.6)	17 (27.9)	7 (17.1)	17 (29.3)	10 (62.5)	3 (18.8)
2008-2012	30 (38.0)	21 (34.4)	14 (34.1)	21 (36.2)	3 (18.8)	7 (43.8)
2013-2017	28 (35.4)	23 (37.7)	20 (48.8)	20 (34.5)	3 (18.8)	6 (37.5)
Publication status						
Peer-reviewed journal[b]	68 (86.1)	55 (90.2)	36 (87.8)	49 (84.5)	15 (93.8)	15 (93.8)
Dissertation	11 (13.9)	6 (9.8)	5 (12.2)	9 (15.5)	1 (6.2)	1 (6.2)
Sample size						
≤100	33 (41.8)	26 (42.6)	19 (46.3)	22 (37.9)	5 (31.3)	7 (43.8)
101-200	18 (22.8)	11 (18.0)	8 (19.5)	14 (24.1)	4 (25.0)	2 (12.5)
201-300	12 (15.2)	9 (14.8)	4 (9.8)	9 (15.5)	3 (18.8)	2 (12.5)
301-500	10 (12.7)	9 (14.8)	5 (12.2)	9 (15.5)	4 (25.0)	2 (12.5)
>500	6 (7.6)	6 (9.8)	5 (12.2)	4 (6.9)	0	3 (18.8)
Age of children, y						
≤3	5 (6.3)	5 (8.2)	4 (9.8)	5 (8.6)	0	2 (12.5)
3-5	46 (58.2)	35 (57.4)	23 (56.1)	35 (60.3)	12 (75.0)	10 (62.5)
>5	25 (31.6)	18 (29.5)	12 (29.3)	15 (25.9)	4 (25.0)	4 (25.0)
Described as preschool or kindergarten age, or across age ranges	3 (3.8)	3 (4.9)	2 (4.9)	3 (5.2)	0	0
SES of sample						
Low	30 (38.0)	24 (39.3)	17 (41.5)	26 (44.8)	10 (62.5)	8 (50.0)
Middle or high	14 (17.7)	9 (14.8)	7 (17.1)	8 (13.8)	2 (12.5)	4 (25.0)
Mixed	12 (15.2)	8 (13.1)	4 (9.8)	10 (17.2)	2 (12.5)	2 (12.5)
Not reported	23 (29.1)	20 (32.8)	13 (31.7)	14 (24.1)	2 (12.5)	2 (12.5)
Intervention leader						
Teacher	53 (67.1)	46 (75.4)	28 (68.3)	44 (75.9)	12 (75.0)	10 (62.5)
Specialist	22 (27.8)	13 (21.3)	11 (26.8)	12 (20.7)	4 (25.0)	6 (37.5)
Not specified	4 (5.1)	2 (3.3)	2 (4.9)	2 (3.4)	0	0
Program duration, wk						
<6	7 (8.9)	5 (8.25)	5 (12.2)	5 (8.6)	0	1 (6.2)
6-12	27 (34.2)	17 (27.9)	12 (29.3)	17 (29.3)	5 (31.3)	7 (43.8)
12-24	26 (32.9)	22 (36.1)	14 (34.1)	20 (34.5)	6 (37.5)	2 (12.5)
>24	17 (21.5)	14 (23.0)	10 (24.4)	14 (24.1)	4 (25.0)	6 (37.5)
Not reported	2 (2.5)	3 (4.9)	0	2 (3.4)	1 (6.3)	0
Instruction time, min/wk						
≤30	14 (17.7)	11 (18.0)	8 (19.5)	9 (15.5)	4 (25.0)	2 (12.5)
31-60	29 (36.7)	22 (36.1)	15 (36.6)	21 (36.2)	3 (18.8)	5 (31.2)
60-120	15 (19.0)	12 (19.7)	9 (22.0)	9 (15.5)	2 (12.5)	2 (12.5)
>120	5 (6.3)	3 (4.9)	1 (2.4)	4 (6.9)	2 (12.5)	2 (12.5)
Not reported	16 (20.3)	13 (21.3)	8 (19.5)	15 (25.9)	5 (31.2)	5 (31.2)

57

Table 1. Descriptive Characteristics of 79 Studies Examining SEL in ECEC Settings (continued)

Characteristics	Studies, No. (%) of Participants[a]					
	All (n = 79)	Social Competence (n = 61)	Emotional Competence (n = 41)	Problem Behaviors and Emotions (n = 58)	Behavioral Self-regulation (n = 16)	Early Learning Outcomes (n = 16)
Attempted to engage caregiver						
Yes	32 (40.5)	28 (45.9)	16 (39.0)	26 (44.8)	7 (43.8)	4 (25.0)
No or not clear	47 (59.5)	33 (54.1)	25 (60.9)	32 (55.2)	9 (56.3)	12 (75.0)
Informant						
Parent report	19 (24.1)	18 (29.5)	29 (70.7)	18 (31.0)	6 (37.5)	2 (12.5)
Teacher report	59 (74.7)	49 (80.3)	29 (70.7)	50 (86.2)	14 (87.5)	11 (68.8)
Observed	46 (58.2)	32 (54.5)	11 (26.8)	29 (50.0)	10 (62.5)	14 (87.5)
Authors considered implementation fidelity						
Yes	48 (60.8)	37 (60.7)	24 (58.5)	38 (65.5)	11 (68.8)	12 (75.0)
No or not clear	31 (39.2)	24 (39.3)	17 (41.5)	20 (34.5)	5 (31.2)	4 (25.0)

Abbreviations: ECEC, early childhood education and care; SEL, social and emotional learning; SES, socioeconomic status.

[a] Percentages have been rounded and may not total 100.

[b] Includes 1 published government report.

measures used are provided in eTable 3 in the Supplement. Several studies[37,44,46,51,61,74,77,83,86,88,89,91,95,113] collected follow-up data at least 1 month after the intervention concluded and reported sustainability of the program effect over time.

Universal SEL Approaches

Fifty-one SEL programs were examined across the 79 studies (eTable 2 in the Supplement). Interventions drew on overlapping theories of child development and shared a common goal to increase children's social and emotional skills through explicit and active instruction, modeling, opportunity for practice, and reinforcement, typically using classroom routines and activities (eg, circle time, small-group sessions, and play) and developmentally appropriate teaching methods (eg, storytelling, singing, role play, and puppetry). They differed, however, in their underlying theory of change; programs targeted varying mediating pathways to social and emotional competence,[82] with some addressing a broad and interrelated set of cognitive, behavioral, and affective skills and others addressing focal skills that encourage specific competencies such as mindfulness, coping and resilience, social problem solving, and conversational strategies (eTable 2 in the Supplement).

Meta-analysis Results

Overall Outcomes of Program Participation

The overall weighted mean (SE) effect size for all 391 effects was Cohen d = 0.38 (0.07) (95% CI, 0.24-0.51; P < .001). The results from the unconditional models and metaregression are provided in **Table 2** and **Table 3**, respectively. In the overall model, the proportion of variance in effect size between studies determined by the ICC was 84.5%, and several significant moderators were identified. Improved outcomes were observed for older children (unstandardized β [B] = 0.13; SE, 0.06; P = 0.03) and in programs delivered by a specialist or researcher rather than the classroom teacher (B = −0.28; SE, 0.14; P = .04). Assessment of child functioning based on the parent report suggested less improvement after program participation compared with measures completed by teachers, observers, or researchers (B = −0.23; SE, 0.05; P < .001). Furthermore, children displayed greater improvement in skill-based measures that were assessed in a test situation or structured task, compared with teacher, parent, or observer ratings of behavior (B = 0.20; SE, 0.05; P < .001). Higher-quality studies (those rated moderate or strong) were associated with lower effect sizes compared with lower-quality studies (B = −0.33; SE, 0.15; P = .03). When all significant variables were included in the model, parent informant (B = −0.19; SE, 0.05; P < .001) and skill-based

58

measures (B = 0.15; SE, 0.05; P = .002) showed a significant unique effect, whereas intervention leader (B = −0.25; SE, 0.15; P = .09) and study quality (B = −0.32; SE, 0.16; P = .05) did not. Parent informant and skills-based measures remained significant unique moderators in step 3 of the model (Table 3).

Social Competence
The weighted mean (SE) effect size in the social competence category was Cohen d = 0.30 (0.06) (95% CI, 0.18-0.42; P < 001). The test of heterogeneity showed variability across effect sizes (ICC = 0.69). The following were significant moderators when the data was examined in separate analyses: child age (B = 0.10; SE, 0.05; P = .04), intervention leader (B = −0.43; SE, 0.13; P < .001), and skills-based assessment (B = 0.35; SE, 0.10; P < .001), with mode of delivery (B = −0.31; SE, 0.19; P = .10) and teacher informant (B = −0.15; SE, 0.08; P = .05) meaningful but not significant. In a model including all significant variables, intervention leader (B = −0.35; SE, 0.10; P < .001) and skills-based measures (B = 0.27; SE, 0.10; P = .006) were significant unique moderators. These moderators remained significant when modeled simultaneously.

Emotional Competence
A medium to large effect on measures of emotional competence was found for the mean of 54 effect sizes (Cohen d [SE], 0.54 [0.16]; 95% CI, 0.22-0.86; P < 001). The proportion of variance determined by the ICC of 61.8% suggests moderator analyses were appropriate for this domain. Only 1 moderator reached significance; lower effect sizes were associated with higher-quality studies (B = −0.80; SE, 0.32; P = .01). Assessment with skill-based measure reached borderline significance (B = 0.44; SE, 0.24; P = .07).

Behavioral and Emotional Difficulties
The weighted mean effect size in this category was small (Cohen d [SE], 0.19 [0.04]; 95% CI, 0.11-0.28; P < .001), and the test of heterogeneity showed significant variability across effects (ICC = 0.75). The metaregression indicated specialist- or researcher-led programs (B = −0.23; SE, 0.10; P = .02) resulted in stronger effect sizes. Parent assessment of child behavior suggested less improvement (B = −0.23; SE, 0.06; P < .001), whereas greater improvement based on teacher report was identified (B = 0.10; SE, 0.05; P = .06); however, this did not reach significance. When significant moderators were analyzed together, parent informant (B = −0.23; SE, 0.06; P < .001) and intervention leader (B = −0.22; SE, 0.10; P = .03) remained significant.

Self-regulation
Sixteen effects within 13 studies[44,46,54,64,65,67,71,78,80,91,96,106,112] included a measure of behavioral self-regulation with a mean (SE) effect size of 0.28 (0.09) (95% CI, 0.11-0.46; P < .001). Evidence of substantial heterogeneity in effect size requiring metaregression was not evident in this category (ICC = 0.25).

Table 2. Unconditional Model Estimating Effect Sizes for Measures of Social-Emotional Functioning

Outcome Category	No. of Effects	Cohen d (SE) [95% CI]	z Value	I^2 Value Between	I^2 Value Within	τ^2 Value Between	τ^2 Value Within	Q Statistic[a]	ICC
All	391	0.38 (0.07) [0.24-0.51]	5.33[a]	78.38	14.34	0.29	0.05	2422.60	0.85
Social competence	115	0.30 (0.06) [0.18-0.42]	4.93[a]	59.02	26.58	0.11	0.05	782.33	0.69
Emotional competence	54	0.54 (0.16) [0.22 -0.86]	3.33[a]	59.71	36.83	0.54	0.33	714.42	0.62
Problem behaviors and emotions	170	0.19 (0.04) [0.11-0.28]	4.43[a]	56.64	18.63	0.06	0.02	676.79	0.75
Self-regulation	16	0.28 (0.09) [0.11 -0.46]	3.12[a]	20.54	58.88	0.02	0.07	83.82	0.25
Early learning outcomes	36	0.18 (0.08) [0.02-0.33]	2.18[b]	65.63	14.33	0.07	0.01	111.34	0.82

Abbreviation: ICC, intraclass correlation.

[a] P < .001.

[b] P < .05.

Table 3. Metaregression Predicting Effect Sizes for Measures of Social-Emotional Functioning

Moderators for Each Category	Analysis								
	Single Moderators			All Significant Moderators			Only Significant Moderators		
	B[a] (SE)	z Value	P Value	B[a] (SE)	z Value	P Value	B[a] (SE)	z Value	P Value
All Outcomes									
Publication status	0.05 (0.19)	0.25	.80	NA	NA	NA	NA	NA	NA
Program's age	0.00 (0.01)	−0.14	.89	NA	NA	NA	NA	NA	NA
Randomization	−0.15 (0.14)	−1.09	.28	NA	NA	NA	NA	NA	NA
Pretest	−0.12 (0.08)	−1.40	.16	NA	NA	NA	NA	NA	NA
Age of children	0.13 (0.06)	2.19	.03	0.03 (0.07)	0.50	.62	NA	NA	NA
Sex	0.00 (0.00)	1.50	.14	NA	NA	NA	NA	NA	NA
SES	−0.12 (0.14)	−0.85	.40	NA	NA	NA	NA	NA	NA
Instruction time, min/wk	0.00 (0.00)	1.08	.28	NA	NA	NA	NA	NA	NA
Length of program, wk	−0.00 (0.01)	−0.47	.64	NA	NA	NA	NA	NA	NA
Intervention leader[b]	−0.28 (0.14)	−2.02	.04	−0.25 (0.15)	−1.70	.09	NA	NA	NA
Mode of delivery[c]	−0.30 (0.20)	−1.49	.14	NA	NA	NA	NA	NA	NA
Parental involvement	0.11 (0.15)	0.74	.46	NA	NA	NA	NA	NA	NA
Parent informant	−0.23 (0.05)	−4.25	<.001	−0.19 (0.05)	−3.57	<.001	−0.19 (0.06)	−3.34	<.001
Teacher informant	−0.02 (0.04)	−0.39	.70	NA	NA	NA	NA	NA	NA
Skills-based measure	0.20 (0.05)	4.22	<.001	0.15 (0.05)	3.13	.002	0.16 (0.05)	3.31	.001
Study quality[d]	−0.33 (0.15)	−2.18	.03	−0.32 (0.16)	−1.92	.05	NA	NA	NA
Social Competence									
Publication status	−0.05 (0.20)	0.26	.80	NA	NA	NA	NA	NA	NA
Program's age	0.00 (0.01)	−0.27	.79	NA	NA	NA	NA	NA	NA
Randomization	−0.02 (0.13)	−0.15	.88	NA	NA	NA	NA	NA	NA
Pretest	−0.19 (0.15)	−1.27	.22	NA	NA	NA	NA	NA	NA
Age of children	0.10 (0.05)	2.06	.04	0.07 (0.04)	1.65	.10	NA	NA	NA
Sex	0.00 (0.00)	1.56	.13	NA	NA	NA	NA	NA	NA
SES	−0.16 (0.12)	−1.28	.20	NA	NA	NA	NA	NA	NA
Instruction time, min/wk	0.00 (0.00)	1.20	.23	NA	NA	NA	NA	NA	NA
Length of program, wk	0.00 (0.01)	−0.53	.60	NA	NA	NA	NA	NA	NA
Intervention leader[b]	−0.43 (0.13)	−3.28	.001	−0.35 (0.10)	−3.61	<.001	−0.38 (0.13)	−3.10	.002[e]
Mode of delivery[c]	−0.31 (0.19)	−1.63	.10	NA	NA	NA	NA	NA	NA
Parental involvement	0.04 (0.12)	0.39	.70	NA	NA	NA	NA	NA	NA
Parent informant	−0.13 (0.10)	−1.38	.17	NA	NA	NA	NA	NA	NA
Teacher informant	−0.15 (0.08)	−2.00	.05	NA	NA	NA	NA	NA	NA
Skills-based measure	0.35 (0.10)	3.51	<.001	0.27 (0.10)	2.72	.006	0.32 (0.10)	3.33	.002[e]
Study quality[d]	−0.15 (0.13)	−1.13	.26	NA	NA	NA	NA	NA	NA
Emotional Competence									
Publication status	0.19 (0.47)	0.41	.68	NA	NA	NA	NA	NA	NA
Program's age	−0.02 (0.03)	−0.64	.53	NA	NA	NA	NA	NA	NA
Randomization	−0.15 (0.36)	−0.42	.68	NA	NA	NA	NA	NA	NA
Pretest	0.03 (0.34)	0.07	.94	NA	NA	NA	NA	NA	NA
Age of children	0.15 (0.14)	1.08	.28	NA	NA	NA	NA	NA	NA
Sex	−0.02 (0.05)	−0.34	.73	NA	NA	NA	NA	NA	NA
SES	−0.27 (0.33)	−0.83	.41	NA	NA	NA	NA	NA	NA
Instruction time, min/wk	0.00 (0.01)	0.65	.52	NA	NA	NA	NA	NA	NA
Length of program, wk	−0.02 (0.02)	−1.18	.24	NA	NA	NA	NA	NA	NA
Intervention leader[b]	−0.20 (0.36)	−0.55	.58	NA	NA	NA	NA	NA	NA
Mode of delivery[c]	−0.52 (0.46)	−1.13	.26	NA	NA	NA	NA	NA	NA
Parental involvement	0.17 (0.34)	0.49	.62	NA	NA	NA	NA	NA	NA
Parent informant	−0.25 (0.38)	−0.65	.51	NA	NA	NA	NA	NA	NA
Teacher informant	−0.30 (0.27)	−1.12	.27	NA	NA	NA	NA	NA	NA

(continued)

60

Table 3. Metaregression Predicting Effect Sizes for Measures of Social-Emotional Functioning (continued)

Moderators for Each Category	Analysis								
	Single Moderators			All Significant Moderators			Only Significant Moderators		
	B[a] (SE)	z Value	P Value	B[a] (SE)	z Value	P Value	B[a] (SE)	z Value	P Value
Skills-based measure	0.44 (0.24)	1.84	.07	NA	NA	NA	NA	NA	NA
Study quality[d]	−0.80 (0.32)	−2.48	.01	NA	NA	NA	NA	NA	NA
Problem Behaviors and Emotions									
Publication status	−0.02 (0.11)	−0.18	.85	NA	NA	NA	NA	NA	NA
Program's age	0.01 (0.01)	0.90	.37	NA	NA	NA	NA	NA	NA
Randomization	−0.13 (0.09)	1.39	.17	NA	NA	NA	NA	NA	NA
Pretest	−0.14 (0.09)	−1.23	.22	NA	NA	NA	NA	NA	NA
Age of children	0.04 (0.05)	0.81	.42	NA	NA	NA	NA	NA	NA
Sex	0.00 (0.00)	1.12	.26	NA	NA	NA	NA	NA	NA
SES	−0.06 (0.09)	−0.70	.48	NA	NA	NA	NA	NA	NA
Instruction time, min/wk	0.000 (0.00)	−0.12	.91	NA	NA	NA	NA	NA	NA
Length of program, wk	0.000 (0.00)	−0.02	.98	NA	NA	NA	NA	NA	NA
Intervention leader[b]	−0.23 (0.10)	−2.37	.02	−0.22 (0.10)	−2.20	.03	NA	NA	NA
Mode of delivery[c]	−0.12 (0.14)	−0.84	.40	NA	NA	NA	NA	NA	NA
Parental involvement	0.05 (0.09)	0.62	.54	NA	NA	NA	NA	NA	NA
Parent informant	−0.23 (0.06)	−4.09	<.001	−0.23 (0.06)	−4.00	<.001	NA	NA	NA
Teacher informant	0.10 (0.05)	1.90	.06	NA	NA	NA	NA	NA	NA
Skills-based measure	0.08 (0.10)	0.84	.40	NA	NA	NA	NA	NA	NA
Study quality[d]	−0.06 (0.10)	−0.58	.56	NA	NA	NA	NA	NA	NA
Early Learning Outcomes									
Publication status	0.49 (0.28)	**1.77**	.08	NA	NA	NA	NA	NA	NA
Program's age	0.00 (0.01)	−0.23	.82	NA	NA	NA	NA	NA	NA
Randomization	−0.49 (0.28)	−1.77	.08	NA	NA	NA	NA	NA	NA
Pretest	−0.02 (0.14)	−0.17	.87	NA	NA	NA	NA	NA	NA
Age of children	−0.04 (0.09)	−0.51	.61	NA	NA	NA	NA	NA	NA
Sex	0.01 (0.02)	0.44	.66	NA	NA	NA	NA	NA	NA
SES	−0.30 (0.14)	−2.18	.03	−0.21 (0.145)	−1.51	.13	NA	NA	NA
Instruction time, min/wk	0.00 (0.00)	0.36	.72	NA	NA	NA	NA	NA	NA
Length of program, wk	0.00 (0.01)	−0.20	.84	NA	NA	NA	NA	NA	NA
Intervention leader[b]	−0.25 (0.16)	1.58	.11	NA	NA	NA	NA	NA	NA
Mode of delivery[c]	−0.35 (0.16)	−2.16	.03	−0.26 (0.17)	−1.58	.12	NA	NA	NA
Parental involvement	−0.05 (0.18)	−0.30	.77	NA	NA	NA	NA	NA	NA
Parent informant	NA	NA	NA	NA	NA	NA	NA	NA	NA
Teacher informant	−0.49 (0.29)	1.67	.10	NA	NA	NA	NA	NA	NA
Skills-based measure	0.15 (0.20)	0.74	.46	NA	NA	NA	NA	NA	NA
Study quality[d]	−0.49 (0.30)	1.67	.10	0.14 (0.21)	0.67	.50	NA	NA	NA

Abbreviations: NA, not applicable; SES, socioeconomic status.

[a] Unstandardized β.

[b] Includes specialist, researcher, or teacher.

[c] Includes small group or classroom.

[d] Includes low, medium, or high.

Early Learning Outcomes

Overall, program participation showed a small but significant importance for early learning outcomes (Cohen *d* [SE], 0.18 [0.08]; 95% CI, 0.02-0.33; *P* = .03). The ICC of 0.82 suggests moderator analyses were suitable for this category. Programs that included small-group and individual teaching practices (B = −0.35; SE, 0.16; *P* = .03) were associated with larger effect sizes. The SEL programs did not appear as effective on learning outcomes for children from low socioeconomic backgrounds (B = −0.30; SE, 0.14; *P* = .03). Higher-quality studies reported lower effects (B = −0.49; SE, 0.30; *P* = .10), although this did not reach significance. Moderators did not reach significance when combined in a single model.

Publication Bias

No significant asymmetry was detected in the overall data set (intercept = −0.01; SE, 0.10; P = .89), social competencies (intercept = 0.08; SE, 0.09; P = .37), emotional competencies (intercept = −0.01; SE, 0.23; P = .98), problem behaviors (intercept = 0.09; SE, 0.07; P = .23), behavioral self-regulation (intercept = 0.37; SE, 0.13; P = 004), or early learning outcomes (intercept = 0.04; SE, 0.12; P = .76). This result could indicate some degree of publication bias, or the tendency for smaller studies, which may be less rigorous, to be associated with larger effect sizes. Importantly however, publication status was examined as a moderator in the overall model and for each category, with no significant differences between published and unpublished studies found.

Discussion

What Outcomes Have Been Achieved by Curriculum-Based SEL Interventions Implemented in ECEC Settings?

Extensive research supports the efficacy and effectiveness of school-based SEL programs among older children and adolescents.[114] The findings of this review indicate that universal SEL programs delivered to preschool-aged children offer benefit across a range of social-emotional domains that underpin healthy development. Participation led to significant improvements in social competence, emotional competence, self-regulation, and early learning skills and decreased behavioral and emotional difficulties.

The largest effect occurred for measures of emotional competence. Children who can understand and regulate their emotions are able to show empathy, navigate social friendships, and develop prosocial relationships. Research suggests that emotional competence in early childhood contributes to social competence concurrently and later in kindergarten,[115] and emotional knowledge has been shown to be associated with social behavior and academic competence in later childhood.[116] Therefore, encouraging children's emotional skills through SEL intervention in the preschool years may have ongoing health and well-being benefits. Program outcome was not as pronounced for social competence or self-regulated behavior. This finding is consistent with reviews of social skills training that report stronger association with proximal factors (eg, child skill) than distal outcomes (eg, child behavior).[117]

Our findings suggest that early childhood SEL programs may have a smaller role in challenging behavior and emotions. After skills training, children may need time to practice and integrate learned behaviors into their behavior system before others will notice a change, a phenomenon known as the sleeper effect.[117] However, most of the studies that included a measure of challenging behavior did not report follow-up data, and it is therefore difficult to determine whether this sleeper effect occurred. Studies examining universal preventive programs often fail to identify improvement in externalizing problems.[54,118,119] This outcome may be influenced by limited measures available to assess behavioral problems in young children.[120] Moreover, a number of socioecological factors may contribute to the development and maintenance of problematic behaviors and emotions. More intensive parenting modules within SEL interventions might improve outcomes in this domain; further research is needed.

What Program Characteristics Are Associated With Positive Outcomes?

Programs delivered by facilitators, specialists, or researchers appeared more effective than those delivered by the classroom teacher, although the included studies did not consistently report teacher qualifications and experience, and therefore we could not ascertain whether and how educator differences influenced results. Han et al[64] suggest educators require in-depth training, personal development, and performance feedback to support the introduction and maintenance of complex classroom interventions. Examination of the teacher training provided by SEL programs was outside the scope of this review; however, professional development varied in terms of methods, length, and ongoing support, which may have influenced teacher capacity to deliver programs with high fidelity.

Parents reported less improvement in their child after the intervention compared with the classroom teacher or an independent observer, which may indicate the possibility of bias owing to teacher expectations. Authors discussed the challenges in engaging parents in the SEL intervention programs. School-based intervention research has found that when parents are not involved in the program, effects may remain specific to the classroom.[121] Furthermore, it is known that more intensive models that combine parent and teacher training lead to stronger outcomes that last over time.[122] Continued efforts to understand the barriers to parental involvement and design home-based modules that complement work within the classroom appears warranted.

Studies reported a small but significant benefit for older children. The skills that underpin SEL (eg, perspective taking, organized thinking, reasoning, goal setting, attention, motivation, and self-regulated behavior) rely on executive regulatory systems[15-17] that are shaped by biological and behavioral development. Older preschoolers may be equipped to glean more from these programs owing to maturation and experience, particularly with regard to social competencies. Finally, program's age did not appear to moderate outcomes, suggesting recent programmatic efforts have not led to additional improvement above those programs designed in previous decades.

Limitations

With the exception of a small number of randomized clinical trials, studies were constrained by sample size, the level of randomization possible in a classroom setting, reliance on teacher report of child outcomes, and limited engagement with parents. Larger trials with ethnically and socioeconomically diverse children will allow researchers to account for the effects of nesting of students within schools and better understand the extent of intervention outcomes.

Teacher and parent reports of child behavior and competencies provide an important perspective. However, the addition of objective assessment by raters blind to condition would lend credibility to the findings. In addition, it is imperative that researchers provide robust fidelity data to determine whether changes result from the intervention effect or a flaw in delivery.

Further exploration of the benefits of SEL intervention for children experiencing vulnerability is also needed. Studies varied in how they conceptualized and measured indices of risk. Closer examination of the outcomes for children most in need of intervention and the factors that influence whether these children access SEL programs in ECEC settings may assist professionals to reach children who are most likely to benefit from participation.

The differences in study outcomes may be influenced by the differing measures of social-emotional dimensions and constructs. Continued attention toward understanding the various pathways by which SEL interventions lead to specific developmental outcomes will allow programmers to target the skills and knowledge most likely to influence positive trajectories. We captured only explicit, curriculum-based SEL approaches. It is similarly important to examine and compare the benefit of implicit models that encourage educators to integrate SEL into everyday practices and core pedagogy. Further work is also needed to support teacher-led implementation of universal approaches. Closer examination of the professional development models available to educators and their effect on educator behavior, skill, and confidence is warranted.

Conclusions

The findings of this review suggest SEL programs administered at a relatively low intensity may be an effective way to increase social competence, emotional competence, behavioral self-regulation, and early learning outcomes and reduce behavioral and emotional difficulties in children aged 2 to 6 years. The SEL interventions appear to be particularly successful at increasing emotional knowledge, understanding, and regulation. To better understand the active ingredients and core components of successful programs and the sustainability of program benefits over time, longitudinal research that includes comprehensive and thorough measures of social, emotional, and cognitive functioning is recommended.

Corresponding Author: Helen Skouteris, PhD, Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University, Level 1, 43-52 Kanooka Grove, Clayton, Victoria, Australia 3168 (helen.skouteris@monash.edu).

Author Affiliations: Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University, Clayton, Australia (Blewitt, Bergmeier, Skouteris); School of Psychology, Deakin University, Geelong, Australia (Fuller-Tyszkiewicz); Faculty of Arts and Education, Deakin University, Geelong, Australia (Nolan); Victoria Family & Community Services, Baptcare, Victoria, Australia (Vicary); Center for Systems and Community Design, School of Public Health, City University of New York, New York, New York (Huang); School Psychologist Graduate Program, School Psychology Forum, Department of School Psychology, Counseling and Leadership, City University of New York, New York, New York (McCabe); Early Years Service, bestchance Child Family Care, Melbourne, Australia (McKay).

REFERENCES

1. Allen L, Kelly B. *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*. Washington, DC: The National Academies Press; 2015.

2. Denham SA, Brown C. "Plays nice with others:" social-emotional learning and academic success. *Early Educ Dev*. 2010;21(5):652-680.

3. Bornstein MH, Hahn CS, Haynes OM. Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: developmental cascades. *Dev Psychopathol*. 2010;22(4): 717-735. doi:10.1017/S0954579410000416

4. Denham SA. Social-emotional competence as support for school readiness: what is it and how do we assess it? *Early Educ Dev*. 2006;17(1):57-89. doi:10.1207/s15566935eed1701_4

5. Fantuzzo J, Bulotsky R, McDermott P, Mosca S, Lutz MN. A multivariate analysis of emotional and behavioral adjustment and preschool educational outcomes. *School Psych Rev*. 2003;32(2):185-203.

6. Organisation for Economic Co-operation and Development. *Skills for Social Progress: The Power of Social and Emotional Skills*. Paris, France: Organisation for Economic Co-operation and Development; 2015.

7. Brauner CB, Stephens CB. Estimating the prevalence of early childhood serious emotional/behavioral disorders: challenges and recommendations. *Public Health Rep*. 2006;121(3):303-310. doi:10.1177/003335490612100314

64

8. Carter AS, Briggs-Gowan MJ, Davis NO. Assessment of young children's social-emotional development and psychopathology: recent advances and recommendations for practice. *J Child Psychol Psychiatry*. 2004;45(1): 109-134. doi:10.1046/j.0021-9630.2003.00316.x

9. Denham SA, Wyatt TM, Bassett HH, Echeverria D, Knox SS. Assessing social-emotional development in children from a longitudinal perspective. *J Epidemiol Community Health*. 2009;63(suppl 1):i37-i52. doi:10.1136/jech.2007. 070797

10. Sroufe LA. The concept of development in developmental psychopathology. *Child Dev Perspect*. 2009;3(3): 178-183. doi:10.1111/j.1750-8606.2009.00103.x

11. Organisation for Economic Co-operation and Development. *Education at a Glance 2017: OECD Indicators*. Paris, France: Organisation for Economic Co-operation and Development; 2017.

12. Phillips D, Shonkoff JP. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, DC: National Academy Press; 2000.

13. National Scientific Council on the Developing Child. The science of early childhood development: closing the gap between what we know and what we do. https://developingchild.harvard.edu/resources/the-science-of-early-childhood-development-closing-the-gap-between-what-we-know-and-what-we-do/. 2007. Accessed June 14, 2018.

14. Weissberg RP, Durlak JA, Domitrovich CE, Gullotta TP. Social and emotional learning: past, present, and future. In: Durlak JA, ed. *Handbook of Social and Emotional Learning*. New York, NY: Guilford Press; 2015.

15. Blair C. School readiness: integrating cognition and emotion in a neurobiological conceptualization of children's functioning at school entry. *Am Psychol*. 2002;57(2):111-127. doi:10.1037/0003-066X.57.2.111

16. Greenberg MT. Promoting resilience in children and youth: preventive interventions and their interface with neuroscience. *Ann N Y Acad Sci*. 2006;1094(1):139-150.

17. Riggs NR, Jahromi LB, Razza RP, Dillworth-Bart JE, Mueller U. Executive function and the promotion of social-emotional competence. *J Appl Dev Psychol*. 2006;27(4):300-309. doi:10.1016/j.appdev.2006.04.002

18. Bierman KL, Motamedi M. SEL programs for preschool children. In: Durlak JA, Domitrovich CE, Weissberg RP, Gullotta TP, eds. *Handbook on Social and Emotional Learning: Research and Practice*. New York, NY: Guilford Press; 2015.

19. McCabe PC, Altamura M. Empirically valid strategies to improve social and emotional competence of preschool children. *Psychol Sch*. 2011;48(5):513-540. doi:10.1002/pits.20570

20. Schindler HS, Kholoptseva J, Oh SS, et al. Maximizing the potential of early childhood education to prevent externalizing behavior problems: a meta-analysis. *J Sch Psychol*. 2015;53(3):243-263. doi:10.1016/j.jsp.2015. 04.001

21. Sabey CV, Charlton CT, Pyle D, Lignugaris-Kraft B, Ross SW. A review of classwide or universal social, emotional, behavioral programs for students in kindergarten. *Rev Educ Res*. 2017;87(3):512-543. doi:10.3102/ 0034654316689307

22. McClelland MM, Tominey SL, Schmitt SA, Duncan R. SEL interventions in early childhood. *Future Child*. 2017; 27(1):33-47. https://files.eric.ed.gov/fulltext/EJ1145093.pdf

23. Durlak JA. What everyone should know about implementation. In: Durlak JA, Domitrovich CE, Weissberg RP, Gullotta TP, eds. *Handbook on Social and Emotional Learning: Research and Practice*. New York, NY: Guilford Press; 2015.

24. Rosenthal R. The file drawer problem and tolerance for null results. *Psychol Bull*. 1979;86(3):638-641. doi:10. 1037/0033-2909.86.3.638

25. Jones SM, Zaslow M, Darling-Churchill KE, Halle TG. Assessing early childhood social and emotional development: key conceptual and measurement issues. *J Appl Dev Psychol*. 2016;45:42-48. doi:10.1016/j.appdev. 2016.02.008

26. Federal Interagency Forum on Child and Family Statistics. Characteristics of existing measures of social and emotional development in early childhood: applications for federal reporting and data collection. https://www. childstats.gov/pdf/Char_Existing_Measures_EC_SocEmotDev.pdf. May 26, 2015. Accessed January 22, 2018.

27. National Collaborating Center for Methods and Tools. Quality assessment tool for quantitative studies. https:// www.nccmt.ca/knowledge-repositories/search/15. 1998. Accessed October 3, 2018.

28. Hedges LV. Distribution theory for glass's estimator of effect size and related estimators. *J Educ Behav Stat*. 1981;6(2):107-128. doi:10.3102/10769986006002107

29. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. Burlington, MA: Elsevier Science; 2013. doi:10. 4324/9780203771587

65

30. Lipsey MW, Wilson DB. *Practical Meta-analysis* [electronic resource]. Thousand Oaks, CA: Sage Publications; 2001.

31. Hox JJ. *Multilevel Analysis: Techniques and Applications*. 2nd ed. New York, NY: Routledge; 2010. doi:10.4324/9780203852279

32. Viechtbauer W. Conducting meta-analyses in R with the metafor package. *J Stat Softw*. 2010;36(3):1-48. doi:10.18637/jss.v036.i03

33. Egger M, Davey Smith G, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. *BMJ*. 1997;315(7109):629-634. doi:10.1136/bmj.315.7109.629

34. Allen SF. A study of a violence prevention program in prekindergarten classrooms. *Child Schools*. 2009;31(3):177-187. doi:10.1093/cs/31.3.177

35. Amesty E, Clinton A. Cultural adaptation of a preschool prevention program. *Interam J Psychol*. 2009;43(1):106-113.

36. Anliak S, Sahin D. An observational study for evaluating the effects of interpersonal problem-solving skills training on behavioural dimensions. *Early Child Dev Care*. 2010;180(8):995-1003. doi:10.1080/03004430802670819

37. Anticich SAJ, Barrett PM, Silverman W, Lacherez P, Gillies R. The prevention of childhood anxiety and promotion of resilience among preschool-aged children: a universal school based trial. *Adv Sch Ment Health Promot*. 2013;6(2):93-121. doi:10.1080/1754730X.2013.784616

38. Aram D, Shlak M. The safe kindergarten: promotion of communication and social skills among kindergartners. *Early Educ Dev*. 2008;19(6):865-884. doi:10.1080/10409280802516090

39. Arda TB, Ocak Ş. Social competence and Promoting Alternative Thinking Strategies—PATHS preschool curriculum. *Kuram ve Uygulamada Eğitim Bilimleri*. 2012;12(4):2691-2698.

40. Ashdown DM, Bernard ME. Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children? *Early Child Educ J*. 2012;39(6):397-405. doi:10.1007/s10643-011-0481-x

41. Barnett WS, Jung K, Yarosz DJ, et al. Educational effects of the Tools of the Mind curriculum: a randomized trial. *Early Child Res Q*. 2008;23(3):299-313. doi:10.1016/j.ecresq.2008.03.001

42. Bassett T. *ABC's of Feelings: An Early Intervention Curriculum for Teaching Emotional Knowledge to Preschool Children*. San Francisco, CA: Alliant International University, ProQuest Dissertations Publishing; 2008.

43. Benítez JL, Fernández M, Justicia F, Fernández E, Justicia A. Results of the Aprender a Convivir program for development of social competence and prevention of antisocial behavior in four-year-old children. *Sch Psychol Int*. 2011;32(1):3-19. doi:10.1177/0143034310396804

44. Bierman KL, Domitrovich CE, Nix RL, et al. Promoting academic and social-emotional school readiness: the head start REDI program. *Child Dev*. 2008;79(6):1802-1817.

45. Boyle D, Hassett-Walker C. Reducing overt and relational aggression among young children: the results from a two-year outcome evaluation. *J Sch Violence*. 2008;7(1):27-42. doi:10.1300/J202v07n01_03

46. Brigman G, Lane D, Switzer D, Lane D, Lawrence R. Teaching children school success skills. *J Educ Res*. 1999;92(6):323. doi:10.1080/00220679909597615

47. Carpenter EM. *A Curriculum-Based Approach for Social -Cognitive Skills Training: An Intervention Targeting Aggression in Head Start Preschoolers*. Orono: The University of Maine, ProQuest Dissertation Publishing; 2002.

48. Conner NW, Fraser MW. Preschool social-emotional skills training: a controlled pilot test of the making choices and strong families programs. *Res Soc Work Pract*. 2011;21(6):699-711. doi:10.1177/1049731511408115

49. Deacon E, van Rensburg E. Enhancing emotional and social competence in a group of South-African school beginners: a preliminary study. *J Psychol Afr*. 2012;22(4):677-680. doi:10.1080/14330237.2012.10820587

50. Denham SA, Burton R. A social-emotional intervention for at-risk 4-year-olds. *J Sch Psychol*. 1996;34(3):225-245. doi:10.1016/0022-4405(96)00013-1

51. Dereli E. Examining the permanence of the effect of a social skills training program for the acquisition of social problem-solving skills. *Soc Behav Personal*. 2009;37(10):1419-1428. doi:10.2224/sbp.2009.37.10.1419

52. Dereli-İman E. The effect of the Values Education Programme on 5.5-6 year old children's social development: social skills, psycho-social development and social problem solving skills. *Kuram ve Uygulamada Eğitim Bilimleri*. 2014;14(1):262-268.

53. Dobrin N, Kállay É. The investigation of the short-term effects of a primary prevention program targeting the development of emotional and social competencies in preschoolers. *Cogn Brain Behav*. 2013;17(1):15-34.

54. Domitrovich CE, Cortes RC, Greenberg MT. Improving young children's social and emotional competence: a randomized trial of the preschool "PATHS" curriculum. *J Prim Prev*. 2007;28(2):67-91. doi:10.1007/s10935-007-0081-0

55. Dubas JS, Lynch KB, Galano J, Geller S, Hunt D. Preliminary evaluation of a resiliency-based preschool substance abuse and violence prevention project. *J Drug Educ*. 1998;28(3):235-255. doi:10.2190/VBY0-RLXA-WJ05-NPRX

56. Fishbein DH, Domitrovich C, Williams J, et al. Short-term intervention effects of the PATHS curriculum in young low-income children: capitalizing on plasticity. *J Prim Prev*. 2016;37(6):493-511. doi:10.1007/s10935-016-0452-5

57. Flook L, Goldberg SB, Pinger L, Davidson RJ. Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. *Dev Psychol*. 2015;51(1):44-51. doi:10.1037/a0038256

58. Garrison JLA. *Self-compassion and Mindfulness Program for Preschoolers*. San Diego, CA: San Diego State University, ProQuest Dissertation Publishing; 2017.

59. Gavazzi IG, Ornaghi V. Emotional state talk and emotion understanding: a training study with preschool children. *J Child Lang*. 2011;38(5):1124-1139. doi:10.1017/S0305000910000772

60. Giménez-Dasí M, Fernández-Sánchez M, Quintanilla L. Improving social competence through emotion knowledge in 2-year-old children: a pilot study. *Early Educ Dev*. 2015;26(8):1128-1144. doi:10.1080/10409289.2015.1016380

61. Gunter L, Caldarella P, Korth BB, Young KR. Promoting social and emotional learning in preschool students: a study of "strong start pre-K." *Early Child Educ J*. 2012;40(3):151-159. doi:10.1007/s10643-012-0507-z

62. Hall JD, Jones CH, Claxton AF. Evaluation of the Stop & Think social skills program with kindergarten students. *J Appl Sch Psychol*. 2008;24(2):265-283. doi:10.1080/15377900802093280

63. Hamre BK, Pianta RC, Mashburn AJ, Downer JT. Promoting young children's social competence through the preschool PATHS curriculum and MyTeachingPartner professional development resources. *Early Educ Dev*. 2012;23(6):809-832. doi:10.1080/10409289.2011.607360

64. Han SS, Catron T, Weiss B, Marciel KK. A teacher-consultation approach to social skills training for pre-kindergarten children: treatment model and short-term outcome effects. *J Abnorm Child Psychol*. 2005;33(6):681-693. doi:10.1007/s10802-005-7647-1

65. Hughes C, Cline T. An evaluation of the preschool PATHS curriculum on the development of preschool children. *Educ Psychol Pract*. 2015;31(1):73-85. doi:10.1080/02667363.2014.988327

66. Izard CE, Trentacosta CJ, King KA, Mostow AJ. An emotion-based prevention program for Head Start children. *Early Educ Dev*. 2004;15(4):407-422. doi:10.1207/s15566935eed1504_4

67. Izard CE, King KA, Trentacosta CJ, et al. Accelerating the development of emotion competence in Head Start children: effects on adaptive and maladaptive behavior. *Dev Psychopathol*. 2008;20(1):369-397. doi:10.1017/S0954579408000175

68. Jack D. *Investigation of the Effects of a Violence Prevention Program in Reducing Kindergarten-Aged Children's Self-reported Aggressive Behaviors*. Chester, PA: Widener University School of Nursing, ProQuest Dissertation Publishing; 2009.

69. Jakob JR. *An Evaluation of Second Step: A Violence Prevention Curriculum With Kindergarten Students*. Hempstead, NY: Hofstra University; 2005.

70. Justicia-Arráez A, Pichardo C, Justicia F. Effect of the "Aprender a Convivir" program on social competence and behavioral problems in three-year-old children. *An Psicol*. 2015;31(3):825-836. doi:10.6018/analesps.31.3.185621

71. King DRJ. *Classroom-Based Social Skills Training as Primary Prevention in Kindergarten: Teacher Ratings of Social Functioning*. St Louis: University of Missouri; 2001.

72. Koglin U, Petermann F. The effectiveness of the behavioural training for preschool children. *Eur Early Child Educ Res J*. 2011;19(1):97-111. doi:10.1080/1350293X.2011.548949

73. Landry SH, Zucker TA, Taylor HB, et al; School Readiness Research Consortium. Enhancing early child care quality and learning for toddlers at risk: the responsive early childhood program. *Dev Psychol*. 2014;50(2):526-541. doi:10.1037/a0033494

74. Larmar S, Dadds MR, Shochet I. Successes and challenges in preventing conduct problems in Australian preschool-aged children through the Early Impact (EI) Program. *Behav Change*. 2006;23(2):121-137. doi:10.1375/bech.23.2.121

67

75. Lewis KM. *An Ounce of Prevention: Evaluation of the Fun FRIENDS Program for Kindergarteners in a Rural School*. Blacksburg: Virginia Polytechnic Institute and State University, ProQuest Dissertation Publishing; 2013.

76. Lonigan CJ, Phillips BM, Clancy JL, et al; School Readiness Consortium. Impacts of a comprehensive school readiness curriculum for preschool children at risk for educational difficulties. *Child Dev*. 2015;86(6):1773-1793. doi:10.1111/cdev.12460

77. Lösel F, Beelmann A, Stemmler M, Jaursch S. Prevention of social behavior problems at preschool age: evaluation of the parent and child training program package EFFEKT. *Zeitschrift Klin Psychol Psychother*. 2006;35 (2):127-139.

78. Lynch KB, Geller SR, Schmidt MG. Multi-year evaluation of the effectiveness of a resilience-based prevention program for young children. *J Prim Prev*. 2004;24(3):335-353. doi:10.1023/B:JOPP.0000018052.12488.d1

79. McKinney EP, Rust JO. Enhancing preschool African American children's social skills. *J Instr Psychol*. 1998;25 (4):235.

80. Mishara BL, Ystgaard M. Effectiveness of a mental health promotion program to improve coping skills in young children: "Zippy's friends". *Early Child Res Q*. 2006;21(1):110-123. doi:10.1016/j.ecresq.2006.01.002

81. Moisan A, Poulin F, Capuano F, Vitaro F. Impact of two interventions to improve the social competence of aggressive children in kindergarten. *Can J Behav Sci*. 2014;46(2):301-311. doi:10.1186/s40723-017-0031-0

82. Morris P, Mattera S, Castells N, Bangser M, Bierman K, Raver C. *Impact Findings From the Head Start CARES Demonstration: National Evaluation of Three Approaches to Improving Preschoolers' Social and Emotional Competence*. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, US Department of Health and Human Services; 2014. OPRE report 2014-44.

83. O'Connor EE, Cappella E, McCormick MP, McClowry SG. An examination of the efficacy of insights in enhancing the academic and behavioral development of children in early grades. *J Educ Psychol*. 2014;106(4): 1156-1169. doi:10.1037/a0036615

84. Opre A, Buzgar R, Dumulescu D. Empirical support for SELF KIT: a rational emotive education program. *J Cogn Behav Psychother*. 2013;13(2A):557-573.

85. Ornaghi V, Brazzelli E, Grazzani I, Agliati A, Lucarelli M. Does training toddlers in emotion knowledge lead to changes in their prosocial and aggressive behavior toward peers at nursery? *Early Educ Dev*. 2017;28(4):396-414. doi:10.1080/10409289.2016.1238674

86. Ornaghi V, Grazzani I, Cherubin E, Conte E, Piralli F. "Let's talk about emotions!" the effect of conversational training on preschoolers' emotion comprehension and prosocial orientation. *Soc Dev*. 2015;24(1):166-183. doi:10.1111/sode.12091

87. Ostrov JM, Godleski SA, Kamper-DeMarco KE, Blakely-McClure SJ, Celenza L. Replication and extension of the early childhood friendship project: effects on physical and relational bullying. *School Psych Rev*. 2015;44(4): 445-463. doi:10.17105/spr-15-0048.1

88. Pahl KM, Barrett PM. Preventing anxiety and promoting social and emotional strength in preschool children: a universal evaluation of the Fun FRIENDS program. *Adv Sch Ment Health Promot*. 2010;3(3):14-25. doi:10.1080/1754730X.2010.9715683

89. Petermann F, Natzke H. Preliminary results of a comprehensive approach to prevent antisocial behaviour in preschool and primary school pupils in Luxembourg. *Sch Psychol Int*. 2008;29(5):606-626. doi:10.1177/0143034308099204

90. Pickens J. Socio-emotional programme promotes positive behaviour in preschoolers. *Child Care Pract*. 2009; 15(4):261-278. doi:10.1080/13575270903149323

91. Poehlmann-Tynan J, Vigna AB, Weymouth LA, et al. A pilot study of contemplative practices with economically disadvantaged preschoolers: children's empathic and self-regulatory behaviors. *Mindfulness*. 2016;7(1):46-58. doi:10.1007/s12671-015-0426-3

92. Randall KD. *First Friends—A Social-Emotional Preventive Intervention Program: The Mediational Role of Inhibitory Control*. Ottawa, Canada: Department of Psychology, University of Victoria; 2003.

93. Reid MJ, Webster-Stratton C, Hammond M. Enhancing a classroom social competence and problem-solving curriculum by offering parent training to families of moderate- to high-risk elementary school children. *J Clin Child Adolesc Psychol*. 2007;36(4):605-620. doi:10.1080/15374410701662741

94. Rodker JD. *Promoting Social-Emotional Development of Children During Kindergarten: A Zippy's Friends Program Evaluation*. New York, NY: Department of Psychology, Pace University; 2013.

95. Saltali ND, Denız ME. The effects of an emotional education program on the emotional skills of six-year-old children attending preschool. *Kuram ve Uygulamada Eğitim Bilimleri*. 2010;10(4):2123-2140.

68

96. Sandy SV, Boardman SK. The peaceful kids conflict resolution program. *Int J Confl Manage*. 2000;11(4): 337-357. doi:10.1108/eb022845

97. Schell A, Albers L, von Kries R, Hillenbrand C, Hennemann T. Preventing behavioral disorders via supporting social and emotional competence at preschool age. *Dtsch Arztebl Int*. 2015;112(39):647-654.

98. Schmitt SA, Flay BR, Lewis K. A pilot evaluation of the "Positive Action" prekindergarten lessons. *Early Child Dev Care*. 2014;184(12):1978-1991. doi:10.1080/03004430.2014.903942

99. Schmitt SA, Lewis KM, Duncan RJ, Korucu I, Napoli AR. The effects of positive action on preschoolers' social-emotional competence and health behaviors [published online March 20, 2017]. *Early Child Educ J*. doi:10.1007/s10643-017-0851-0

100. Serna L, Nielsen E, Lambros K, Forness S. Primary prevention with children at risk for emotional or behavioral disorders: data on a universal intervention for Head Start classrooms. *Behav Disord*. 2000;26(1):70-84. doi:10.1177/019874290002600107

101. Serna LA, Nielsen E, Mattern N, Forness S. Primary prevention in mental health for Head Start classrooms: partial replication with teachers as intervenors. *Behav Disord*. 2003;28(2):124-129. doi:10.1177/019874290302800207

102. Bilir Seyhan G, Ocak Karabay S, Arda Tuncdemir TB, Greenberg MT, Domitrovich C. The effects of promoting alternative thinking strategies preschool program on teacher-children relationships and children's social competence in Turkey [published online May 2, 2017]. *Int J Psychol*. doi:10.1002/ijop.12426

103. Starnes LP. *Effects of Social-Emotional Education on Pre-Kindergarten Student Academic Achievement*. Lynchburg, VA: Liberty University, ProQuest Dissertation Publishing; 2017.

104. Ştefan CA, Miclea M. Effects of a multifocused prevention program on preschool children's competencies and behavior problems. *Psychol Sch*. 2013;50(4):382-402. doi:10.1002/pits.21683

105. Stephenson CW. *The Effectiveness of a Violence Prevention Program Used as A Nursing Intervention Tool on Aggression Among Children in Pre-kindergarten*. Boca Raton: Florida Atlantic University, ProQuest Dissertation Publishing; 2009.

106. Tominey SL, McClelland MM. Red light, purple light: findings from a randomized trial using circle time games to improve behavioral self-regulation in preschool. *Early Educ Dev*. 2011;22(3):489-519. doi:10.1080/10409289.2011.574258

107. Ulutaş İ, Ömeroğlu E. The effects of an emotional intelligence education program on the emotional intelligence of children. *Soc Behav Personal*. 2007;35(10):1365-1372. doi:10.2224/sbp.2007.35.10.1365

108. Upshur C, Wenz-Gross M, Reed G. A pilot study of a primary prevention curriculum to address preschool behavior problems. *J Prim Prev*. 2013;34(5):309-327. doi:10.1007/s10935-013-0316-1

109. Upshur CC, Heyman M, Wenz-Gross M. Efficacy trial of the Second Step Early Learning (SSEL) curriculum: preliminary outcomes. *J Appl Dev Psychol*. 2017;50:15-25. doi:10.1016/j.appdev.2017.03.004

110. Vestal MA. *How Teacher Training in Conflict Resolution and Peace Education Influences Attitudes, Interactions and Relationships in Head Start Centers*. Fort Lauderdale, FL: Nova Southeastern University, ProQuest Dissertation Publishing; 2001.

111. Webster-Stratton C, Jamila Reid M, Stoolmiller M. Preventing conduct problems and improving school readiness: evaluation of the Incredible Years teacher and child training programs in high-risk schools. *J Child Psychol Psychiatry*. 2008;49(5):471-488. doi:10.1111/j.1469-7610.2007.01861.x

112. Brigman GA, Webb LD. Ready to learn: Teaching kindergarten students school success skills. *J Educ Res*. 2003;96(5):286-292. doi:10.1080/00220670309597641

113. Bierman KL, Nix RL, Heinrichs BS, et al. Effects of Head Start REDI on children's outcomes 1 year later in different kindergarten contexts. *Child Dev*. 2014;85(1):140-159. doi:10.1111/cdev.12117

114. Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, Schellinger KB. The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. *Child Dev*. 2011;82(1):405-432. doi:10.1111/j.1467-8624.2010.01564.x

115. Denham SA, Blair KA, DeMulder E, et al. Preschool emotional competence: pathway to social competence? *Child Dev*. 2003;74(1):238-256. doi:10.1111/1467-8624.00533

116. Izard C, Fine S, Schultz D, Mostow A, Ackerman B, Youngstrom E. Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychol Sci*. 2001;12(1):18-23.

117. Losel F, Stemmler M, Bender D. Long-term evaluation of a bimodal universal prevention program: effects on antisocial development from kindergarten to adolescence. *J Exp Criminol*. 2013;(4):429-449. doi:10.1007/s11292-013-9192-1

69

118. Slee PT, Murray-Harvey R, Dix KL, et al. KidsMatter early childhood evaluation report. https://dspace.flinders.edu.au/xmlui/handle/2328/26833. July 2012. Accessed March 19, 2017.

119. Greenberg MT, Abenavoli R. Universal interventions: fully exploring their impacts and potential to produce population-level impacts. *J Res Educ Eff*. 2017;10(1):40-67. doi:10.1080/19345747.2016.1246632

120. Halle TG, Darling-Churchill KE. Review of measures of social and emotional development. *J Appl Dev Psychol*. 2016;45:8-18. doi:10.1016/j.appdev.2016.02.003

121. Barkley RA, Shelton TL, Crosswait C, et al. Multi-method psycho-educational intervention for preschool children with disruptive behavior: preliminary results at post-treatment. *J Child Psychol Psychiatry*. 2000;41(3):319-332. doi:10.1111/1469-7610.00616

122. Neville HJ, Stevens C, Pakulak E, et al. Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers. *Proc Natl Acad Sci U S A*. 2013;110(29):12138-12143.

SUPPLEMENT.

eFigure. Example Search Strategy

eTable 1. Descriptive Summary of 81 Studies Examining Universal Social and Emotional Learning Programs in Preschool Settings

eTable 2. Social and Emotional Learning Program Descriptions

eTable 3. Summary of Constructs Within Each Domain of Social-Emotional Development and Measures Used

70

3.3 Universal (Tier 1) Curriculum-Based SEL Intervention and Teacher Outcomes

      The second systematic literature review explored the effectiveness of universal curriculum-based SEL programming on teacher outcomes. Sixteen studies were captured, with findings suggesting SEL programs may strengthen teaching quality, particularly the provision of responsive and nurturing teacher-child interactions and effective classroom management. To date, it appears few studies have examined the impact of SEL programming on teachers' knowledge, self-efficacy, or social-emotional wellbeing. This paper was submitted on 19 December 2019 to the *International Journal of Environmental Research and Public Health* for peer review.

Manuscript Title: Do Curriculum-Based Social and Emotional Learning Programs in Early Childhood Education and Care Strengthen Teacher Outcomes? A Systematic Literature Review

Authors: Claire Blewitt[1], Amanda O'Connor[1], Heather Morris[1], Aya Mousa[1], Heidi Bergmeier[1], Andrea Nolan[2], Kylie Jackson[3], Helen Barrett[3], Helen Skouteris[1, 4]

[1]Monash Centre for Health Research and Implementation, Monash University, Melbourne, Australia
[2]Deakin University, Geelong, Australia
[3]bestchance Child Family Care, Melbourne, Australia
[4]Warwick Business School, Warwick University, United Kingdom

Corresponding Author: Professor Helen Skouteris, Monash Centre for Health Research and Implementation, Monash University, Level 1, 43-52 Kanooka Grove, Clayton, 3168, Victoria, Australia. Email:helen.skouteris@monash.edu

Author Contact Details:
Claire Blewitt: claire.blewitt@monash.edu
Amanda O'Connor: mandy.oconnor@monash.edu
Heather Morris: heather.morris@monash.edu
Aya Mousa: aya.mousa@monash.edu
Heidi Bergmeier: heidi.bergmeier@monash.edu
Andrea Nolan: a.nolan@deakin.edu.au
Kylie Jackson: kjackson@bestchance.org.au
Helen Barrett: hbarrett@bestchance.org.au

Abstract

There is growing awareness of the benefits of curriculum-based social and emotional learning (SEL) programs in early learning settings for children's social, emotional and cognitive development. While many SEL programs aim to strengthen teachers' capacity and capability to foster children's social and emotional skills, research effort has focused on understanding the impact on child outcomes, with less emphasis on improvement in teaching quality. This systematic literature review examined the effectiveness of universal curriculum-based SEL programming on teacher outcomes. Sixteen studies met inclusion criteria, capturing ten distinct SEL interventions. The findings suggest SEL programs may strengthen teaching quality, particularly the provision of responsive and nurturing teacher-child interactions and effective classroom management. Data were insufficient to ascertain whether participation improved teachers' knowledge, self-efficacy, or social-emotional wellbeing. The potential pathways between SEL intervention, teaching quality and children's developmental outcomes are discussed.

Keywords: Preschool, Kindergarten, Social and Emotional Learning, Social and Emotional Development, Teaching Quality, Teacher-Child Interaction, Pedagogy

Engagement in early childhood education and care (ECEC) services can strengthen children's emotional, cognitive and physical development, with benefits that persist into adulthood [1]. The quality of these early learning programs is an important predictor of language and literacy skill, social-emotional competence, and behavioural engagement [2-5], particularly for children experiencing economic disadvantage [6-8]. Quality in ECEC is often defined by structural components including the physical classroom environment, teacher-child ratio, group size, staff training and qualifications, as well as process components capturing proximal features of teaching quality such as teachers' instructional practices and the quality of teacher-child interactions [9]. Empirical research and theory emphasize that high-quality teacher-child interactions are especially vital to children acquiring the social-emotional skills necessary to form prosocial relationships and engage in learning [3-5,10], however studies indicate many children are not consistently exposed to the quality of interactions required for optimal development [11-16]. Several personal attributes may also influence the quality of educator-child interactions. For example, high levels of self-efficacy has been associated with positive expectations for children [17], empathy [18], increased use of high-quality practices in preschool rooms [19], and time spent teaching social, emotional and cognitive skills [20], educators' own social and emotional wellbeing can influence their ability to build strong relationships and facilitate positive outcomes for children [21], and teacher stress has predicted lower levels and less consistent emotional support [22] and lower quality teaching practices [20].

A growing number of social and emotional learning (SEL) programs designed for early learning settings focus on both high-quality teacher-child interactions and targeted pedagogy to nurture children's social-emotional development. SEL involves fostering children's ability to recognize, understand and regulate their emotions, thoughts and behaviour, empathize with the feelings and experiences of others, build prosocial

relationships and make responsible decisions through explicit lessons, child-centered teaching practices, integration within broader curricula and centre-wide strategies [23]. Reviews examining the effectiveness of ECEC-based SEL intervention report a small-to-moderate impact on children's social-emotional functioning [24-26]. For example, a recent systematic review and meta-analysis by our research group of 79 controlled intervention studies (capturing 51 distinct SEL programs) found that children who participated in universal, curriculum-based SEL programs showed significant improvement in social competence, emotional competence, behavioural self-regulation, and early learning skills, and reduced behavioural and emotional challenges post-intervention compared to control group peers [27]. However, researchers have noted the currently limited understanding of specific program components related to positive outcomes [24,27,28].

Recognising that child behaviour is highly influenced by teacher behaviour, many SEL programs aim to influence child outcomes by strengthening teachers' capacity and capability to implement evidence-based SEL practices with fidelity [29]. Yet, much research effort has focused on understanding the impact of these programs on children, with fewer evaluations addressing teacher-level outcomes. A recent meta-analysis evaluated the impact of teacher training (with and without a curriculum-based component) on both child *and* teacher outcomes, finding training was moderately effective at improving child care quality, caregiver interaction skill, and children's social-emotional development [30]. The inclusion of explicit curricula alongside teacher training did not appear to be a significant moderator of program success, however, only five of the 19 studies in this review included a curriculum-based component. Closer examination of the impact of curriculum-based interventions on a broad range of teacher-level outcomes is needed to understand the domains in which teachers benefit from SEL programming, and the pathways by which SEL programming can influence children's developmental trajectories [31].

The aim of the present paper, therefore, was to systematically review the literature in order to examine the following research questions: (i) to what extent have teacher-level outcomes (e.g., teaching practice and behaviour, teacher-child interactions, teacher-child relationships, and teachers' knowledge, self-efficacy or social-emotional wellbeing) been evaluated in ECEC-based SEL research; (ii) what does the literature reveal about teacher-level outcomes associated with curriculum-based SEL programs in ECEC settings for children aged 0 to 6 years; (iii) what are the limitations of research in this area; and (iv) what recommendations can be made for future research?

Methods

Search Strategy and Study Selection

Three electronic databases**,** MEDLINE Complete, PsychINFO and ERIC were searched using combinations of the following key terms: intervention*, program*, curricul* and "early learning centre", "early learning center", preschool, preschool*, "pre school", "pre-school", childcare, "child?care", kinder*, "pre?kindergarten", "pre-K", "pre K", "day care", daycare, "Head Start", HeadStart and social, emotion*, social-emotional, "SEL", "self-esteem", empathy, "emotional intelligence", "conflict resolution", "problem?solving", resilien*, aggress*, anxi*, prevent*, externali*, internali*, withdraw* and educator*, teacher*, leader*. Additional articles were identified by scanning reference lists of included studies and relevant systematic reviews. The search aimed to identify peer-reviewed studies that evaluated the impact of universal, curriculum-based SEL programs in ECEC settings on teacher outcomes, published in English between 1999 and 2019. All database searches were carried out between July to August 2019.

Inclusion and Exclusion Criteria

Studies were included if they met the following criteria:

(i) *Research Design*: Randomized controlled trial, quasi-experimental trial with a comparator group (no limits applied on the type of comparison group), or a single-group pre-post design.

(ii) *Research Setting:* Centre-based ECEC settings, including kindergartens, preschools and child care services for children from birth to 6 years of age.

(iii) *Type of Program:* Universal, curriculum-based SEL program for preschool-aged children addressing at least one of the following competencies: self-awareness (recognizing emotions, thoughts, strengths and limitations, self-confidence, self-efficacy), self-management (effectively regulating emotions, thoughts and behaviours, including impulse control), social awareness (understanding and empathizing with others), relationship skills (forming and maintaining prosocial relationships, communication, listening, cooperation, managing conflict), and responsible decision making (identifying and effectively solving social and behavioural problems, evaluating consequences of actions) [32]. Programs may include other components such as teacher education, coaching, or consultation in combination with the SEL curriculum.

(iv) *Dependant Variable:* At least one educator-level outcome assessed following the intervention. This may include, but was not limited to, teaching quality, practices, or behaviour, the quality of teacher-child interactions or teacher-child relationships, or educators own knowledge, self-efficacy or social-emotional wellbeing.

(v) *Publication Status:* Published in English between January 1999 and August 2019 and peer-reviewed.

Studies were excluded if:

(i)   the classroom teachers did not lead or support delivery of the intervention;

(ii)   the intervention was focused on teacher education, coaching or consultation only, without a universal curriculum component; or

(iii)   the intervention targeted children experiencing social, emotional or behavioural difficulties, or children diagnosed with a mental health condition or developmental delay (the focus of Tier 2 and 3 SEL intervention).

Review Procedures and Data Abstraction

Figure 1 presents a flow diagram of the review process conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The systematic search identified 4,205 articles after the removal of duplicates. All titles and abstracts were screened by one author (CB), with a second author (AO'C) independently co-screening 10% of the titles and abstracts; agreement for articles to be read in full was 100% after discussion. Two hundred papers were read in full, with 17 included in the review. Two articles that provided data relating to the same study were combined [33,34]. The following pre-specified data were extracted from each study: (i) ECEC setting; (ii) study design; (iii) sample size (number of teachers); (iv) teacher characteristics; (v) type of control group; (vi) SEL program; (vii) program components; (viii) teacher education component where relevant; (ix) outcome, outcome measure and informant (teacher, observer); and (x) findings, including effect sizes where reported by the author.
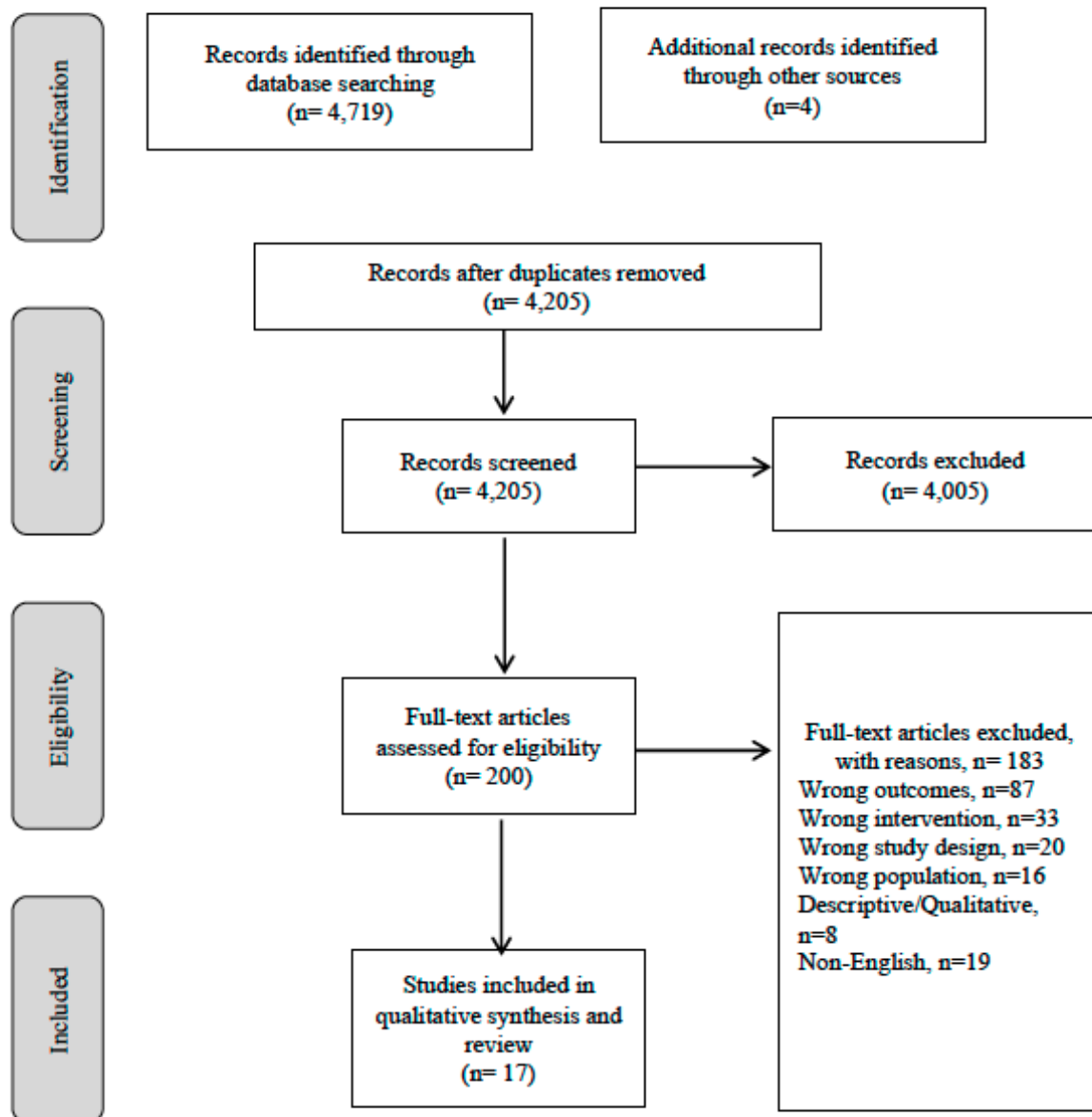
Figure 1. Flow diagram of studies included in review.

Quality of Evidence

Study quality was assessed against the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for quantitative studies with respect to selection bias, study design, confounders, blinding, data collection methods, withdrawals, dropouts, intervention integrity, and analyses [35]. This tool is suitable for randomized, non-randomized and pre-post designs, and was utilized in our recent review examining the impact of curriculum-based SEL interventions on child outcomes [27]. Components were rated as strong, moderate or weak across each study, based on guidelines in the EPHPP Dictionary and an overall global quality rating was assigned. Studies were rated as strong when no weak ratings were recorded. Those with one weak rating were considered of moderate quality, and two or more weak ratings resulted in an overall weak rating.

Results

Summary of Included Studies

Characteristics of the 16 studies captured in this review are presented in Table 1, with findings summarized in Table 2. Studies were described as randomized or cluster-randomized controlled trials [34,36-46] and quasi-experimental trials [47-50]. Settings included kindergarten [39,40,46], childcare [42,45], preschool [36-38,43,47-49], Head Start preschool or kindergarten (early childhood education services provided to low-income children and families in the United States) [34,41,43,44,46,50] and early school grades [39,43,46], and controls included business as usual ECEC curriculum [34,36,38,40,42,43,46-50], classroom materials and bi-monthly visits from researchers [37], a literacy program [39], a trust–based relational intervention, including relationship building course and daily activities [41], and Creative Curriculum [44,45]. Most studies were conducted in the United States (n=13), with two in Turkey [36,49] and one in Jamaica [37], and all were published in the last 11 years. A

total of 763 teachers were captured by the studies in this review. One review reported their study was conducted in the kindergarten rooms of four low-income schools, including 327 children, however, did not specify the number of teacher participants [40]. Eight studies (50.0%) were assessed as high quality [34,37-39,42,43,45,46], two (12.5%) as moderate quality [40,44], and six (37.5%) as weak quality [36,41,47-50].

Table 1

Characteristics of Included Studies

First Author (Year)	Country	Setting	Study Design	n Teacher (Child)	Teacher Characteristics	Control	Intervention	Intervention Leader	SEL Program Duration	Training Component	Parent Component
Arda (2012)	Turkey	P	RT	7 (95)	Years teaching: 0-3 years to >15 yrs. High school graduate to university degree	BAU	Preschool PATHS	T	33 lessons/9 weeks	Teacher education before program, weekly training during implementation	Not described
Baker-Henningham (2009)	Jamaica	P	C-RCT	27 (~21/class)	Years teaching: IG 12 (7.3), CG 14 (7.6). 81% high school graduate, 3 trained teachers.	Classroom materials, bi-monthly visits	Incredible Years Dina Dinosaur Classroom Curriculum	R, T	14 lessons (30-40 min)/ 5 months	IY Teacher Training Program (7 days), monthly 1 hr consultation	Not described
Barnett (2008)	USA	P	RCT	18 classrooms (210)	Included teachers with P-3 license, K-8 licence, N-8 license	Curriculum developed by local teachers	Tools of the Mind	T	Embedded	4 days training, 30 min weekly classroom visits, 0.5 day and 5 x 1 hr meetings	Not described
Cappella (2015)	USA	K, G1	SRT	120, 60 in K (~16.57/ class)	94.2% Female, 11.9% Hispanic or Latino, 56.4% Black or African American, 24.3% White, 7% Other	Literacy program	INSIGHTS	F, T	Weekly lesson (45 min)/10 weeks	10 x 2-hr sessions	10 x 2-hr sessions
Domitrovich (2009) Bierman (2014)	USA	HS	RCT	84 (246)	98% female, > 95% English language, > 80% Caucasian. Lead teachers: 4-year degree. Assistant teachers: High school/post high school	BAU	Preschool PATHS (with REDI)	T	30 weekly lessons plus extension activities/ 9 months	Training (4 days), weekly in-class support	Not described
Fishbein (2016)	USA	K	RCT	4 four schools (327)	Not described	BAU	Preschool PATHS	T	2 lessons per week (20 min)/22 weeks	2-day training, weekly consultation (2-3 hr)	Frequent updates
Gunter (2012)	USA	P	QE CG, IG, IG+2 booster lessons	4 (84)	100% female, 50% Hispanic, 50% Caucasian	BAU	Strong Start Pre-K	T	2 lessons per week/5 weeks	1 hr training and Strong-Start manuals	Bulletin for each lesson

82

Study	Country	Setting	Design	N (N)	Demographics	Control	Programme	Deliverer	Dosage	Training	Additional
Jackman (2019)	USA	HS -P	RCT	27 (262)	100% female	High Scope, Trust-Based Relational Intervention, SEL 5-day relationship building course, daily activities	OpenMind (OM) Curriculum	T	Embedded	5-day mindfulness training, meditation for 20 mins/day	3 x 2hr mindfulness-based training sessions
Landry (2014)	USA	CC	RCT CG, RECC, RECC + explicit social-emotional activities	65 (542)	100% female	BAU	Responsive Early Childhood Program (RECC) plus explicit social-emotional activities	T	Daily, 36 weeks	Training (4 x 6-7 hr), weekly coaching support, teacher manuals	Parent newsletters
Lonigan (2015)	USA	P, HS, PS	CRT CG, academic skills focused curriculum with explicit SEL, academic skills focused curriculum with implicit SEL	110 (855)	96% female, 39% high school graduate, 38% 2-year college degree, 19% 4 -year college degree, 4% master degree. Average 9.44 years teaching experience	BAU	Preschool PATHS	T	1-2 times per week/year	Teacher manuals, 8-day training, explicit group received 3 half day training sessions focused on SE activities, 9 monthly coaching sessions (3hr)	Not described
Pickens (2009)	USA	P	CT. Pre-post measures relating to teacher knowledge	21 (256)	11.7% some high school, 36.9% finished high school 25.8% some college, 8% 2-year degree, 13% 4-year degree	BAU	The Peace Education Foundation (PEF) Socio-Emotional Development Programme	T	Year	2 days training, 4-6 visits	3-hr workshop
Seyhan (2017)	Turkey	P	QE	29 (565)	Not described	BAU	Preschool PATHS	T	33 lessons (15-20 min)/ 9 weeks	Previous PATHS training, re-training, weekly support meetings	Not described

Upshur (2017)	USA	HS, P	CRT	31(492) Classrooms participated for 2 years	Not described	Creative Curriculum or Head Start Frameworks	Second Step Early Learning Curriculum	T	Daily activity 5-7 mins	Year 1: 7 x monthly 2-hr training. Year 2: 5 group training sessions. Monthly visits SSEL curriculum kit	Parent handouts
Upshur (2013)	USA	CC	CRT	56 (366) Classrooms participated for 2 years	Services between 93.3 - 100% female	Creative Curriculum	Second Step	T	4 lessons per week (15 min)/22 weeks	Some participants attended workshop, 7 monthly (2 hr) training sessions in Year 1, 5 bi-monthly sessions in Year 2	Four to six parent group sessions/yr
Vestal (2004)	USA	HS	QE Pre-post measures relating to teacher knowledge	11 (64)	Years teaching: IG 8.73, CG 13.40. IG 66.7% Black, 16.7% Hispanic, 16.7% White. CG 80% Black, 20% White	BAU	I Can Problem Solve	T	2 months	13-session college-level course (40hr)	Not described
Webster-Stratton (2008)	USA	HS, K, G1	RCT	153(1,768)	95% female 65% Caucasian, 16% African American, 12% Asian 8% and other	Head Start and elementary school curriculum	Incredible Years Dina Dinosaur Social Skills and Problem-Solving Curriculum	T, R	2 lessons per week (15–20-min) followed by 20 minutes of small group practice/30 lessons in total	IY Teacher Training 4 days (28 hours) of training spread across monthly workshops	Weekly homework

Note: BAU=Business as usual, C-RCT = Cluster Randomised Controlled Trial, CRT=Classroom Randomised Trial, CC=Child Care, CG=Control Group, CT=Controlled Trial, F=Facilitator, G1= Grade 1, HS=Head Start, IG=Intervention Group, K=Kindergarten, P=Preschool, PS=Public School, QE=Quasi-Experimental, R=Researcher, RCT=Randomized Controlled Trial, RT=Randomized Trial, SRT= School Randomized Trial, T=Teacher

Table 2

Intervention Effects on Teacher-Level Outcomes

First Author (Year)	Outcome (s)	Instrument (Informant)	Key Findings at Post-Intervention
Arda (2012)	Teacher Behaviour and Management Techniques: classroom structure and management, discipline, emotional communication and support, social awareness and problem solving, and preventing misbehaviour	The Teacher Style Rating Scale (TSRS) (O)	• Intervention teachers outperformed control peers on measures of discipline $(p<.05)$, emotional communication and support $(p<.001)$, social awareness and problem solving $(p<.001)$, and preventing misbehaviour $(p<.001)$. Groups did not differ on classroom structures and management.
	Quality of the Classroom Environment: assessment of child behaviours and teacher responsiveness/supports	Classroom Atmosphere Rating Scale (CARS), based on Conduct Problems Research Group) (O)	• Significant group differences on CARS $(p<.001)$.
Baker-Henningham (2009)	Teacher Behaviour: positive teacher behaviour, negative teacher behaviour, teacher commands, prompting social and emotional competence	Based on Dyadic Parent Child Interaction Schedule and the Teacher-Pupil Observation Tool (O)	• Intervention teachers showed significantly improvement in positive behaviour and promotion of prosocial skill, and decrease in negative behaviour compared to controls $(p<.0001)$. Groups did not differ on teacher commands. At baseline, there were no significant differences between groups. At post-intervention, negative behaviours in CG increased by over 50%, teacher commands increased by over 33% and positive behaviours remained stable. In IG, negative behaviours decreased by over 50%, teacher commands remained stable and positive behaviours increased by 4.5 times.
	Teacher provides opportunities for children to share and work together, and teacher warmth	Based on scales by the Conduct Problems Prevention Group (O)	• Intervention teachers provided more opportunities for children to share and help each other $(p=.001)$, and demonstrated greater warmth than controls $(p<.0001)$.
			• Controlling for pre-test score and setting, multilevel regression analyses revealed benefits remained significant for IG teachers on all measures.
Barnett (2008)	Global Classroom Quality: space, personal care routines, language and reasoning, interaction, program structure, parent involvement	The Early Childhood Environmental Rating Scale - Revised (ECERS-R) (O)	• IG teachers scored significantly higher than CG peers on ECERS-R $(p=.003)$. Significance difference reported for activities $(p=.004)$ and language reasoning $(p=.012)$ subscales, while interactions $(p=.081)$ reached borderline significance.
	Literacy Environment and Instruction	Supports for Early Literacy Assessment (SELA) (O)	• IG teachers scored higher on the SELA $(p=.001)$ and the PCI $(p=.002)$ compared to the CG. Differences in total scores for each scale correspond to effect sizes of about 2.
	Use of Scaffolding Techniques	The Preschool Classroom Implementation (PCI) Scale (O)	• TOOLS classrooms scored significantly higher than CG on productivity $(p=.042)$ with a trend towards higher levels of teacher sensitivity $(p=.074)$.
	Emotional Climate, Classroom Management and Instruction	Classroom Assessment Scoring System (CLASS) (O)	• Groups did not differ on positive classroom climate, negative climate, over control, behaviour management techniques, concept development, learning formats and engagement and quality of teacher feedback.
Cappella (2015)	Emotional Support and Classroom Organisation	Classroom Assessment Scoring System (O)	• INSIGHTS teachers showed higher levels of emotional support post intervention compared to attention-control classrooms $(p<.05, ES=.30)$. Treatment effect was more pronounced for first grade rooms $(ES=.68)$. No differences between groups on level of classroom organisation.

Domitrovich (2009)	Emotional Support and Instructional Support	Classroom Assessment Scoring System (CLASS) (O)	• CLASS showed moderate differences favouring the IG for emotional support however this did not reach statistical significance (p=.11, d=.39,). Significant effect on positive climate item (d=.61, p=.04) and a borderline effect on teacher sensitivity (d=.58, p=.07) was reported. No group differences on negative climate, over-control and behaviour management subscales. A non-significant trend favouring IG was reported for instructional support (d=.45, p=.08).
	Teaching Style: positive discipline, classroom management, positive emotional climate	The Teaching Style Rating Scale (TSRS) (O)	
	Child-Directed Talk: directives, questions, statements, decontextualised talk, richness of teacher's child centred talk	The Classroom Language and Literacy Environment Observation (CLEO) (O) -	• The TSRS showed IG improvement on the positive emotional climate subscale (emotion expression, emotion regulation and emotion modelling, p=.05), and a significant intervention effect for classroom management (p=.002). There was no difference between groups on positive discipline, however IG teachers scored higher on individual item of proactive/preventive classroom management (p=.001).
			• IG teachers showed greater linguistic support, made more statements (p=.001), asked more questions (p<.001), decontextualized utterances (p=.005) and engaged in richer and more sensitive talk with children (p=.004). Effect sizes ranged from d=.67 to d=.89. No difference between groups on directives.
Fishbein (2016)	Student-Teacher Relationship: closeness, conflict	Student-Teacher Relationship Scale (T)	• Greater improvement in IG in Total Score (p<.001), and closeness (p<.001) and conflict (p<.05) subscales.
Gunter (2012)	Student-Teacher Relationship: closeness, conflict, dependency	Student Teacher Relationship Scale (T)	• Total score increased in both IGs, however only reached statistical significance for the IG + booster lesson group (p<.05, d=1.20). Both IG groups showed decreased conflict (p<.05, d=.43 for intervention and .67 for intervention + booster), while conflict in the CG increased. No significant difference between groups on levels of closeness (all improved). The IG group without boosters showed increased dependency (p<.05, d=.43), while IG + boosters and CG showed decline.
Jackman (2019)	Tendency to be mindful	Five Facet Mindfulness Questionnaire (FFMQ)	• Groups differed on the Describe subscale of the FFMQ. IG scores improved from baseline to post-intervention while scores decreased for CG (p<.05). There was no difference between groups on other subscales.
	Perceived stress	Perceived Stress Scale-10	• IG showed slight increase in teacher stress between baseline (M=20.33, SD=1.58) and post-intervention (M=21.0, SD=2.24), while CG showed a slight decrease between baseline (M=21.14, SD=2.12) and post-intervention (M=20.42, SD=2.30).
Landry (2014)	Teacher Behaviour: teacher responsiveness and instruction	Teacher Behaviour Rating Scale (TBRS)(O)	• IG showed significantly greater improvement than controls for the average of all TBRS subscales (p<.0001, ES=1.04). The following subscales reached statistical significance: classroom community (p=.008, ES=.61), learning centres (p=<.0001, ES=1.74), book reading (p=.001, ES=1.35), written expression (p=.005, ES=1.23), print and letter (p=.0002, ES=1.35), and lesson plans (p<.0001, ES=1.65). Groups did not differ on subscales relating to sensitivity, discipline, phonological awareness, mathematics, portfolios and team teaching.
	Teacher-Child Relationship	Adult-Child Relationship Scale (T)	• Both RECC and RECC+ groups scored higher than controls, and did not differ from each other. At post-intervention, total score and 8/13 subscale scores for RECC and RECC+ groups were between medium-low and medium-high quality. In CG, only 3/13 subscales reached the medium-low quality rating.

			• Average closeness for RECC and RECC+ was greater than controls (*p*=.0065, *ES*=.42). Teacher child conflict in RECC and RECC+ was lower than controls (*p*=.011, *ES*=-.49).
Lonigan (2015)	Teacher Behaviour and Classroom Characteristics	Teacher Behaviour Rating Scale (TBRS) (O) - subscales relating to general teacher behaviour	• Teachers in the Explicit SEL group scored higher than controls on the following classroom characteristics: classroom community (*p*<.01, *ES*=.73), lesson planning (*p*<.001, *ES*=1.0) and team teaching (*p*<.01, *ES*=.77). The implicit SEL group outperformed CG on the following subscales: classroom community (*p*<01, *ES*=.85), discipline (*p*<.05, *ES*=.48*)*, lesson planning (*p*<.01, *ES*=.97) and team teaching reached borderline significance (*p*<.01, *ES*=-0.49). Explicit and implicit groups did not differ from each other. No intervention effects were reported for teacher sensitivity or learning centres. • On specific instructional activities, Explicit SEL group outperformed CG on book reading (*p*<.01, *ES*=.87), oral language (*p*<.05, *ES*=.57) and math activities (*p*<.05, *ES*=.63). The implicit SEL group outperformed controls on book reading (*p*<.001, *ES*=.87), oral language (*p*<.05, *ES*=.55), phonological awareness (*p*<.05, *ES*=.52), and math activities (*p*<.01, *ES*=0.70). Explicit and implicit SEL groups did not differ from each other. No intervention effects were recorded for print activities or writing activities.
Pickens (2009)	Assessment of educator knowledge following two training workshops: Creating Caring Children (CCC) and Peacemaking Skills for Little Kids/Heling not Hurting: Teaching the I-Care Rules Through Literature (PSLK-HNH)	CCC: 10 open ended questions (T) PSLK-HNH: 21 open ended questions (T)	• CCC: Significant improvement from baseline (*M*=26.5) to post (*M*=43.5, *p*<.0001). • PSLK-HNH: Significant improvement from baseline (*M*=11.46) to post (*M*=22.08, *p*<.0001).
Seyhan (2017)	Quality of the Classroom Environment: includes assessment of child behaviours and teacher responsiveness/supports for child Teacher Behaviour and Management: classroom structure and management, discipline, emotional communication and support, social awareness and social problem solving, preventing misbehaviour Student-Teacher Relationship: closeness, conflict, dependency	Classroom Atmosphere Rating Scale (CARS, based on Conduct Problems Research Group) (O) The Teaching Style Rating Scale (TSRS) (O) Student-Teacher Relationship Scale (STRS) (T)	• Intervention teachers showed greater improvement on CARS compared to controls *(p*<.01). • Group difference on TSRS reached borderline significance (*p*=.06). • No differences between groups on conflict and closeness subscales of the STRS. Teachers in the intervention group reported greater dependency in their relationships with children (*p*<.001) compared to the CG.
Upshur (2017)	Frequency of Teacher-Led Social-Emotional (SE) and Executive Functioning (EF) Activities	Social-Emotional and Executive Functioning Classroom Observation Tool (SEEF) (O) (based on sample of 8 IG and 8 CG classrooms)	• Teachers in the IG implemented significantly more EF activities: attention and engagement *(p*<.01), thinking ahead and thinking back (*p*<.01), think time (*p*<.01), encouraging participation (*p*<.01), specific reinforcement (*p*<.001) and overall attentiveness (*p*<.05). Effect sizes >1.0. Only one SE item favoured IG: calming down (*p*<.001). • No difference was observed between groups on identifying feelings, perspective taking, understanding strong emotions, social problem solving or friendship skills activities.

Upshur (2013)	Interaction: discipline, general supervision, staff-child interactions	Early Childhood Environment Rating Scale Revised (ECERS-R), Interaction Scale (O)	• In Year 1, groups did not differ on any measures. However, effect sizes favoured intervention classrooms in the medium to high range for ECERS-R - interaction scale (d=.3), and ECERS-R interaction items: discipline (d=.83) and general supervision (d=.32).
	Quality of Teacher Interaction Skill: positive, punitive, permissive, detached	Caregiver Interaction Scale (CIS) (O)	• In Year 2, IG showed greater improvement on ECERS-R interaction scale (p<.05, d=1.81), discipline (p<.01, d=1.78), and teacher interactions (p<.05, d=1.74). General supervision (p<.10, d=1.78) and staff-child interactions (p<.10, d=1.49) reached borderline significance. Results remained significant after adjustment for covariates.
Vestal (2004)	Perceptions and Practices in Relation to Conflict	ICPS dialogue	• Teachers used more ICPS dialogue after training and decreased their non-ICPS dialogue (p<.05). ICPS dialogue also increased from baseline to post-intervention (p<.05).
Webster-Stratton (2008)	Teacher Behaviour: positive reinforcement, critical statements, amount of interaction with children	Multiple Option Observation System for Experimental Studies (MOOSES) (O)	• Based on MOOSES, a reduction in critical statements favoured IG. The more critical the teacher was initially, the more the score improved at post. No other constructs reported significant effects.
	Teaching Style and Classroom Management: harsh/critical, inconsistent/permissive, warm/affectionate, social/emotional teaching, effective discipline	Teacher Coder Impressions Inventory (TCI) (O)	• After controlling for covariates, IG teachers were less harsh/critical (ES=.67), and inconsistent/permissive (ES=.63), more warm/affectionate (ES=.51) and placed more emphasis on social-emotional teaching (ES=.96). Main effects for effective discipline did not emerge, but intervention effect depended on the grade of the teacher: Kindergarten and Grade 1 teachers showed higher levels of effective discipline than Head Start teachers.
	Quality of the Classroom Atmosphere: includes assessment of child behaviours and teacher responsiveness/supports for child	Classroom Atmosphere Scale (CAS) (O)	• CAS showed greater improvement in IG's classroom atmosphere compared to CG (ES=1.03).

Note: CG=Control Group, IG= Intervention Group, O=Observer, T=Teacher

Teacher Outcomes and Measures

Eleven studies examined the impact of SEL programming on teaching quality and practices, including teacher-child interactions, using observational assessments. Measures included the Teacher Style Rating Scale (TSRS) [34,36,49], an assessment of positive discipline, classroom structure and management, emotional communication and support, social awareness and social problem solving; the Classroom Assessment Scoring System (CLASS) [34,38,39] to gauge emotional, organisational and instructional interactions within the classroom; the Teacher Behaviour Rating Scale [42,43], with subscales measuring the quantity and quality of specific teaching behaviours; the Caregiver Interactions Scale [45] addressing the quality of teacher-child interactions across positive, punitive, permissive and detached domains; and the Multiple Option Observation System for Experimental Studies to code teacher-focused behaviours including positive reinforcement/praise, critical statements, and the amount of interaction/involvement with children [46]. The Teacher Coder Impressions Inventory was included in one study to evaluate teaching style across five scales: harsh/critical, inconsistent/permissive, warm/affectionate, social-emotional teaching and effective discipline [46], and the Dyadic Parent Child Interaction Schedule and the Teacher-Pupil Observation Tool in another [37] to observe positive and negative teacher behaviour, teacher commands, and prompting children's social and emotional competence. This study captured a separate measure based on scales by the Conduct Problems Prevention Group to evaluate teacher warmth, and provision of opportunities for children to share and work together.

An overall assessment of classroom quality (including space, personal care routines, language and reasoning, interactions, program structure and parent involvement) using the Early Childhood Environmental Rating Scale - Revised was included in two studies [38,45], and classroom environment quality using the Classroom Atmosphere Rating Scale in another

two [46,49]. This measure includes assessment of both teacher responsiveness and supports, and a global measure of child behaviour. Four studies examined specific teaching practices, including the use of scaffolding with the Preschool Classroom Observation Scale [38], literacy instruction with the Supports for Early Literacy Assessment [38], child-directed talk with the Classroom Language and Literacy Environmental Observation [34], and frequency of social-emotional and executive functioning activities using the Social-Emotional and Executive Functioning Classroom Observation Tool [44].

Four studies included a measure of teacher-child relationship quality based on teacher report. Three used the Student-Teacher Relationship Scale [40,47,49], and one the Adult-Child Relationship Scale [43]. Only one author measured teacher's own social-emotional wellbeing, examining stress levels using the Perceived Stress Scale, and tendency to be mindful with the Five Facet Mindfulness Questionnaire [41]. Finally, two authors assessed teacher knowledge of SEL techniques, including open-ended test questions to assess teachers' understanding of topics, activities and skill before and after taking part in the *Creating Caring Children* and *Peacemaking Skills for Little Kids/Helping Not Hurting* training sessions [48] and teacher dialogue before and after a 13-session college course to support implementation of *I Can Problem Solve* in Head Start classrooms [50].

SEL Approaches

Ten SEL programs were evaluated by the included studies; *Preschool PATHS* [34,36,40,43,49], The *Incredible Years Child Social and Emotional Curriculum* [37,46], *Tools of the Mind* [38], *INSIGHTS* [39], *Strong Start Pre-K* [47], *OpenMind* [41], *Responsive Early Childhood Curriculum, plus explicit SEL activities (RECC+)* [42], *Second Step and Second Step Early Learning Curriculum* [44,45], *I Can Problem Solve* [50] and the *Peace Education Foundation Curriculum [48]*. *INSIGHTS* [39] was delivered by a trained

facilitator and the *Incredible Years Child Social and Emotional Curriculum* [37,46] by the lead researcher, both in partnership with the classroom teacher. All other programs were led by the classroom teacher. With the exception of *Tools of the Mind* [38] and *OpenMind* [41] which embedded SEL activities into the curriculum, studies included explicit SEL lessons or activities.

Effects of SEL intervention on Teaching Quality, Teaching Practice and Teacher-Child Interactions

Four studies [34,36,43,49] reported improvement in teaching quality following use of the *Preschool PATHS* curriculum. Intervention group teachers outperformed controls who did not participate in a SEL intervention on a measure capturing effective discipline, emotional communication and support, social awareness and problem solving, and behaviour management in Arda and Ocak [36], and a trend towards improvement on the same measure was observed in another study of 29 Turkish teachers [49], who also found enhanced classroom environment quality in favour of intervention group participants.

The emotional climate (assessed as emotion expression, emotion regulation and emotional modelling) and effective classroom management subscales of the TSRS suggested greater improvement in teachers who delivered *Preschool PATHS* at post-intervention compared to a comparison group in Domitrovich and colleague's study [34]. An intervention effect did not emerge for positive discipline, however intervention teachers scored significantly higher on the proactive/preventive classroom management subscale. *PATHS* teachers also demonstrated greater emotional support on the CLASS measure, however this did not reach statistical significance. Analyses of individual subscales however suggested a significant and moderate intervention effect on positive climate, and a borderline significant effect on teacher sensitivity. Improvement in the instructional support scale also reached

borderline significance. Groups in this study did not differ on measures of productivity, quality of feedback, concept development or instructional learning formats. Teachers did, however, make more statements and ask more questions than control group peers based on the Classroom Language and Literacy Environmental Observation measure.

In a cluster-randomised controlled trial, Lonigan et al. [43] compared a literacy and math-focused preschool curriculum including *Preschool PATHS* lessons (explicit SEL) and a version where teachers were provided with professional development and guidance on behaviour management but these skills were not the focus of any specific classroom activity (implicit SEL), to a business-as-usual condition. Observations showed that both intervention groups (with and without explicit SEL curricula) made significant improvements in classroom community, use of lesson plans, and team teaching compared to controls, albeit the two intervention groups did not differ significantly from each other on these outcomes. The curricula without explicit SEL lessons appeared to improve teachers' use of effective discipline strategies, however this did not emerge for the explicit SEL group. The two SEL groups did not differ from controls on measures of teacher sensitivity or learning centres (the provision of engaging and age-appropriate materials linked to learning themes).

Using a similar research design, another study compared the *Responsive Early Childhood Curriculum* with and without explicit social-emotional classroom activities to a control group receiving no intervention. Childcare teachers in both intervention groups (with and without the explicit SEL component) outperformed comparison group peers on a measure of teacher responsiveness and instruction. The inclusion of explicit SEL activities h did not appear to strengthen the intervention effect [42].

Barnett et al. [38] found teachers who delivered *Tools of the Mind* curriculum demonstrated significantly higher productivity (management of instructional time and routines) compared with control group teachers, with assessment of teacher sensitivity

(responsiveness and offering a secure base to children) reaching borderline significance. Teachers also used more scaffolding techniques than controls, provided a richer literacy learning environment, and scored higher on an overall assessment of classroom quality using the Early Childhood Environmental Rating Scale - Revised. Results did not indicate differences between groups on positive, negative or over-controlling classroom climate, behaviour management techniques, concept development, learning engagement or quality of teacher feedback. Similarly, teachers who delivered *INSIGHTS* to Kindergarten and Grade 1 classrooms in the United States offered children higher levels of emotional support post-intervention, after controlling for pre-test score and covariates, compared with attention-control group teachers who provided a literacy program. These effects were moderated by classroom level; the impact appeared more pronounced for first grade teachers and least pronounced for kindergarten educators. Levels of classroom organisation did not differ between groups at post-intervention [39].

The *Incredible Years Child Social and Emotional Curriculum*, delivered in conjunction with the *Incredible Years Teacher Classroom Management Program*, led to positive improvement in teacher behaviour in two studies. In a randomised controlled trial of 153 teachers and 1,768 children, multi-level modelling suggested that intervention group teachers became less harsh/critical and inconsistent/permissive, appeared more warm/affectionate, and placed greater emphasis on social-emotional teaching. Improvement in effective discipline appeared to depend on setting; kindergarten and Grade 1 teachers showed greater improvement than Head Start teachers [46]. Similarly, intervention teachers used fewer critical statements with children, with the teachers observed to be the most critical at baseline making the greatest improvement. Intervention effects were not observed for measures of teacher involvement or levels of teacher praise.

In another study conducted in community preschools in Jamaica, *Incredible Years* teachers increased their positive behaviour from median 47/hr (range: 7-126) to 213/hr (range: 76-431), decreased negative behaviours from 93/hour (range: 48-163) to 43/hour (range: 3-96), and increased promotion of prosocial skill from 0/hour (range: 0-2) to 45/hour (range: 0-131). In comparison, positive behaviour and promotion of prosocial skill in the control group was similar at baseline and follow-up, while negative behaviours increased significantly. Statistically meaningful differences between groups were reported for all outcomes except teacher commands, which increased in both groups between baseline and follow-up. Teachers in the intervention group also provided more opportunities for children to share and help each other, and displayed greater warmth towards children compared to controls. In multilevel regression analyses controlling for covariates such as pre-test score and setting, benefits for intervention group teachers remained significant on all measures [37].

Upshur, Wenz-Gross, and Reed [45] evaluated the *Second Step* curriculum across two annual cohorts in community childcare centres. Intervention teachers in the first cohort did not appear to differ from control peers in the quality of their interactions with children. The second cohort however showed greater improvement in teacher-child interaction skill and effective discipline. These effects remained significant in an adjusted model accounting for covariates and nesting of children within classrooms. Non-significant trends with large effects favouring the intervention classrooms were reported for general supervision and staff-child interactions. The *Second Step Early Learning Curriculum* combined instruction and activities to improve children's social-emotional competence and executive functioning. Intervention group teachers implemented significantly more executive functioning activities at post-intervention than control peers, however only one social-emotional outcome (calming down) favoured the intervention group. There were no differences between conditions on the

frequency of other SEL activities, including identifying feelings, perspective taking, helping children to understand strong emotions, social problem solving or friendship skills [44].

Effects of SEL intervention on Teacher-Child Relationship Quality

Several studies included a specific teacher-rated assessment of teacher-child relationship quality, a construct closely related to teacher-child interactions [51], with mixed effects reported. Participation in *Preschool PATHS* did not lead to improvement in teacher-child conflict or closeness, but was associated with increased dependency (an overreliance on the teacher as a source of support) in one study [49]. In another that compared teachers who delivered the *Strong Start* curricula, a group who delivered *Strong Start* and two booster lessons, and a control group, all three conditions showed improvement in teacher-child closeness at post-intervention. Further, teachers in the intervention group who did not receive booster lessons reported significantly greater levels of dependency in their relationships with children, while the group with boosters and control peers reported a decrease. The intervention was, however, associated with decreased levels of teacher-child conflict, while conflict in the control group increased. This improvement was most pronounced for teachers that delivered the curricula with two booster lessons [47]. In a randomized controlled trial of *Preschool PATHS* in a kindergarten setting, intervention teachers reported greater improvement in overall relationship quality, conflict and closeness compared to the control group, however closeness did not remain significant in a propensity score-matched sample controlling for baseline differences [40]. Likewise, Landry et al. [42] found teachers of children aged 2 to 3 years who participated in the *Responsive Early Childhood Program* with and without an explicit SEL component reported greater improvement in closeness and reduced conflict with children compared to controls.

Effects of SEL intervention on Social-Emotional Wellbeing

Only one study considered the impact of SEL on teachers' social-emotional wellbeing. Jackman and colleagues [41] evaluated the *OpenMind* curriculum, including child, teacher and parent components. Teachers attended a five-day training course focused on meditation, were requested to meditate for 20 minutes per day and facilitate daily practices with children in their classrooms. Authors revealed that intervention teachers were better able to describe their feelings compared with controls, albeit there was no effect on other aspects of dispositional mindfulness: observing, acting with awareness, non-judging and non-reactivity. Results suggested a slight increase in teacher stress in the intervention group, and a slight decrease in the control group, however this did not reach statistical significance.

Effects of SEL intervention on Educator Knowledge of Social-Emotional Learning

Two studies reported improvement in teacher knowledge of SEL following training that accompanied a classroom curriculum. Teachers who attended the *Creating Caring Children* and *Peacemaking Skills for Little Kids/Helping Not Hurting* training as part of the *Peace Education Foundation* program exhibited significant improvement in their knowledge of program concepts between pre- and post-assessment [48]. Similarly, teachers who attended a 13-session college course to support implementation of *I Can Problem Solve* showed significant improvement in conflict resolution practices [50].

Sustainability Over Time

Only one study reported on the sustainability of outcomes over time. Bierman et al. [33] conducted follow-up assessments at one year post-intervention for 82% of the teachers who implemented the *Preschool PATHS* curriculum in Domitrovich et al.'s [34] study. Teachers who had delivered *Preschool PATHS* rated higher on the emotional climate scale

and all subscales (emotional expression, emotion regulation, and emotional modelling) of the TSRS and the emotional support scale of the CLASS. Intervention effects favouring *PATHS* teachers were also reported for the positive discipline scale of the TSRS. The classroom management scale reached borderline significance, and there were no meaningful group differences for instructional support assessed by the CLASS measure. Teachers who participated in *PATHS* also asked children more general questions one year post-intervention, with differences in the number of statements, decontextualized talk, ratings of sensitivity and richness of talk appearing marginally significant in favour of the intervention group.

Discussion

Increased awareness of the benefits of high-quality ECEC on preschoolers' development has led to greater emphasis on policies, programs and education models that support teachers to strengthen children's social and emotional competence [1,52-54]. Evaluations of SEL programs that target both educator behaviour and child outcomes in ECEC settings suggest benefits for children across developmental domains. Less is known however about the effects of these interventions on teaching quality and teacher-level outcomes. To our knowledge, this is the first systematic review to consider the effectiveness of curriculum-based SEL interventions in ECEC settings for educator-level outcomes. Studies focused predominately on teaching quality and practice, including teacher-child interactions, with most reporting improvement in some aspect of teaching practice as a result of the SEL program. Findings, however, varied substantially across studies and outcome measures.

The following programs appeared to strengthen at least some component of teachers' emotional support, sensitivity, responsivity or positive climate: *Preschool PATHS* [34,36], the *Incredible Years Child Social and Emotional Curriculum* [37,46], *Tools of the Mind* [38],

INSIGHTS [39], and *RECC+* [42]. In all studies except Gunter et al. [55], who offered

educators a short training session and program manuals, SEL curricula was paired with

comprehensive teacher education and consultation focused on educators' knowledge of

strengthening social-emotional development in the preschool setting. Further, SEL lessons

and activities prompted educators to engage with children, which may have increased

teachers' awareness of their interactions and practice.

Research highlights the importance of emotional support within ECEC settings. A

study of 2,439 preschoolers found that emotional interactions were associated with teacher-

reported social skills, after adjusting for prior skills, child, family and program characteristics

[56]. Similarly, Curby and colleagues [57] concluded that preschool children were more

likely to display higher levels of social competence in classrooms with higher levels of

emotional support. Researchers also suggest that emotional support may benefit behavioural

engagement, which in turn encourages pre-academic skills [58]. For example, Burchinal et al.

[2] observed a significant association between children's exposure to emotional support in

preschool and literacy skill one year later.

Responsive caregiving is an important aspect of emotional support in early years

settings that was captured in several studies. Responsivity encompasses educators' ability to

read and respond to children's cues, and individualise their teaching style to child need [59].

Developmental theory posits that responsivity can encourage attachment between a caregiver

and child that fosters positive emotional, social and cognitive development [60]. However,

researchers suggest there can be a tendency for infrequent responsive and cognitively

challenging conversations between teachers and children in early childhood settings,

especially for children experiencing disadvantage, with some studies reporting that preschool

programmes serving low-income communities appear to offer limited opportunities for

responsive teacher-child interactions [13,14]. The improvement in observed emotional support from teachers who participated in SEL programs is therefore a promising finding.

Several authors also reported improvements in classroom management and positive discipline strategies at post intervention [34,36,38,42,45]. Evidence suggests that behaviour guidance within the early years classroom can strengthen children's self-regulation. For example, effective classroom management in kindergarten settings has been associated with children's behavioural and cognitive self-control, behavioural engagement and reduced time spent off-task in the classroom [61]. Improvement in the quality of classroom management across several studies is an interesting finding as classroom management strategies are generally not the primary focus of lesson-based SEL interventions. Most studies detailed comprehensive and sustained support provided to participating teachers, including targeted workshops, followed by regular consultations during the intervention period. It is possible these training and coaching components delivered alongside the curricula strengthened teachers' ability to effectively guide children's attention and behaviour, in addition to supporting their implementation of the SEL curricula. Implementation of new skills and behaviour change in early years settings is most likely when specific training is combined with on-the-job coaching, feedback on observed performance, assistance with planning and implementation, and support with challenges and decision-making [62]. The specialised training prior to SEL intervention may have strengthened teachers' attitudes, knowledge and skills by allowing for rehearsal (e.g. through practice, role play) and individualised feedback [63]. In addition, coaching and ongoing support may have increased the likelihood that these skills were transferred into the preschool classroom.

Strengths and Limitations of the Current Review

This review is strengthened by its comprehensive and systematic literature search and the proportion of high-quality randomized controlled trials captured. However, the exclusion of unpublished literature and dissertations, studies that were reported in languages other than English, and studies published prior to 1999 means it is possible relevant studies have been missed, potentially introducing bias into the results.

Limitations in the Evidence and Future Recommendations

There are several limitations to the current evidence base that should be acknowledged in interpreting the findings. While many studies were strengthened by the use of controlled designs, validated scales to measure teacher-level outcomes and moderate to high study quality, they varied in the teacher-level outcomes explored, the type of SEL intervention examined, and the form and extent of professional learning and support offered. Teacher-level outcomes included teaching quality, teaching practices, teacher-child interactions and relationship quality, knowledge, stress and mindfulness. Although all programs recognised the overall goal of supporting children's social and emotional development, they differed in their underlying theory of change and the type of social and emotional skills targeted. Variability in methodologies and measures is indicative of the multi-faceted nature of educational research, and creates complexity when comparing and integrating results across studies.

Only one study included a measure of teacher wellbeing [41], and two assessed educator knowledge [48,50]. Personal attributes including beliefs, knowledge, experiences, self-efficacy, mental health and social-emotional competence directly influence teachers' ability to support children's social-emotional development [17,18,20-22,64]. However, the impact of SEL programming on these variables could not be determined.

Furthermore, it is possible that teacher-level outcomes may mediate or moderate teachers' ability to effectively deliver the SEL curriculum. Further exploration of the linkages between: (i) curriculum-based SEL programs, (ii) teacher education, (iii) teacher-level outcomes, and (iv) child outcomes is needed to understand the active ingredients and core components of successful programs. Additionally, investigation into the relative importance and effectiveness of teacher education, SEL curriculum, and the combination of both on teacher and child outcomes would benefit future SEL program development.

Finally, there lacks evidence of the sustainability of improvements in teacher-outcomes over time. Only one study included a follow-up assessment [33,34] and the potential benefits of SEL curriculum for ongoing teaching practice is unknown. It is vital that researchers utilise longitudinal methods to better understand the components of SEL program design that lead to social-emotional skill growth, for both teachers and children.

Conclusion

The findings of this systematic review suggest that curriculum-based SEL programs in ECEC settings may strengthen teaching quality, particularly the provision of responsive and nurturing teacher-child interactions and effective management of the classroom environment. Data were insufficient to ascertain whether participation in SEL programs improved teachers' knowledge, self-efficacy, or social-emotional wellbeing, and there was no rigorous evidence of the sustainability of outcomes over time. This review adds to a growing body of SEL research in ECEC settings by exploring the potential pathways between curriculum-based SEL approaches and domains of teaching practice which are critical for children's developmental trajectories.

References

1.	Camilli, G.; Vargas, S.; Ryan, S.; Barnett, W.S. Meta-Analysis of the Effects of Early Education Interventions on Cognitive and Social Development. *Teachers College Record* **2010**, *112*, 579-620.

2.	Burchinal, M.; Howes, C.; Pianta, R.; Bryant, D.; Early, D.; Clifford, R.; Barbarin, O. Predicting Child Outcomes at the End of Kindergarten from the Quality of Pre-Kindergarten Teacher-Child Interactions and Instruction. *Applied Developmental Science* **2008**, *12*, 140-153.

3.	Howes, C.; Burchinal, M.; Pianta, R.; Bryant, D.; Early, D.; Clifford, R.; Barbarin, O. Ready to learn? Children's pre-academic achievement in pre-Kindergarten programs. *Early Childhood Research Quarterly* **2008**, *23*, 27-50.

4.	Mashburn, A.J. Quality of social and physical environments in preschools and children's development of academic, language, and literacy skills. *Applied Development Science* **2008**, *12*, 113-127.

5.	Ponitz, C.C.; Rimm-Kaufman, S.E.; Grimm, K.J.; Curby, T.W. Kindergarten classroom quality, behavioral engagement, and reading achievement. *School Psychology Review* **2009**, *38*, 102-120.

6.	Duncan, G.J.; Sojourner, A.J. Can intensive early childhood intervention programs eliminate income-based cognitive and achievement gaps? *Journal of Human Resources* **2013**, *48*, 945-968.

7.	Loeb, S.; Fuller, B.; Kagan, S.L.; Carrol, B. Child Care in Poor Communities: Early Learning Effects of Type, Quality, and Stability. *Child Development* **2004**, *75*, 47-65.

8.	Magnuson, K.A.; Meyers, M.K.; Ruhm, C.J.; Waldfogel, J. Inequality in Preschool Education and School Readiness. *American Educational Research Journal* **2004**, *41,* 115-157.

9. Schleicher, A. Helping our Youngest to Learn and Grow: Policies for Early Learning. *OECD Publishing* **2019**.

10. Early, D.M.; Maxwell, K.L.; Ponder, B.D.; Pan, Y. Improving teacher-child interactions: A randomized controlled trial of Making the Most of Classroom Interactions and my teaching partner professional development models. *Early Childhood Research Quarterly* **2017**, *38*, 57-70.

11. Early, D.M.; Maxwell, K.L.; Burchinal, M.; Bryant, D.; Cai, K.; Clifford, R.M.; Henry, G.T.; Peisner-Feinberg, E.; Vandergrift, N.; Alva, S., et al. Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development* **2007**, *78*, 558-580.

12. Hamre, B.; Hatfield, B.; Pianta, R.; Jamil, F. Evidence for general and domain-specific elements of teacher–child interactions: Associations with preschool children's development. *Child Development* **2014**, *85*, 1257-1274.

13. Justice, L.M.; Mashburn, A.J.; Hamre, B.K.; Pianta, R.C. Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly* **2008**, *23*, 51-68.

14. LoCasale-Crouch, J.; Konold, T.; Pianta, R.; Howes, C.; Burchinal, M.; Bryant, D.; Clifford, R.; Early, D.; Barbarin, O. Observed classroom quality profiles in state-funded pre-kindergarten programs and associations with teacher, program, and classroom characteristics. *Early Childhood Research Quarterly* **2007**, *22*, 3-17.

15. Pianta, R.C.; Barnett, W.S.; Burchinal, M.; Thornburg, K.R. The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest, Supplement* **2009**, *10*, 49-88.

16. Stuck, A.; Kammermeyer, G.; Roux, S. The reliability and structure of the Classroom Assessment Scoring System in German pre-schools. *European Early Childhood Education Research Journal* **2016**, *24*, 873-894.

17. Tournaki, N.; Podell, D.M. The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and Teacher Education* **2005**, *21*, 299-314.

18. Goroshit, M.; Hen, M. Does Emotional Self-efficacy Predict Teachers' Self-efficacy and Empathy? *Journal of Education and Training Studies* **2014**, *2*, 26-32.

19. McMullen, M.B. Characteristics of teachers who talk the DAP talk and walk the DAP walk. *Journal of Research in Childhood Education* **1999**, *13*, 216-230.

20. Fantuzzo, J.; Perlman, S.; Sproul, F.; Minney, A.; Perry, M.A.; Li, F. Making visible teacher reports of their teaching experiences: The early childhood teacher experiences scale. *Psychology in the Schools* **2012**, *49*, 194-205.

21. Jennings, P.A.; Greenberg, M.T. The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research* **2009**, *79*, 491-525.

22. Zinsser, K.M.; Bailey, C.S.; Curby, T.W.; Denham, S.A.; Bassett, H.H. Exploring the predictable classroom: Preschool teacher stress, emotional supportiveness, and students' social-emotional behavior in private and Head Start classrooms. *NHSA Dialog* **2013**, *16*, 90-108.

23. Bierman, K.; Motamedi, M. SEL programs for preschool children. In *Handbook on social and emofional learning: Research and pracfice*, J. A. Durlak, C.E.D., R. P. Weissberg, & T. P. Gullotta, Ed. The Guilford Press: New York, 2015.

24. McClelland, M.M.; Tominey, S.L.; Schmitt, S.A.; Duncan, R. SEL interventions in early childhood. *The Future of Children* **2017**, 33-47.

25. Sabey, C.V.; Charlton, C.T.; Pyle, D.; Lignugaris-Kraft, B.; Ross, S.W. A review of classwide or universal social, emotional, behavioral programs for students in kindergarten. *Review of Educational Research* **2017**, *87*, 512-543.

26. Schindler, H.S.; Kholoptseva, J.; Oh, S.S.; Yoshikawa, H.; Duncan, G.J.; Magnuson, K.A.; Shonkoff, J.P. Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of school psychology* **2015**, *53*, 243-263.

27. Blewitt, C.; Fuller-Tyszkiewicz, M.; Nolan, A.; Bergmeier, H.; Vicary, D.; Huang, T.; McCabe, P.; McKay, T.; Skouteris, H. Social and Emotional Learning Associated With Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open* **2018**, *1*, e185727-e185727.

28. Durlak, J. A. What everyone should know about implementation, *Handbook on social and emofional learning: Research and pracfice*, J. A. Durlak, C.E.D., R. P. Weissberg, & T. P. Gullotta, Ed. The Guilford Press: New York, 2015.

29. Conroy, M.A.; Sutherland, K.S.; Algina, J.J.; Wilson, R.E.; Martinez, J.R.; Whalon, K.J. Measuring Teacher Implementation of the "BEST in CLASS" Intervention Program and Corollary Child Outcomes. *Journal of Emotional and Behavioral Disorders* **2015**, *23*, 144-155.

30. Werner, C.D.; Linting, M.; Vermeer, H.J.; Van IJzendoorn, M.H. Do intervention programs in child care promote the quality of caregiver-child interactions? A meta-analysis of randomized controlled trials. *Prevention Science* **2016**, *17*, 259-273.

31. Oberle, E.; Domitrovich, C.E.; Meyers, D.C.; Weissberg, R.P. Establishing systemic social and emotional learning approaches in schools: A framework for schoolwide implementation. *Cambridge Journal of Education* **2016**, *46*, 277-297.

32. Weissberg, R.P.; Goren, P.; Domitrovich, C.; Dusenbury, L. *CASEL guide effective social and emotional learning programs: Preschool and elementary school edition.* ; CASEL: Chicago, IL, 2013.

33. Bierman, K.L.; DeRousie, R.M.S.; Heinrichs, B.; Domitrovich, C.E.; Greenberg, M.T.; Gill, S. Sustaining high-quality teaching and evidence-based curricula: Follow-up assessment of teachers in the REDI project. *Early Education and Development* **2013**, *24*, 1194-1213.

34. Domitrovich, C.E.; Gest, S.D.; Gill, S.; Bierman, K.L.; Welsh, J.A.; Jones, D. Fostering High-Quality Teaching with an Enriched Curriculum and Professional Development Support: The Head Start REDI Program. *American Educational Research Journal* **2009**, *46*, 567-597.

35. Thomas, B.; Ciliska, D.; Dobbins, M.; Micucci, S. A process for systematically reviewing the literature: providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing* **2004**, *1*, 176-184.

36. Arda, T.B.; Ocak, S. Social Competence and Promoting Alternative Thinking Strategies--PATHS Preschool Curriculum. *Educational Sciences: Theory and Practice* **2012**, *12*, 2691-2698.

37. Baker-Henningham, H.; Walker, S.; Powell, C.; Gardner, J.M. A pilot study of the Incredible Years Teacher Training programme and a curriculum unit on social and emotional skills in community pre-schools in Jamaica. *Child: Care, Health and Development* **2009**, *35*, 624-631.

38. Barnett, W.S.; Jung, K.; Yarosz, D.J.; Thomas, J.; Hornbeck, A.; Stechuk, R.; Burns, S. Educational Effects of the Tools of the Mind Curriculum: A Randomized Trial. *Early Childhood Research Quarterly* **2008**, *23*, 299-313.

39. Cappella, E.; O'Connor, E.E.; McCormick, M.P.; Turbeville, A.R.; Collins, A.J.; McClowry, S.G. Classwide Efficacy of INSIGHTS: Observed Teacher Practices and Student Behaviors in Kindergarten and First Grade. *Elementary School Journal* **2015**, *116*, 217-241.

40. Fishbein, D.H.; Domitrovich, C.; Williams, J.; Gitukui, S.; Guthrie, C.; Shapiro, D.; Greenberg, M. Short-term intervention effects of the PATHS curriculum in young low-income children: Capitalizing on plasticity. *The Journal of Primary Prevention* **2016**, *37*, 493-511.

41. Jackman, M.M.; Nabors, L.A.; McPherson, C.L.; Quaid, J.D.; Singh, N.N. Feasibility, acceptability, and preliminary effectiveness of the openmind (om) program for pre-school children. *Journal of Child and Family Studies* **2019**, *28*, 2901-2921.

42. Landry, S.H.; Zucker, T.A.; Taylor, H.B.; Swank, P.R.; Williams, J.M.; Assel, M.; Crawford, A.; Huang, W.; Clancy-Menchetti, J.; Lonigan, C.J., et al. Enhancing early child care quality and learning for toddlers at risk: The responsive early childhood program. *Developmental Psychology* **2014**, *50*, 526-541.

43. Lonigan, C.J.; Phillips, B.M.; Clancy, J.L.; Landry, S.H.; Swank, P.R.; Assel, M.; Taylor, H.B.; Klein, A.; Starkey, P.; Domitrovich, C.E., et al. Impacts of a comprehensive school readiness curriculum for preschool children at risk for educational difficulties. *Child Development* **2015**, *86*, 1773-1793.

44. Upshur, C.C.; Heyman, M.; Wenz-Gross, M. Efficacy trial of the Second Step Early Learning (SSEL) curriculum: preliminary outcomes. *Journal of Applied Developmental Psychology* **2017**, *50*, 15-25.

45. Upshur, C.; Wenz-Gross, M.; Reed, G. A pilot study of a primary prevention curriculum to address preschool behavior problems. *The Journal of Primary Prevention* **2013**, *34*, 309-327.

46.   Webster-Stratton, C.; Reid, M.J.; Stoolmiller, M. Preventing conduct problems and improving school readiness: Evaluation of the Incredible Years teacher and child training programs in high-risk schools. *Journal of Child Psychology and Psychiatry* **2008**, *49*, 471-488.

47.   Gunter, L.; Caldarella, P.; Korth, B.B.; Young, K.R. Promoting social and emotional learning in preschool students: A study of Strong Start Pre-K. *Early Childhood Education Journal* **2012**, *40*, 151-159.

48.   Pickens, J. Socio-Emotional Programme Promotes Positive Behaviour in Preschoolers. *Child Care in Practice* **2009**, *15*, 261-278.

49.   Bilir Seyhan, G.; Ocak Karabay, S.; Arda Tuncdemir, T.B.; Greenberg, M.T.; Domitrovich, C. The effects of promoting alternative thinking strategies preschool program on teacher–children relationships and children's social competence in turkey. *International Journal of Psychology* **2017**, *54,* 61-69.

50.   Vestal, A.; Jones, N.A. Peace Building and Conflict Resolution in Preschool Children. *Journal of Research in Childhood Education* **2004**, *19,* 131-142.

51.   Hamre, B.; Hatfield, B.; Pianta, R.; Jamil, F. Evidence for General and Domain-Specific Elements of Teacher-Child Interactions: Associations With Preschool Children's Development. *Child Development* **2014**, *85*, 1257-1274.

52.   Barnett, W.S. Effectiveness of early educational intervention. *Science* **2011**, *333,* 975-978.

53.   Oberklaid, F.; Baird, G.; Blair, M.; Melhuish, E.; Hall, D. Children's health and development: approaches to early identification and intervention. *Archives of Disease in Childhood* **2013**, *98*, 1008-1011.

54.   Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., ... & Zaslow, M. J. *Investing in our future: The evidence base on*

preschool education; Society for Research in Child Development and Foundation for Child Development: **2013**.

55.   Gunter, L.; Caldarella, P.; Korth, B.B.; Young, K.R. Promoting Social and Emotional Learning in Preschool Students: A Study of "Strong Start Pre-K". *Early Childhood Education Journal* **2012**, *40*, 151-159.

56.   Mashburn, A.J.; Pianta, R.C.; Hamre, B.K.; Downer, J.T.; Barbarin, O.A.; Bryant, D.; Burchinal, M.; Early, D.M.; Howes, C. Measures of Classroom Quality in Prekindergarten and Children's Development of Academic, Language, and Social Skills. *Child Development* **2008**, *79*, 732-749.

57.   Curby, T.W.; LoCasale-Crouch, J.; Konold, T.R.; Pianta, R.C.; Howes, C.; Burchinal, M.; Bryant, D.; Clifford, R.; Early, D.; Barbarin, O. The Relations of Observed Pre-K Classroom Quality Profiles to Children's Achievement and Social Competence. *Early Education and Development* **2009**, *20*, 346-372.

58.   Brock, L.L.; Curby, T.W. Emotional support consistency and teacher–child relationships forecast social competence and problem behaviors in prekindergarten and kindergarten. *Early Education and Development* **2014**, *25*, 661-680.

59.   Hamre, B.K. Teachers' daily interactions with children: An essential ingredient in effective early childhood programs. *Child Development Perspectives* **2014**, *8*, 223-230.

60.   Ainsworth, M.D.S.; Blehar, M.C.; Waters, E.; Wall, S.N. *Patterns of attachment: A psychological study of the strange situation*; Psychology Press: **2015.**

61.   Rimm-Kaufman, S.E.; Curby, T.W.; Grimm, K.J.; Nathanson, L.; Brock, L.L. The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology* **2009**, *45*, 958.

62.   Sheridan, S.M.; Edwards, C.P.; Marvin, C.A.; Knoche, L.L. Professional development in early childhood programs: Process issues and research needs. *Early education and development* **2009**, *20*, 377-401.

63.   Fukkink, R.G.; Lont, A. Does training matter? A meta-analysis and review of caregiver training studies. *Early Childhood Research Quarterly* **2007**, *22*, 294-311.

64.   Buettner, C.K.; Jeon, L.; Hur, E.; Garcia, R.E. Teachers' Social-Emotional Capacity: Factors Associated with Teachers' Responsiveness and Professional Commitment. *Early Education and Development* **2016**, *27*, 1018-1039.

3.4 Targeted (Tier 2) SEL Intervention and Child Outcomes

The third systematic literature review examined the benefit of targeted (Tier 2) SEL intervention for children experiencing social, emotional, or behavioural challenges. Nineteen studies were captured in the review, with findings suggesting targeted intervention in ECEC settings may offer a promising early intervention approach, particularly with regards to aspects of children's social skill development. Programs reviewed were predominately directed to preschoolers with externalising problems. There appear to be limited approaches focused on internalizing behaviour. This paper was published on 24 December 2019 in *Early Child Development and Care* and is presented in its published form.

Routledge
Taylor & Francis Group

Check for updates

REVIEW ARTICLE

A systematic review of targeted social and emotional learning interventions in early childhood education and care settings

Claire Blewitt [a], Amanda O'Connor[a], Heather Morris[a], Tamara May[b], Aya Mousa[a], Heidi Bergmeier[a], Andrea Nolan[c], Kylie Jackson[d], Helen Barrett[d] and Helen Skouteris[a,e]

[a]Monash Centre for Health Research and Implementation, Monash University, Melbourne, Australia; [b]Department of Paediatrics, Monash University, Melbourne, Australia; [c]Faculty of Arts and Education, Deakin University, Geelong, Australia; [d]bestchance Child Family Care, Melbourne, Australia; [e]Warwick Business School, Warwick University, Coventry, UK

ABSTRACT
A growing body of research evidence suggests universal (Tier 1) Social and Emotional Learning (SEL) interventions in early childhood education and care settings can improve children's social and emotional development. Less is known however about the effectiveness of targeted (Tier 2) programmes for preschoolers experiencing social, emotional or behavioural challenges. A systematic literature review was conducted to examine the outcomes associated with targeted (Tier 2) SEL interventions; 19 studies were captured in the review. Findings revealed that while evidence for targeted SEL programming is still emerging, it may offer a promising early intervention approach to strengthen aspects of children's social and behavioural functioning. Based on the evidence reviewed, the impact of targeted SEL intervention on emotional competencies could not be established. Programmes were predominately directed to preschoolers with externalizing problems and there appears to be a dearth of approaches focused on internalizing behaviour. Implications for practice and research are discussed.

An emerging body of evidence suggests Social and Emotional Learning (SEL) intervention in Early Childhood Education and Care (ECEC) may contribute to preschoolers' healthy development (Bierman & Motamedi, 2015; Blewitt et al., 2018; McCabe & Altamura, 2011; McClelland, Tominey, Schmitt, & Duncan, 2017; Schindler et al., 2015; Werner, Linting, Vermeer, & Van IJzendoorn, 2016), potentially mitigating the influence of child, familial and community risk factors. Young children who understand and manage their emotions and behaviour are more likely to establish prosocial relationships and succeed in school (Allen & Kelly, 2015; Denham & Brown, 2010). Conversely, children who lack social and emotional competence may experience escalating behavioural and academic challenges, and present a greater risk for long-term maladaptive health, wellbeing and vocational outcomes (Allen & Kelly, 2015; OECD, 2015). SEL programmes aim to prevent this trajectory by fostering children's social-emotional skills, attitudes and behaviours. The Collaborative for Academic, Social and Emotional Learning (CASEL) describe self-awareness, social awareness, self-management, relationship skills, and responsible decision-making as competencies that can be encouraged and nurtured through explicit lessons, child-centered teaching practices, integration within broader curricula and centre-wide strategies (CASEL, 2019).

SEL interventions are increasingly described within a response-to-intervention framework (Greenberg, Domitrovich, Weissberg, & Durlak, 2017; Shepley & Grisham-Brown, 2019). Response-to-intervention typically includes a three-tiered approach to identify and support children's learning and behavioural needs through evidence-based intervention (Figure 1). It is a proactive model that aligns intervention to the needs of each child by increasing intensity from one tier to the next, and has been adapted to facilitate Positive Behaviour Intervention and Supports (PBIS) (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; McIntosh & Goodman, 2016), social-emotional and behavioural competence (Fox et al., 2003; Hemmeter, Ostrosky, & Fox, 2006), early literacy instruction (Johnston, 2011), and disability service provision (Fuchs & Fuchs, 2006). As such, response-to-intervention offers a valuable framework to review the effectiveness of programmes that seek to promote children's social and emotional development in early learning settings.

The first tier of response-to-intervention offers universal curricula delivered to all children. For SEL, these Tier 1 programmes provide a proactive and preventative approach that capitalizes on the preschool environment to promote social-emotional capabilities at the classroom scale. Children requiring more intensive support than what is offered by universal approaches are the focus of Tier 2; targeted programmes delivered to select children experiencing, social, emotional or behavioural challenges, who may not have responded to universal supports. Targeted programmes generally seek to prevent the escalation of more serious mental health concerns, often by focusing effort around a particular issue. Finally, Tier 3 interventions are delivered to children requiring intensive and individualized assistance. These children may display characteristics of mental health and developmental challenges (Macklem, 2011).

Existing data point to several reasons why a multi-tiered approach to SEL intervention in preschool may be particularly beneficial. Response-to-intervention models have been applied in school settings across social, emotional and behavioural domains (Greenberg et al., 2017; Saeki et al., 2011; VanDer-Heyden & Snyder, 2006). Further, ECEC settings offer an effective pathway to reach children at their point of need. Epidemiological research highlights an increasing prevalence of emotional and behavioural problems in young children requiring targeted support; an estimated 9.5–14.2% of children aged zero to five years will experience serious emotional and behavioural disturbance (Brauner & Stephens, 2006), with rates higher in children from disadvantaged backgrounds (Huaqing qi & Kaiser, 2003).

Providing effective and nurturing care and learning experiences to children with behavioural problems may present a significant challenge for early childhood educators, who can be
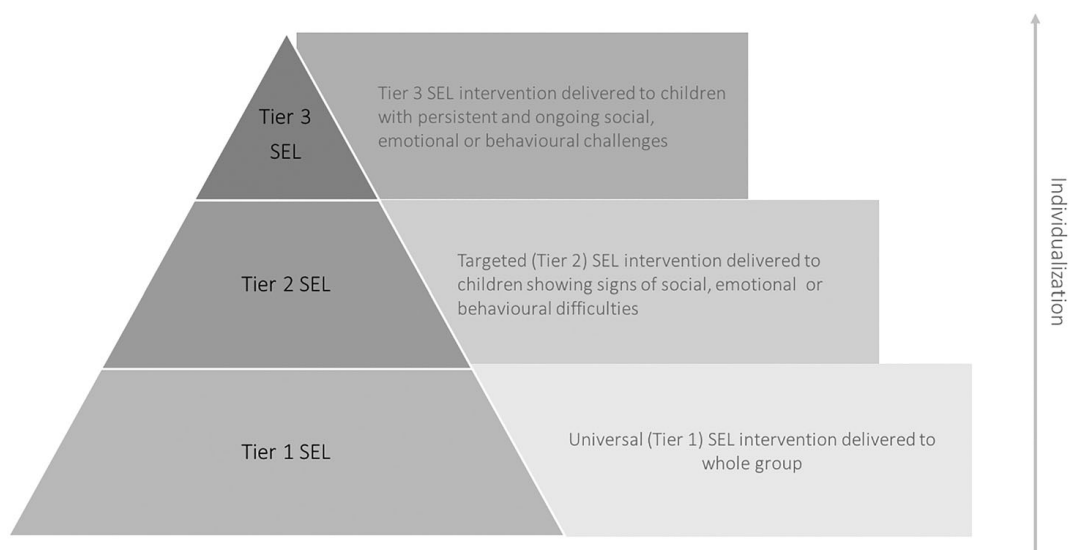
Figure 1. Multi-tiered response-to-intervention model for social and emotional learning.

113

underprepared to manage antisocial behaviour (Forness, Kim, & Walker, 2012; Hemmeter, Santos, & Ostrosky, 2008; Powell, Fixsen, Dunlap, Smith, & Fox, 2007). In the United States, preschool-aged children are expelled at rates higher than elementary and secondary school students (Gilliam & Shahar, 2006), and in Australia, foundation teachers report that approximately one in five students enter school at risk or vulnerable due to difficulties with social or emotional skills (Australian Early Development Census, 2018). It is therefore vital that early years professionals have access to evidence-based techniques and strategies that differentiate from and build upon universal, class-wide approaches (Drogan & Kern, 2014). To our knowledge, there lacks a synthesis of research on the effectiveness of ECEC-based SEL intervention within the second tier of the response-to-intervention framework, that is, programmes for children experiencing social, emotional or behavioural challenges, without a formal diagnosis or assessment of a mental health condition or developmental delay.

The aim of the present review, therefore, was to identify, describe and systematically examine the effectiveness of targeted (Tier 2) SEL programmes in early learning settings for children experiencing social, emotional or behavioural challenges. The findings from both single-subject and group design studies will be examined with regards to improvements in children's social, emotional or behavioural skills, or reduction in social, emotional or behavioural difficulties. The current review also explores the methodological limitations of research examining the impact of targeted SEL programmes in ECEC settings, and makes recommendations for future research.

Methods

Search strategy and study selection

Published, peer-reviewed papers were sourced from three relevant online databases: MEDLINE Complete, PsychINFO and ERIC. In order to capture contemporary research, publication dates were limited to within 20 years (January 1999 to April 2019). Searches were conducted between April and May 2019, and included combinations of the following groups of key terms: intervention*, programme*, curricul* and 'early learning centre', 'early learning centre', preschool*, 'pre school', 'pre-school', childcare, 'child?care', kinder*, 'pre?kindergarten', 'pre-K', 'pre K', 'day care', daycare, 'Head Start', HeadStart and 'social development', 'emotion* development', 'social learning', 'emotion* learning', 'social emotional learning', 'social-emotional learning', 'social and emotional learning', 'SEL', 'social skills', 'emotional skills', 'self-esteem', empathy, 'emotional intelligence', 'conflict resolution', 'problem? solving', resilien*, aggress*, anxi*, prevent*, externali*, internali*, withdraw* and target*, select*, 'Tier 2', 'at risk', 'at-risk'. Manual searching of references cited in selected papers, and relevant reviews and meta-analyses of intervention programmes targeting SEL in early childhood settings were undertaken and suitable papers included.

Inclusion and exclusion criteria

Studies were evaluated against the following inclusion criteria:

(i) *Research Design*: Systematic, experimentally controlled investigation of a Tier 2 programme targeting children's social or emotional skill development. The following research designs met inclusion criteria: randomized controlled trials (RCT), quasi-experimental trials with any comparator group, and single-subject designs.

(ii) *Research Setting:* Delivered within an ECEC centre-based setting by an early years educator, other early years professional, or researcher, to children from birth to 6 years of age.

(iii) *Social, Emotional or Behavioural Challenges:* Participants had been identified through any form of screening process to be experiencing social, emotional or behavioural difficulty. This may include, but was not limited to, social or emotional skills below what would be expected of

their age, internalizing behaviours such as withdrawal or anxiety, externalizing behaviours including aggression, disruption, or antisocial behaviour, or challenges with self-regulation, for example, difficulty paying attention, following instructions, or calming down.

(iv) *Type of Programme:* A classroom-based intervention addressing at least one of the following: self-awareness (recognizing emotions, thoughts, strengths and limitations, self-confidence, self-efficacy), self-management (effectively regulating emotions, thoughts and behaviours, including impulse control), social awareness (understanding and empathizing with others), relationship skills (forming and maintaining prosocial relationships, communication, listening, cooperation, managing conflict), and responsible decision making (identifying and effectively solving social and behavioural problems, evaluating consequences of actions) (CASEL, 2019).

(v) *Dependent Variable:* Assessed at least one individual-level social (e.g. prosocial behaviour, social-communication, relationship quality), emotional (e.g. emotional regulation, emotional knowledge) or behavioural outcome (e.g. self-control, on-task behaviour), or emotional or behavioural challenge (e.g. internalizing, externalizing) following the intervention.

(vi) *Publication Status:* Published in English between January 1999 and April 2019 and peer-reviewed.

Studies were excluded if:

(i) they targeted children with a diagnosed mental health condition or developmental delay. For the purpose of the current review, studies that focused on children who had received a formal diagnosis of neurodevelopmental disorder, anxiety disorder, depressive or mood disorders or any other mental health condition, or children who had received an assessment and were found to have a development or communication delay were not captured.

(ii) they did not evaluate a targeted SEL intervention. Studies that used sub-group analyses to examine the impact of universal SEL programmes for certain groups of children with social, emotional or behavioural challenges, without offering a targeted component, were excluded.

Review procedures and data abstraction

This systematic literature review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The search identified 4,146 articles after the removal of duplicates. One author screened all titles and abstracts for possible inclusion (CB). A second author (AO) independently co-screened 10% of the titles and abstracts; agreement for articles to be read in full was 100% after discussion. One hundred and sixty-four papers remained after the initial screening stage and were read in full, with 19 included in the review (Figure 2). The following information were extracted from each study to allow comparison:

- study setting and design;
- characteristics of child participants (age, gender distribution, nationality, socio-economic status, reason for inclusion);
- SEL intervention description (screening process, frequency and duration of programme, interventionist, format, support or training for educator, caregiver involvement, fidelity, social validity); and
- outcome measures, informant and findings (improvement in social, emotional or behavioural functioning, reduction in social, emotional or behavioural challenges, effect sizes where reported).

Quality of evidence

To determine the quality of included studies, each article was assessed against the Evaluative Method for Determining Evidence-Based Practices in Autism (Reichow, 2011) by one author (CB). This framework, originally designed to evaluate the quality of studies focusing on individuals with Autism
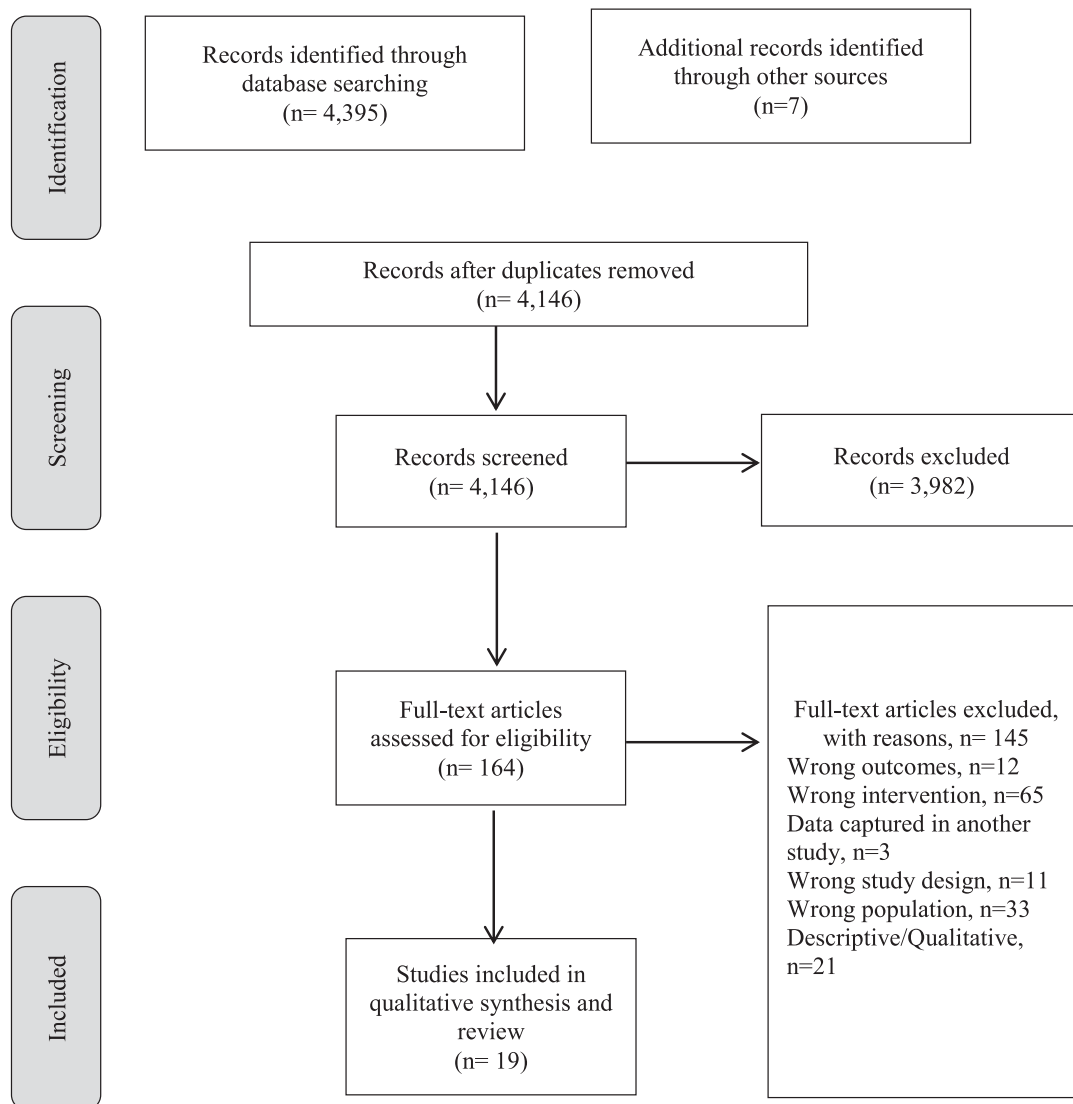
Figure 2. Flow diagram of studies included in review.

Spectrum Disorder, uses a parallel set of criteria across group design and single subject research, produces valid and reliable scores for identifying the quality of experimental research (Cicchetti, 2011; Wendt & Miller, 2012), and has been applied to a previous review examining SEL programmes in ECEC (Sabey, Charlton, Pyle, Lignugaris-Kraft, & Ross, 2017). Each study was assessed against a set of primary indicators critical to the strength of the study (including description of participant characteristics, dependent and independent variables) and secondary indicators considered beneficial, but not essential elements (including random assignment, inter-observer agreement, blind raters, attrition, procedural fidelity, and assessment of generalization and maintenance), with an overall assessment of strong, adequate or weak quality awarded.

Results

General characteristics of included studies

The characteristics of the 19 studies included in this review are summarized in Table 1, with key findings reported in Table 2. Six employed a single-subject design [study numbers as listed in Table 1: 1, 4, 5, 8, 15, 16] and 13 a group design [2, 3, 6, 7, 9, 10, 11, 12, 13, 14, 17, 18, 19], with six studies described as a randomized controlled, randomized clinical, or cluster randomized controlled

Table 1. Characteristics of included studies.

Study No.	First author (year) country	Setting	Study design (SS, G)	N at baseline	Child characteristics	Risk determinant	Intervention	Leader	Intervention duration	Teacher education described	Parent involvement
1	Anderson (2018) USA	K	SS	3	Age: 5–6 years SES: L – M Ethnicity: Caucasian Female: 66.6%	Socially withdrawn	Playground Intervention: Social skills instruction, adult mediation, self-evaluation and reinforcement, and parent involvement.	I	3 individual lessons per week (15 min), 4–5 weeks	✗	✓
2	Carpenter (2002) USA	HS, P	G	19 IG 8 focal children, CG 11 non-aggressive peers	SES: L Ethnicity: 78.9% Caucasian,10.5% African American, 10.5% Native American Female: 73.7%	Aggression	Brief Verbal Instructions: One-on-one conversations targeting children's aggressive behaviour.	T	1 session (10 min)	✓	✗
3	Conroy (2015) USA	ECP, HS	G (RCT)	130 IG 66, CG 64	Age: 2–5 years SES: Mixed Ethnicity: 74.6% African American, 14.6% White, 3.8% Hispanic, 6.2% Multi Female: 36.2%	Externalizing behaviour	BEST in CLASS: Instruction and coaching to increase quantity and quality of key instructional practices that prevent and reduce problematic behaviours.	T	14 weeks	✓	✗
4	Craig-Unkefer (2002) USA	CC	SS	6	Age: 41–47 months Ethnicity: 83.3% African American, 16.7% European American Female: 50%	Receptive and expressive language skills below mean and/ or borderline or clinical levels of aggressive, noncompliant, anxious, or depressed behaviours	Peer Play Intervention: Sessions with 2 focal children and interventionist included play organizer, play session and review session.	I	3–4 sessions per week (20 min), 25 sessions across baseline and intervention phases	✗	✗
5	Craig-Unkefer (2003) USA	HS	SS	6	Age: 37–47 months SES: L Ethnicity: 66.6% African American,	Fewer social skills than peers and language skills below expected for age	Peer Play Intervention: Sessions with 2 focal children and interventionist included play	I	3–4 sessions per week (20 min), 28 sessions across baseline and	✗	✗

					33.3% Caucasian Female: 50%		organizer, play session and review session.		intervention phases		
6	Daunic (2013) USA	K	G	57 IG 30, CG 27	SES: Mixed Ethnicity: Mixed Female: 14.0%	Behaviour	Social Emotional Learning Foundations (SELF): Small group lessons combining instruction in social and emotional learning with early literacy.	T	2–3 lessons per week (20 min), 16 lessons	×	×
7	Driscoll (2010) USA	HS, CS	G	116 IG 38, WCC 38, NTC 40	Ethnicity: 83% African American, 13% Caucasian, 2% Latino, 2% Bi-Racial Female: 50%	Adjustment concerns	Banking Time: One-on-one meetings between a teacher and a child structured to achieve relational goals.	T	18 sessions, 6 weeks	✓	×
8	Drogan (2014) USA	P	SS	3	Age: 3–4 years Ethnicity: Caucasian Female: 66.7%	Behavioural problems	Turtle Technique: Teaching a self-control method.	T	Daily (15 min), delivered to all children in class, 2–3 weeks	✓	×
9	Gatzke-Kopp (2015) USA	K	G (RCT)	207 IG 100, CG 107	Age: IG 5.57 (0.33) years, CG 5.66 (0.47) years SES: L Ethnicity: 73% African American, 19% Latino, 8% Caucasian, <1% Asian Female: IG 35%, CG 33%	Aggression	Friendship Group (PATHS +): Group training targeting emotional awareness, self-control, social problem solving, and peer relations.	I	12 group sessions (45 min) in Kindergarten, 10 additional lessons in G1	✓ (universal programme)	✓
10	Helker (2009) USA	HS	G	32 IG 19, CG 13	Age: 3–4 years SES: L Ethnicity: IG 36.8% Hispanic, 38.6% Caucasian, 26.3% African American, CG 76.9% Hispanic, 15.4% Caucasian, 7.7% African American Female: IG 52.6%, CG 30.8%	Problematic behaviour	Child Teacher Relationship Training: Relationship building using play to facilitate children's sense of competence and self-esteem.	T, TA	Weekly sessions with focal child (30 min), 7 weeks. Three sessions per week with coach and broader group (30 min), 10 weeks	✓	×

Table 1. Continued.

Study No.	First author (year) country	Setting	Study design (SS, G)	N at baseline	Child characteristics	Risk determinant	Intervention	Leader	Intervention duration	Teacher education described	Parent involvement
11	Larmar (2006) Australia	P	G	135 IG 66, CG 69	Age: IG 4.37 (0.49) years, CG 4.29 (0.46) years Female: IG 50.5%, CG 38.5% *Data for Tier 1 and Tier 2 participants*	Conduct problems	Early Impact Programme (universal and targeted programme): Universal curriculum focuses on communication, friendship formation, social problem-solving, self-control, and engaging in pro-social behaviours. A consultant worked with focal children (targeted component) to offer supplementary support.	T, I	Universal programme + one session each week (30 min), 10 weeks	✓	✓
12	Li (2016) China	K	G	16 IG 8, CG 8	Age: 4.68 (0.28) years Female: 50%	Extremely shy children	Social Skills Facilitated Play Programme: Small group sessions to address initiating and maintaining peer interactions, understanding/expressing feelings, regulation of negative affect, with particular focus on fear and anxiety.	I	Two sessions weekly (1 hour), 7 weeks	×	×
13	Morrison (2010) USA	HS	G	52 IG 26, CG 26	SES: L Ethnicity: IG 44% Hispanic, 35% Black, 19% White; CG: 65% Hispanic, 26% Black, 7% White Female: IG 46%, CG 38%	Behaviour Problems	Child Teacher Relationship Training: Relationship building using play to facilitate children's sense of competence and self-esteem.	T, TA	Weekly sessions with focal child (30 min), 7 weeks. Three sessions per week with coach and broader group (30 min), 10 weeks	✓	×

14	Salvas (2016) Canada	K, G1	G (RCT)	34 focal children and child's best friend IG 20, CG 14	Age: 5.9 (0.69) years SES: 6/7 settings low SES Ethnicity: 52% European descent, 10% African descent, 10% Asian descent, 10% Arabic descent, 14% Hispanic descent. Female: 32.4%	Aggression	Dyadic Intervention Programme between focal peer and best friend focusing on friendship quality.	I	12 weekly sessions (1 hour)	✗	✗
15	Stanton-Chapman (2008) USA	HS	SS	8	Age: 45–60 months SES: L Ethnicity: African American Female: 50%	Language skills below expected levels, borderline or clinical levels of externalizing or internalizing behaviours, or low levels of social skills	Peer Play Intervention: Teaching 4 social pragmatic skills, initiating conversations, verbally responding to peers, using peers name and taking turns in conversation to 2 focal children.	I	5 days per week (25 min), 20 intervention sessions per dyad	✗	✗
16	Stanton-Chapman (2014) USA	HS	SS	10	Age: 4.28 years SES: L Ethnicity: 40% African American, 40% Caucasian, 10% Hispanic, 10% Biracial Female: 30%	Two or more: problem or challenging behaviour, poor social skills, lack of social pragmatic skills	Small Group Social Pragmatic Intervention: Teaching 4 social pragmatic skills, initiating conversations, verbally responding to peers, using peers name and taking turns in conversation.	T	10 sessions, 2–3 times per week	✓	✗
17	Sutherland (2018) USA	ECP	G (C-RCT)	465 IG 234, CG 231	Age: 4.32 (0.53) years SES: L Ethnicity: 66.2% Caucasian, 17.0% Hispanic, 4.5% Asian, 0.2% Native American, 6.9% Other Female: 35.27%	Chronic problem behaviour	BEST in CLASS: Instruction and coaching to increase quantity and quality of key instructional practices that prevent and reduce problematic behaviours.	T	14 weeks	✓	✗

(*Continued*)

Table 1. Continued.

Study No.	First author (year) country	Setting	Study design (SS, G)	N at baseline	Child characteristics	Risk determinant	Intervention	Leader	Intervention duration	Teacher education described	Parent involvement
18	Vancraeyveldt (2015) Belgium	P	G (RCT)	175 IG 89, CG 86	Age: 4.75 (0.58) years Ethnicity: 91.4% Belgian Female: 0%	Externalizing behaviour	Playing-2-gether: Child and teacher-led play sessions to improve teacher-child interactions to reduce externalizing problem behaviour	T	2 × 6-week parts, minimum 2 play sessions per week (15 min)	✓	✗
19	Williford (2017) USA	P, HS	G (RCT)	470 IG 168, AC 152, CG 151	Age: 48.7 (6.7) months SES: Mixed Ethnicity: White 38%, Black 42% Hispanic 8% Other 12% Female: 35%	Externalizing behaviour	Banking Time: One-on-one meetings between a teacher and a child structured to achieve relational goals.	T	2–3 times per week (10–15 min), 7 weeks	✓	✗

Note: AC = Active Control, C-RCT = Cluster Randomised Controlled Trial CC = Child Care, CG = Control Group, CS = Community School, E = Experimental Design, ECP = Early Childhood Program, G = Group Design, G1 = Grade 1, HS = Head Start, I = Interventionist other than the Classroom Teacher, IG = Intervention Group, K = Kindergarten, NCC = No Treatment Control, P = Preschool, PS = Public School, RCT = Randomised Controlled Trial, SS = Single Subject Design, T = Teacher, TA = Teaching Assistant, WCC = Within Class Control.

Table 2. Intervention effects on child-level outcomes.

Study No.	First author (year)	Child outcome (s)	Instrument (informant)	Data collection time points	Key findings relating to focal children at post-intervention
1	Anderson (2018)	Social Interaction	Direct observations of social interactions	Baseline, intervention, post-intervention	• Children increased positive social interaction during intervention and post intervention phases. Average Tau-U values across participants (between-phase difference) .96, $p < .001$.
2	Carpenter (2002)	Child Behaviour: aggression, negative active behaviour, positive active behaviour, inactive behaviour Social Behaviour and Externalizing Behaviour	Direct observations based on categories used by Zahavi and Asher (1978) Social Skills Rating System – Teacher Form (AT)	Baseline, post-intervention, 1 month follow up	• IG increased positive behaviour over time ($p < .05$), change across time in CG not significant. Group differences observed at post-intervention only ($p < .05$), reflecting higher rates of positive behaviour in CG versus IG. Children who took part in the intervention decreased positive behaviour between baseline and post, however improved from post to follow-up, matching levels displayed by non-aggressive control group. • IG decreased negative behaviour over time ($p < .01$). change across time in CG not significant. Group differences observed at post-intervention only ($p < .01$), with higher levels in IG. Treatment group decreased levels of negative behaviour between post and follow-up to levels displayed by non-aggressive controls. • CG exhibited higher rates of social behaviour at baseline ($p < .001$), post-intervention ($p < .01$) and follow up ($p < .01$). Within IG, significant difference between baseline and post-intervention ($p < .05$) and baseline follow-up ($p < .05$). CG showed a decline in social behaviours between baseline and post-intervention, although this decline was not maintained at follow-up. • Groups did not differ over time on levels of aggression, inactive, or externalizing behaviour.

(*Continued*)

Table 2. Continued.

Study No.	First author (year)	Child outcome (s)	Instrument (informant)	Data collection time points	Key findings relating to focal children at post-intervention
3	Conroy (2015)	Engagement Disruption, Aggression, Defiance Positive and Negative Teacher-Child Interactions	The Teacher–Child Interaction Direct Observation System–Research Version 2.1(O)	Baseline, post-intervention, 1 month follow up	• Compared to controls, IG participants increased engagement from baseline to post-test ($p = .00$) and baseline to maintenance ($p = .00$), decreased disruptive, aggressive and defiant behaviour from baseline to post-test ($p = .00$) and baseline to maintenance ($p = .00$), and increased positive interactions and reduced negative interactions from baseline to post-test ($p = .00$) and baseline to maintenance ($p = .00$ and $p = .04$ respectively).
4	Craig-Unkefer (2002)	Social-Communicative Behaviour: descriptive statements, request utterances, linguistic complexity Child Play: aggression, solidity, onlooker, parallel play, associate play and cooperative play (measured during last 3 baseline sessions and last 3 intervention sessions)	Direct observation Play Peer Code and Multiple Option Observation System for Experimental Studies (O)	Baseline, intervention	• Increase in amount of child talk during play, and specific increases in requests and descriptive talk for 5/6 children. • Mean length of utterance and use of different words increased for all children during the intervention. 5/6 children increased number of words used during the intervention. • Lower levels of play (that did not entail positive social communication) during 94% of baseline intervals and 74% of intervention intervals. All dyads increased at least 20% in their use of more interactive and peer-directed play from baseline to intervention, and all children demonstrated increases in time spent in conversation.
5	Craig-Unkefer (2003)	Social-Communicative Behaviour: descriptive statements, request utterances, linguistic complexity Child Play: aggression, solidity, onlooker, parallel play, associate play and cooperative play	Direct observation Play Peer Code and Multiple Option Observation System for Experimental Studies (O)	Baseline, intervention, generalization	• Descriptive statements, number of requests, total words, use of different words and use of four + word utterances increased from baseline to intervention. Effects on mean length of utterances were mixed. • All dyads engaged in more complex play during the last three intervention sessions compared to the last three baseline sessions. All children showed increases in conversation between baseline (average 14%) and intervention (74%).

					• All children increased peer-directed descriptive statements, requests, total words, and number of different words used from pre to post intervention in generalization sessions. 5/6 children increased use of different words and four or more word utterances. Mean length of utterances were varied. All children increased time spent in complex play and conversation.
6	Daunic (2013)	Emotional and Behavioural Self-Regulation Social Skills, Competence, Internalizing Externalizing	The Behaviour Rating Inventory of Executive Function (BRIEF) Teacher Form (T) Clinical Assessment of Behaviour Teacher Rating Form (CAB) (T)	Baseline, post-intervention	• Compared to CG peers, IG children showed greater improvement in internalizing behaviour ($p < .05$, $\eta_p^2 = .84$) and competence ($p = .01$, $\eta_p^2 = .129$) on CAB and behaviour regulation ($p < .05$, $\eta_p^2 = .097$) on BRIEF. • No group differences reported for social skills or externalizing on CAB, or emotional control or other subscales on the BRIEF.
7	Driscoll (2010)	Teacher-Child Relationship Quality: closeness and conflict Emotional Regulation: enthusiasm, positive affect, and persistence. Classroom Behaviour: frustration tolerance, assertiveness, task orientation, social skills, competence, conduct problems, internalizing, learning problems problem behaviours	Student Teacher Relationship Scale (STRS) Structured interaction (O) Teacher–Child Rating Scale (TCRS) (T)	Baseline, post-intervention	• IG v Within Class Control: IG demonstrated greater task orientation ($p = .01$, $\eta^2 = .13$), showed a trend towards increased frustration tolerance ($p = .07$, $\eta^2 = .06$) and competence ($p = .07$, $\eta^2 = .06$), and decreased conduct problems ($p = .07$, $\eta^2 = .06$). Groups did not differ on other scales of the TCRS or STRS. • IG v No Treatment Control: IG demonstrated greater gains in teacher-child closeness ($p < .05$, $\eta^2 = .08$). No difference in teacher-child conflict or other scales of the TCRS. • Groups did not differ in emotional regulation.
8	Drogan (2014)	Problem Behaviour: physical aggression, vocal disruption, property destruction Use of Turtle Technique Resilience	Direct observation Direct observation Devereux Early Childhood Assessment (DECA) – Behavioural Concerns subscale (T)	Baseline, intervention, follow-up	• Problem behaviour reduced for all participants from baseline to intervention. For two children, rate decreased further from intervention to maintenance phase. • Steps of Turtle Technique not used by children during intervention or maintenance sessions. • Findings from DECA pre-post assessment variable.

Table 2. Continued.

Study No.	First author (year)	Child outcome (s)	Instrument (informant)	Data collection time points	Key findings relating to focal children at post-intervention
9	Gatzke-Kopp (2015)	Emotion Regulation Externalizing Peer Nominations of Aggressive Behaviour	Teacher Social Competence Scale (T) Teacher Observation of Classroom Adaptation–Revised (T) Peer Aggression Ratings (C)	Baseline, post-intervention	• Intervention status was not a significant predictor of emotion regulation, externalizing or peer aggression ratings at post.
10	Helker (2009)	Externalizing and Internalizing Behaviour	C-TRF (T)	Baseline, post-intervention, 10-week follow up	• Lower externalizing behaviour in IG at post-intervention compared to active control group ($p = .037$, $\eta_p^2 = .14$), however this was not significant at 10-week follow up. • Groups did not differ at post-intervention or follow up on internalizing problems or total problems.
11	Larmar (2006)	Conduct Problems, Hyperactivity, Emotional Symptoms, Peer Problems, Prosocial Behaviour Peer Ratings	Strengths and Difficulties Questionnaire (P, T) Peer Nomination Interview Schedule (C)	Baseline, post-intervention, 6-month follow up	• Groups did not significantly differ at baseline on teacher-reported conduct problems and hyperactivity, however diverged at post and remained different at follow up, but this did not reach significance. • Groups did not differ on prosocial skills at baseline, were significantly different at post, but this difference was not evident at follow-up. • Groups did not differ on peer relations or parent-rated measures.
12	Li (2016)	Peer Interactions, Prosocial Behaviour and Self-Presentation Speech	Play Observation Scale (O)	Baseline, post-intervention, 2-month follow up	• IG engaged in more peer interactions than controls ($p = .037$, $\eta_p^2 = .22 = .21$), observed at post ($p = .016$) and 2-month follow up. • IG engaged in more prosocial behaviour than controls ($p < .001$ $\eta_p^2 = .22 = .42$), observed at post ($p < .001$) and 2-month follow up ($p = .01$). • IG outperformed controls on speech performance ($p = .034$, $\eta_p^2 = .22 = .22$). IG performed better following intervention ($p = .013$) but this was not maintained at follow-up.

13	Morrison (2010)	Externalizing and Internalizing Behaviour	C-TRF (T)	Baseline, post-intervention	• IG children demonstrated a significant reduction in externalizing behaviour compared to controls ($p = .002$, $\eta_p^2 = .22$). Groups did not differ on internalizing behaviour ($p = .092$, $\eta_p^2 = .09$).

14	Salvas (2016)	Friendship Quality
		    Mutual Aid and Conflict Resolution
		    Dyadic Conflict Resolution: prosocial or not prosocial
		    Conflict Resolution
		    Positive Affect
		    Physical Aggression
			Modified version of the Friendship Features Interview for Young Children (FFIYC), Friendship Qualities Scale (FQS) and Hypothetical Socio-cognitive Vignettes (C)
			Adaptation of the Friendship Quality Questionnaire (T)
			Hypothetical socio-cognitive vignettes based on modified version of the Preschool Interpersonal Problem-Solving Test (C)
			3 items from the Friendship Quality Questionnaire
			FFIYC and the FQS
			Social Behaviour Questionnaire (T)
			Peer rated (C)
				Baseline, post-intervention, 1-month follow up for aggression measures	• Dyadic conflict resolution was the only outcome associated with intervention status. Groups did not differ on other measures.
					• Intervention status was associated positively with dyadic conflict resolution at T2 based on hypothetical socio-cognitive vignettes ($\beta = 1.32$, $p < .05$), and conflict resolution at T2 was related negatively to children's physical aggression at T3 ($\beta = -.16$, $p < .05$). Findings suggest indirect intervention effect on children's physical aggression through an improvement in conflict-resolution.

15	Stanton-Chapman (2008)	Children's Use of the Social Communication Strategies	Peer Language and Behaviour Code (O) Systematic Analysis of Language Transcripts (O)	Baseline, intervention, generalization	• 3/8 participants increased frequency of initiated verbal behaviour with introduction of intervention, 2/8 children showed a delayed intervention effect. 4/8 participants showed a delayed increase in the frequency of social communication skills, 4/8 children had variable data. 4/8 children increased target vocabulary words with introduction of the social communication intervention and 2 children showed slight to moderate effects. • All participants had higher MLU (mean length of utterance) during intervention, 4/8 children increased mean number of novel words used. 7/7 children showed some evidence of improvement in generalization sessions on at least 2/4 measures of treatment effects (MLU, novel words, frequency of peer-directed initiations, and total use of social pragmatic skills).

(*Continued*)

Table 2. Continued.

Study No.	First author (year)	Child outcome (s)	Instrument (informant)	Data collection time points	Key findings relating to focal children at post-intervention
16	Stanton-Chapman (2014)	Interactive Behaviours During Play	Multi Option Observation System for Experimental Studies (O) Direct observations of play interactions	Baseline, intervention, post-intervention	• 9/10 children increased average percentage of interactive play behaviour from baseline to intervention, and decreased in non-interactive play, maintaining levels of increased interactive play as many as 9 weeks post-intervention.
17	Sutherland (2018)	Problem Behaviour: externalizing behaviour, internalizing behaviour, total problems Social Skills and Problem Behaviour Children's Interactions with Teachers, Peers and Tasks Teacher-Child Interactions: positive and negative, child disruptive behaviour, child engagement Teacher-Child Relationship: closeness and conflict	Caregiver-Teacher Report Form (T) Social Skills Improvement System – Rating Scale (T) Individualised Classroom Assessment Scoring System (O) Teacher-Child Interactions Direct Observation System (O) Student-Teacher Relationship Scale (T)	Baseline, post-intervention	• Participation in the intervention resulted in lower externalizing behaviour ($p < .001$, $d = -.42$), internalizing behaviour ($p = .008$, $d = -0.23$) and total problems ($p < .001$, $d = -0.37$), lower problem behaviours ($p < .001$, $d = -.42$), and higher social skills ($p < .001$, $d = .42$). • IG were observed to display higher engagement ($p < .001$, $d = .44$), less disruptive behaviour ($p < .001$, $d = -.46$), less conflict in teacher-child relationship ($p < .001$, $d = -.43$), increased teacher interaction ($p = .0014$, $d = 0.26$), positive teacher-child interactions ($p < .001$. $d = .45$) and reduced negative interactions ($p < .001$, $d = -.43$). • IG showed higher closeness scores ($p = .005$, $d = -.26$) and lower conflict scores ($p < .001$, $d = -.29$) compared to controls. • Groups did not differ on peer interaction or task orientation.
18	Vancraeyveldt (2015)	Externalizing Problem Behaviour	Preschool Behaviour Questionnaire – adapted version (T)	Baseline, mid-Intervention, post-intervention	• Compared with CG, IG children showed a larger decrease in EPB ($p < .05$, $d = .28$) which resulted in a significant reduction in EPB for children post-intervention ($p < .01$, $d = .36$).

127

| 19 | Williford (2017) | Problematic Behaviour
Behavioural Control During Interactions with Teachers, Peers and Tasks
Child Engagement with Teacher | Eyberg Child Behaviour Inventory (P)
Sutter-Eyeberg Student Behaviour Inventory Revised (T)
inCLASS, behaviour control dimension (O)
inCLASS positive engagement with teacher domain (O) | Baseline, post-intervention | • IG reduced problematic behaviour based on teacher report ($p = .01$, $d = -.29$). Teachers' management and routines at baseline appeared to moderate intervention impact on externalizing behaviour as reported by teacher and parents. As management and routines increased, the effect became stronger.
• Groups did not differ on other measures. |

Note: AT = Assistant Teacher, C = Child, CG = Control Group, IG = Intervention Group, O = Observer, P = Parent or Caregiver, T = Teacher.

trial [3, 9, 14, 17, 18, 19]. A total of 1,944 children were captured by the included studies, with individual sample sizes ranging from 3 to 470 children. Two studies contributed substantially larger sample sizes [17, 19]. The majority of studies were conducted in North America ($n = 15$) with one in each Australia [11], China [12], Canada [14], and Belgium [18]. Participants ranged in age from 2 to 6 years. Most programmes were delivered to preschool populations from low to mid socioeconomic background, with diverse ethnic representation.

Children were identified for participation due to behavioural concerns such as antisocial behaviour, externalizing behaviour, conduct problems, aggression, or relational difficulties [2, 3, 6, 7 8, 9, 10, 11, 13, 14, 17, 18, 19], social withdrawal [1], and extreme shyness [12]. In four studies researchers targeted children with social, behavioural and/or language skill below what would be expected of their age [4, 5, 15, 16]. All authors detailed a screening process to identify participants. With the exception of Li et al. (2016) who included a parent-rated shyness score from the Child Behaviour Questionnaire in addition to teacher nomination, recruitment relied on teacher assessment. The Early Screening Project, a staged assessment process was used to identify children with problematic behaviours in several studies [1, 3, 17]. Other authors used the Social Skills Rating System [2, 5, 15], Preschool and Kindergarten Behaviour Scales [1], Child Behaviour Checklist -Teacher Report Form [4, 10, 15, 16], Devereux Early Childhood Assessment, Behavioural Concerns subscale [8], Preschool Language Scale [4, 5, 15], Preschool Behaviour Questionnaire [18], Aggressive Behaviour Screening Scale [9], Early Childhood Observation System [6], a physical aggression threshold estimated from the Quebec Longitudinal Study of Child Development [14], and the ADHD Rating Scale and ODD Rating Scale [19], often in combination with teacher rating of child behaviour compared to peers, observations, language or other learning measures, and behavioural incident reports.

Types of targeted SEL programmes

Studies examined a variety of approaches to improve children's social-emotional skills, including one-on-one sessions between the teacher/adult and child [1, 2, 11], small group lessons [6, 9], instructional practices [3, 17], social skills instruction, lessons, or support embedded into play or activities with peers [4, 5, 12, 14, 15, 16], sessions focused on strengthening the quality of the teacher–child relationship [7, 10, 13, 18, 19], and instruction intended for Tier 2 students that was delivered to all children in the class [8]. Studies often combined deliberate and active teaching (via lessons, instructional practices or embedded into play) with discussion, role-modelling, rehearsal, prompting, positive reinforcement, and support to generalize skills into other settings, activities and interactions. In seven studies, the intervention was delivered by a trained facilitator or researcher [1, 4, 5, 9, 12, 14, 15], one was co-led by the classroom teacher and a behavioural consultant [11], and the remaining 11 programmes were delivered by the classroom teacher [2, 3, 6, 7, 8, 10, 13, 16, 17, 18, 19]. Professional development to support delivery included workshops and training [2, 3, 8, 9, 10, 11, 13, 16, 17, 18], coaching or on-site visits [3, 9, 10, 13, 16, 17, 18, 19], and teacher manuals [3, 7, 10, 11, 17, 18]. Parental engagement in the SEL programme was described in only three instances, through parent workshops [11], home visits [9], and take-home notes to encourage skill practice [1].

Outcomes of targeted SEL programmes

Fourteen studies examined the impact of SEL programming on children's social competence, three included a measure of emotional competence, four captured an assessment of behavioural self-regulation, and 13 included at least one measure of emotional or behavioural problems. Teacher-rated and observational measures were commonly used, with two studies capturing a parent-rated measure [11, 19]. Six group design studies included a follow-up measure, at one month [2, 3, 14], 2 months [12], 10 weeks [10], and 6 months [11] following the post-intervention assessment, and

three single-subject studies incorporated a follow-up assessment after the intervention was withdrawn. Findings are discussed below according to the outcomes reported.

Social competence

Thirteen of the 14 studies that explored children's social competence reported a significant post-intervention improvement on at least one outcome measure. *BEST in Class* aimed to strengthen teachers' instructional practices to prevent chronic behavioural problems, improve teacher–child interactions and promote social and behavioural competence, and was evaluated in two RCTs (Conroy et al., 2015; Sutherland et al., 2018). The first, capturing 130 children, found preschoolers who took part in *BEST in Class* displayed significant increase in positive interactions with teachers compared to control peers, with gains maintained at one-month follow-up. Observers were, however, not blind to condition which may have led to rater bias, and the authors noted teacher and child reactivity to observer presence may have influenced the findings (Conroy et al., 2015). A larger study involving 465 children reported significant improvement in children's teacher-rated social skills, teacher–child interaction quality and closeness in the teacher–child relationship compared to a comparator group (Sutherland et al., 2018).

Another approach, *Banking Time,* sought to strengthen children's social-emotional outcomes by focusing on teacher–child relationship quality. In Driscoll and Pianta (2010), teachers and children engaged in regular one-on-one sessions focused on a child-selected activity. The teacher observed and narrated the child's actions, labelled their feelings and emotions, and developed relational themes. Teachers in the intervention condition perceived improved teacher–child closeness compared to a no-treatment control group (however not compared to within-class controls). Results suggested a trend towards improved teacher-rated competence compared to within-class controls, however this did not reach statistical significance, and groups did not differ on measures of social skills or assertiveness (Driscoll & Pianta, 2010). An RCT involving 183 teachers and 470 preschool children aged 3–4 years however did not find evidence for improved positive engagement between teacher and focal child following the intervention based on an observational measure (Williford et al., 2017).

Two smaller group design studies similarly reported mixed findings from teacher-led programmes. Teachers engaged children in a brief discussion targeting their aggressive behaviour in Carpenter and Nangle (2002), emphasizing three concepts: aggression hurts the other person, it does not solve the problem, and positive strategies to resolve conflict. Teachers reported improvement in children's social behaviour between baseline and post-intervention, with gains maintained at a follow-up assessment one month later. Interestingly, an observational measure indicated decreased positive behaviour between baseline and post-intervention, and a significant increase between post and follow-up to levels matching a non-aggressive control group. The authors concluded it was therefore difficult to ascertain if the results represented a delayed treatment effect, or were due to other factors. In a preliminary investigation of the *Social-Emotional Learning Foundations (SELF) Curriculum*, classroom teachers combined SEL with early literacy activities to deliver 15 lessons to small groups of children with behavioural challenges. Participating children outperformed control peers on a teacher-rated competence measure, however there was no difference between groups on social skills (Daunic et al., 2013).

Three interventions delivered by a facilitator other than the classroom teacher appeared to strengthen children's social functioning. Li et al. (2016) conducted a small controlled evaluation of the *Social Skills Training Facilitated Play for Young Children* with Chinese preschoolers. Children participated in two small-group sessions each week over seven weeks that included unstructured play, show and tell to encourage self-presentation skills, circle time focused on social skills to address fear and anxiety, and leader-facilitated play sessions. Compared to controls, intervention group children displayed greater frequency of peer interactions and improved prosocial behaviour at post-intervention, with significant improvements maintained two months later. Social communicative

130

competence was also significantly higher at post-intervention, however this difference did not sustain over time.

Another programme sought to improve the quality of friendship between preschoolers displaying aggressive behaviour and a non-aggressive friend (Salvas, Vitaro, Brendgen, & Cantin, 2016), with authors hypothesizing that improvement at the dyad-level would translate to the broader peer group. Over 12 weekly sessions, each pair took part in social skills training and partnered on an art project, offering an opportunity to resolve conflicts in play. Focal children in the intervention group showed greater dyadic conflict resolution compared to controls. Group differences did not emerge for other measures, including friendship quality and mutual aid. Finally, *The Early Impact Program* included a universal component delivered to all children (focused on communication, friendship formation, social problem solving, self-control and prosocial behaviours), and a targeted component delivered to children with externalizing behaviour. Here, in addition to the Tier 1 intervention, a coach worked with children for 30 minutes each week offering supplementary support. Tier 2 participants evidenced a significant improvement in teacher-reported prosocial behaviour compared to the control group, however this difference did not remain significant at 6 months follow-up. Prosocial skill based on parent assessment did not differ between groups (Larmar, Dadds, & Shochet, 2006).

Five single-case design studies described positive improvement in children's social behaviours during the intervention phase. With the exception of Stanton-Chapman, Walker, and Jamison (2014), all were led by a trained facilitator. In one of only two Tier 2 programmes that targeted withdrawn and internalizing behaviour, Anderson, Trinh, Caldarella, Hansen, and Richardson (2018) offered individual social skills instruction, mediation during play, and encouraged self-evaluation and reinforcement. Parents were also encouraged to practice the skill at home, with children showing significant gains in social interaction skills during and post intervention.

Three studies examined a 'plan, play, report' approach with dyads and small groups of children. Stanton-Chapman, Kaiser, Vijay, and Chapman (2008) invited pairs of children with social and language challenges to take part in the intervention focused on peer-directed social communication instruction embedded in dramatic play. Using a play organizer, play session and review session, a facilitator taught children four social pragmatic skills: talking to a friend, listening to a friend, using a friend's name, and taking turns. The intervention appeared to be effective at improving the social communicative behaviours of children with lower social communication skills at baseline. However, the authors cautioned the intervention did not produce consistent and large effects for all participants.

Two studies examined a similar intervention delivered by child interventionists in childcare and *Head Start* settings, reporting children's social-communicative behaviour and complex play (interactive and peer-directed) increased during the intervention (Craig-Unkefer & Kaiser, 2002, 2003). Further, observational data suggested children generalized skills in communication, linguistic complexity, and play and conversation with untrained peers (Craig-Unkefer & Kaiser, 2003). In a more recent study, Stanton-Chapman et al. (2014) trialled a small-group social pragmatic intervention, with the classroom teacher using scripted storybooks and dramatic play themes to teach social pragmatic skills. Nine out of ten participants increased interactive play between baseline and intervention (average improvement 18%) that was maintained up to 9 weeks follow-up. Additionally, non-interactive play decreased by 20% across participants, with nine out of ten children maintaining levels up to 9 weeks follow-up.

Emotional competence

SEL intervention did not appear to improve emotional competence in three studies. Preschoolers who took part in *Banking Time* did not differ from control group peers in emotional regulation in the context of the teacher–child relationship based on an observational measure (Driscoll & Pianta, 2010). Similarly, the *SELF Curriculum* was not associated with improved emotional control in a kindergarten sample (Daunic et al., 2013). In a larger study, a *Friendship Group* was offered to kindergarten-

aged children displaying highly aggressive behaviours who were already participating in a universal SEL programme (*PATHS Preschool Curriculum*). Led by a trained facilitator, this weekly session focused on emotional awareness, self-control, social problem solving and peer relations, however participation did not predict emotional regulation in first grade (Gatzke-Kopp, Greenberg, & Bierman, 2015).

Behavioural self-regulation

Four studies incorporated an assessment of children's behavioural regulation, with mixed results. In Conroy et al.'s (2015) evaluation of *BEST in Class,* the intervention group demonstrated greater engagement (defined as appropriate participation and/or working on assigned activity) between baseline and post-intervention, and baseline and one-month follow-up compared to controls. Significant group differences were also reported by Daunic et al. (2013), with *SELF Curriculum* participants outperforming control peers on a teacher-rated behavioural regulation measure. In one evaluation of *Banking Time*, preschoolers demonstrated significantly greater task orientation post-intervention compared to a within-class control group, however did not differ from the no-treatment control group (Driscoll & Pianta, 2010), and a separate trial found the intervention was not associated with improved behavioural control during interactions with teachers, peers or tasks (Williford et al., 2017).

Emotional and behavioural problems

Thirteen studies included a measure of emotional or behavioural problems. Drogan and Kern (2014) evaluated the Turtle Technique, a teacher-led self-calming strategy using puppets, discussion, storybook reading, role modelling and role-play. Three children who had not responded to Tier 1 intervention showed meaningful reduction in problem behaviour (physical aggression, vocal disruption, property destruction) during the intervention period that was maintained during the maintenance phase, however observers noted children did not apply the overt strategy as taught. A teacher-reported pre–post measure showed a decrease in behavioural concerns for one child, a slight increase for another, and no change for the third.

Other studies relied on group designs. The *BEST in CLASS* intervention predicted decreased disruptive, aggressive and defiant behaviour, and reduced negative teacher–child interactions between baseline to post-intervention that was maintained at one month follow-up (Conroy et al., 2015), and lower levels of externalizing, internalizing, and disruptive behaviours, less conflict in the teacher–child relationship, and reduced negative interactions compared to control group peers (Sutherland et al., 2018).

Five studies that examined interventions focused on strengthening children's social-emotional competencies through the teacher–child relationship reported mixed results. Participants in *Banking Time* displayed a decline in conduct problems compared to within-class controls, however this did not reach statistical significance. Further, groups did not differ on measures of problem behaviours, learning problems, internalizing or teacher–child conflict (Driscoll & Pianta, 2010). In Williford et al. (2017), teachers observed fewer problematic behaviours in intervention group children at post-assessment, however this was not reflected in parent-rated measures.

Child–Teacher Relationship Training was evaluated in a controlled study of 52 disadvantaged preschoolers and their teachers (Morrison & Bratton, 2010). Based on play therapy, attachment and social learning theory, this intervention aimed to enhance the teacher–child relationship by encouraging educators to become more sensitive and responsive to child needs. Once a secure relationship was established, teachers were taught to respond to children in ways that fostered their sense of competence and self-esteem. Findings revealed a significant reduction in externalizing behaviour in intervention group children compared to control peers, however no difference in internalizing concerns. A smaller quasi-experimental study found intervention group children displayed lower externalizing behaviours compared to an active control group, however this was not maintained at 10-weeks post-intervention. Similarly, significant group differences for internalizing behaviours did

not emerge (Helker & Ray, 2009). *Playing-2-gether* is a two-phase intervention influenced by *Teacher–Child Interaction Therapy*. In an RCT of 175 teacher–child dyads, Vancraeyveldt, Verschueren, Van Craeyevelt, Wouters, and Colpin (2015) examined its impact for preschool boys with externalizing behaviour. Compared with control peers, teachers perceived a larger decrease in externalizing problems behaviours in the intervention group.

Smaller studies focused on skill instruction similarly produced variable results. Children who took part in *SELF* lessons displayed reduced internalizing behaviour, however groups did not differ on externalizing behaviour (Daunic et al., 2013). The dyadic peer intervention in Salvas et al.'s (2016) study did not lead to reduced aggression, although the findings suggest an indirect effect via improvement in conflict resolution, and one-off instructions focused on aggressive behaviour were associated with decreased negative behaviour over time for an intervention group, however intervention and control children did not differ on measures of aggression, inactive or externalizing behaviour (Carpenter & Nangle, 2002). Finally, two evaluations of facilitator-led programmes did not report meaningful reductions in challenging behaviour. Kindergarten children did not differ from controls with regards to externalizing behaviour after taking part in the *Friendship Group* intervention (Gatzke-Kopp et al., 2015), nor conduct problems or hyperactivity following the *Early Impact Program* (Larmar et al., 2006).

Quality of evidence

An assessment of the quality of single subject and group design studies is provided in Tables 3 and 4 respectively. All single subject studies were rated adequate quality, strengthened by thorough descriptions of participants, intervention, outcome measures, and experimental conditions, as well as assessment of generalization or maintenance, fidelity and social validity. Downgrading owed to variability in the data recorded during baseline and intervention phases (Table 3). As shown in Table 4, group studies ranged from weak to strong quality. The four studies awarded a weak rating were downgraded due to limited information on the age of participants [2, 6, 7, 13]. Studies were also constrained by non-randomized design [6, 10, 13] and description of control conditions [2, 6, 7, 12, 14, 18]. Most group studies did not include blind assessors [3, 6, 9, 10, 11, 13, 14, 17, 18]. Due to heterogeneity in study designs and outcome measures, global effect sizes were not calculated.

Discussion

Mental and behavioural disorders account for one of the largest and fastest growing categories of burden of disease globally (OECD, 2018). There is increasing demand from educators, policy-

Table 3. Quality indicators for single subject studies.

First Author (Year)	Primary quality indicators						Secondary quality indicators						Overall rating
	PART	IV	BSLN	DV	VIS ANAL	EXP CON	IOA	KAP	BR	FID	G/M	SV	
Anderson (2018)	H	H	A	H	A	H	Yes	No	No	Yes	Yes	Yes	A
Craig-Unkefer (2002)	H	H	A	H	A	H	Yes	No	No	Yes	No	Yes	A
Craig-Unkefer (2003)	H	H	A	H	A	H	Yes	No	No	Yes	Yes	Yes	A
Drogan (2014)	H	H	A	H	H	H	Yes	No	No	Yes	Yes	Yes	A
Stanton-Chapman (2008)	H	H	H	H	A	A	Yes	No	Yes	Yes	Yes	Yes	A
Stanton-Chapman (2014)	H	H	A	H	A	H	Yes	No	No	Yes	Yes	Yes	A

Note: Quality Indicator Categories, BLSN = Description of Baseline Condition, BR = Blind Raters, DV = Dependant Variable, EXP CON = Description of Experimental Condition, FID = Fidelity of Implementation; G/M = Generalization or Maintenance IOA = Inter-observer Agreement, IV = Independent Variable, KAP = Kappa, PART = Description of Participant Characteristics, SV = Social Validity, VIS ANAL = Visual Analysis. Ratings, A = Acceptable, H = High, N = No or Could Not Determine, U = Unacceptable, Y = Yes. Overall Rating Categories, A = Adequate, S = Strong W = Weak.

Table 4. Quality indicators for group design studies.

First author (year)	Primary quality indicators						Secondary quality indicators								Overall Rating
	PART	IV	CC	DV	LRQ	STAT	RA	IOA	BR	FID[a]	ATT	G/M	ES[a]	SV	
Carpenter (2002)	U	H	A	H	H	A	Y	Y	Y	Y	Y	Y	N	Y	W
Conroy (2015)	H	H	H	H	H	H	Y	Y	N	Y	Y	Y	N	Y	S
Daunic (2015)	U	H	A	H	H	A	N	N	N	N	Y	N	Y	Y	W
Driscoll (2010)	U	H	A	H	H	A	Y	Y	Y	Y	Y	N	Y	Y	W
Gatzke-Kopp (2015)	H	H	H	H	H	H	Y	N	N	N	CND	Y	Y	Y	S
Helker (2009)	H	H	H	H	H	A	N	N	N	N	Y	Y	Y	Y	A
Larmar (2006)	H	A	H	H	H	H	Y	N	N	Y	Y	Y	N	Y	A
Li (2016)	H	H	A	H	H	A	Y	Y	Y	N	Y	Y	N	Y	A
Morrison (2010)	U	H	H	H	H	H	N	N	N	N	Y	N	Y	Y	W
Salvas (2016)	H	H	A	H	H	A	Y	N	N	Y	Y	Y	Y	Y	A
Sutherland (2018)	H	H	H	H	H	H	Y	Y	N	Y	Y	N	Y	Y	S
Vancraeyveldt (2015)	H	H	A	H	H	H	Y	N	N	Y	Y	N	Y	Y	A
Williford (2017)	H	H	H	H	H	H	Y	Y	Y	Y	Y	N	Y	Y	S

Note: Quality Indicator Categories, ATR = Non-Problematic Attrition or No Attrition, BR = Blind Rater, CC = Control Condition, DV = Dependant Variable, ES = Effect Size Reported, FID = Fidelity of Implementation Data Reported; G/M = Generalization or Maintenance IOA = Inter-observer Agreement, IV = Independent Variable, LRQ = Link Between Research Question and Data Analysis, PART = Description of Participant Characteristics, RA = Random Assignment, STAT = Appropriateness of Statistical Analysis, SV = Social Validity. Ratings, A = Acceptable, CND = Could Not Determine, H = High, N = No, U = Unacceptable, Y = Yes. Overall rating Categories, A = Adequate, S = Strong W = Weak.
[a]Awarded Yes if fidelity and effect size data were reported.

makers and researchers for evidence-based early intervention programmes that improve social, emotional and behavioural outcomes for young children at risk of escalating challenges. This review sought to build on recent analyses of Tier 1 SEL initiatives (Blewitt et al., 2018; Sabey et al., 2017; Schindler et al., 2015; Werner et al., 2016) to examine the state of research of Tier 2 SEL interventions in ECEC settings that target children in need of more intensive and explicit support.

The findings suggest Tier 2 SEL programmes may offer a promising early intervention approach, particularly with regards to aspects of children's social skill development. However, the content and methods of SEL programmes, outcomes examined, and methodological quality differed considerably across studies, and caution is therefore required when considering the results.

Several studies reported improvement in children's social interactions (e.g. Anderson et al., 2018; Conroy et al., 2015; Sutherland et al., 2018), social skills (e.g. Carpenter & Nangle, 2002; Daunic et al., 2013; Li et al., 2016; Sutherland et al., 2018), social-communicative behaviour (e.g. Craig-Unkefer & Kaiser, 2002, 2003; Stanton-Chapman et al., 2008, 2014), and teacher–child closeness (e.g. Driscoll & Pianta, 2010; Sutherland et al., 2018) following SEL intervention. Positive findings with regards to social skill improvement may reflect the focus of the programmes reviewed. With the exception of Drogan and Kern (2014) who examined a self-control technique, interventions targeted children's relationship skills through direct social skill instruction, play-based learning, teacher–child relationship building, or instructional practices. Research evidence underscores the importance of early social skills for children's behaviour (Bornstein, Hahn, & Haynes, 2010), learning (Denham & Brown, 2010; Elias & Haynes, 2008) and long-term wellbeing across education, employment, substance use, and mental health domains (Jones, Greenberg, & Crowley, 2015). The findings of this review suggest SEL programmes that incorporate social and relationship skill instruction may strengthen these early competencies.

Several studies also reported improvement in children's emotional and behavioural problems as a result of SEL intervention, however positive effects both within and across studies were inconsistent. Research suggests that following skills training, children may need time to rehearse and integrate learned behaviours into their behaviour system before others will notice a change (Lösel, Stemmler, & Bender, 2013). It was difficult to ascertain if this occurred due to the limited number of studies with follow-up assessments. The development and maintenance of problematic behaviours and emotions are often influenced by a range of socio-ecological factors, most importantly, the family context. Few

134

studies described engagement with caregivers, and home-based components within SEL interventions may strengthen outcomes in this domain.

Only three authors included an assessment of emotional knowledge, understanding, or regulation (Daunic et al., 2013; Driscoll & Pianta, 2010; Gatzke-Kopp et al., 2015) and there was insufficient data to ascertain the impact of Tier 2 programmes on emotional competence. This may relate to the complexities in assessing emotional competencies in young children, particularly in populations where children are experiencing behavioural or developmental challenges, and the lack of adequate measures in the emotional domain suitable for young children (Darling-Churchill & Lippman, 2016; Halle & Darling-Churchill, 2016).

With the exception of Li et al. (2016) and Anderson et al. (2018) who included children with high levels of social withdrawal and introversion, programmes focused on children with problematic externalizing or aggressive behaviours. Notwithstanding the potential impact of disruptive behaviour on classroom management, there appears be a dearth of approaches targeting internalizing behaviour. An Australian population-based longitudinal study reported 20% of five-year-olds consistently exhibit elevated internalizing symptoms (Bayer et al., 2012), and it is estimated around 3.2% of children globally experience anxiety disorder between 5 and 17 years (Erskine et al., 2017). This review suggests there could be need for greater focus on ECEC-based early intervention approaches for this population.

It is encouraging that the majority of interventions were led or co-led by the classroom teacher. Studies typically described intensive professional development modules offered to educators before and during implementation. This reflects research evidence that highlights the importance of combining specific training, on-the-job coaching, and assistance with planning, implementation and decision-making to encourage behaviour change in early childhood settings (Sheridan, Edwards, Marvin, & Knoche, 2009).

Limitations of the current review

The current review has several limitations that should be considered when interpreting the results. It does not capture unpublished literature and dissertations, studies reported in languages other than English, or those published prior to 1999; relevant studies may therefore have been missed. Moreover, there is not a clearly agreed distinction between Tier 2 and 3 interventions (Shepley & Grisham-Brown, 2019). It is possible children captured within the included studies had undiagnosed mental health conditions or developmental delays. Finally, researchers have emphasized the challenge in comparing SEL interventions that are often based on different theoretical frameworks, target different skills, and rely on different outcome measures, highlighting the importance of unpacking the core components of successful interventions (Durlak, 2015; McClelland et al., 2017). Studies varied in their delivery methods and applications, and it was difficult to interpret whether certain activities were more or less beneficial. As the body of research exploring targeted SEL intervention increases, multi-level meta-analysis and meta-regression studies may offer further insight.

Limitations in the evidence and future recommendations

There were also several methodological limitations in the studies reviewed. First, children in need of Tier 2 supports were predominately identified by their classroom teacher. Teacher and parent-rated measures of child functioning in non-clinical samples of young children show a low correlation (Achenbach, Dumenci, & Rescorla, 2002), suggesting young children's behaviour may be sensitive to the context of the quality of the educator-child interaction (Ştefan & Miclea, 2013). Aggregating both teacher and parent report in the screening process may improve decision-making with regards to risk status. Few studies described parental involvement in the intervention itself. Educational models that combine parent and teacher education lead to stronger impacts that are

more likely to persist over time (Neville et al., 2013). When parents are not involved in the pro-gramme, effects may not extend beyond the classroom (Barkley & Shelton, 2000). Continued efforts to understand the barriers to parental involvement are needed. Furthermore, studies relied heavily on teacher report and observation of child behaviour, and most did not include parent assess-ment of child outcome post-intervention, limiting understanding of the generalizability across settings.

Second, an important aspect of the response to intervention framework is that tiers build upon each other; Tier 2 interventions do not replace Tier 1 support, but are supplemental (Macklem, 2011). Early childhood educators may identify children with social, emotional or behavioural chal-lenges and intervene, without necessarily building on a universal class-wide SEL approach, and it is worth noting that only three authors provided detail regarding children's exposure to Tier 1 inter-vention (Drogan & Kern, 2014; Gatzke-Kopp et al., 2015; Larmar et al., 2006); in most instances, it was not possible to ascertain if a multi-tiered approach was applied. Continued efforts to conduct meth-odologically robust evaluations of SEL approaches within the response-to-intervention framework could offer valuable insight into the potential cumulative impact of tiered layers of support for chil-dren's SEL.

Finally, the literature examining social, emotional and cognitive outcomes associated with partici-pation in targeted SEL interventions during preschool years is growing. However, little is known about the sustainability of outcomes over time. It is vital that researchers continue to utilize longitudi-nal methods to better understand the components of SEL programming that lead to social-emotional skill growth.

Conclusion

This review provides preliminary evidence of the benefit of Tier 2 SEL programmes in ECEC settings for children facing challenges in social, emotional or behavioural functioning. Most studies that included an assessment of social skill post-intervention reported improvement on at least one measure. Findings relating to emotional or behavioural problems varied, and the ability to make firm conclusions regarding effectiveness of SEL intervention to reduce challenging behaviour was limited. Furthermore, the available data were not sufficient to examine the impact of targeted pro-grammes on children's behavioural self-regulation or emotional competence. Successful pro-grammes included emphasis on responsive interactions, evidence-based behaviour change approaches, and opportunity to practice skills through adult supported play. To better understand the benefit of targeted programmes within a response-to-intervention framework, longitudinal research that examines the differential impact of both universal and targeted components, engages caregivers in the research and implementation process, and considers a comprehensive range of outcome measures is needed.

Disclosure statement

Notes on contributors

Claire Blewitt is a PhD candidate in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is working on the co-design, delivery and evalu-ation of pedagogical intervention to support early childhood educators foster positive mental health outcomes in pre-schoolers.

Dr Amanda O'Connor is a research fellow at Monash Centre for Health Research and Implementation. Her qualifications include Doctor of Philosophy (Psychology), Graduate Diploma of Psychology and Bachelor of Health Science (Psychology, Health Promotion and Family Studies). She is an expert in Implementation Science intervention and programme devel-opment and evaluations. Her research interests include parent–child relationships, child development, family violence,

women's health and well-being. She works collaboratively with industry partners, intermediary research organizations and multiple academic research centres.

Dr Heather Morris is an early career research fellow with expertise in developmental psychology and early childhood research. Her recent experience includes conducting a randomized trial in early childhood, an evaluation of an early childhood wrap-around service for vulnerable families and an evaluation of a co-designed parenting programme. Her research interests include child health and development with a special interest in obesity prevention and parenting support.

Dr Tamara May is a psychologist and senior research fellow at Monash University in the Department of Paediatrics. Her research contributes to advancing knowledge about the epidemiology and clinical characteristics of autism, attention-deficit hyperactivity disorder and other neurodevelopmental disorders. Her research and clinical interests include mental health problems, such as complex trauma and depression.

Dr Aya Mousa is a postdoctoral research fellow of the National Health and Medical Research Council of Australia, working within the School of Public Health and Preventive Medicine at Monash University. She has experience in teaching epidemiology and biostatistics, evidence synthesis as well as a background in public health and health services research including national studies exploring psychosocial care across New Zealand primary health care services. Her interest is in preventive research, primarily focusing on interventions for improving maternal and child health.

Dr Heidi Bergmeier is a postdoctoral research fellow with expertise in child development and health behaviour. Her special interest areas are child attachment, self-regulation, temperament, social and emotional learning and maternal mental health. Heidi works closely with parents, educators and children in both the home and early education settings to gain a better understanding of caregiver–child interactions that promote optimal child development, including learning and health outcomes. Her research has informed the development of educational programmes in both the health and education sectors.

Andrea Nolan is currently a professor of Early Childhood Education, in the School of Education, Deakin University, Melbourne, Australia. She has had extensive experience teaching in early childhood education settings and in primary schools, and has taught in the Technical and Further Education (TAFE) and University sectors. Andrea has worked on a number of State, National and international projects concerning professional learning for teachers, programme evaluation and social and emotional learning. Her research is framed around workforce capabilities, focusing on the practice of teachers.

Dr Kylie Jackson has over 20-year experience working intensively with young people and their families in a variety of roles in early childhood and educational settings, including early childhood intervention, private practice, Principal of The Cheshire School and more recently as a senior manager/supervising psychologist at bestchance Child Family Care. Kylie holds a Masters in Counselling Psychology and a PhD working with parents of young children with an intellectual disability and anxiety. Kylie is committed to ensuring best possible outcomes for young people and their families. Her professional interest areas include attachment, school readiness and developmental disabilities.

Helen Barrett has been teaching for 17 years and has worked with every age group from 3 to 16 years although most of her experience is in the primary sector working with children who have social, emotional and behavioural needs. Helen has taught in several schools both in the UK and Australia. She has held a variety of roles, such as Principal, Assistant Principal, Leading Teacher, Curriculum Writer and ICT Specialist. Helen is currently the Principal at The Cheshire School, which is a specialist primary school for children who have social emotional and behavioural challenges.

Helen Skouteris is the Monash Warwick Professor in Healthcare Improvement and Implementation Science in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is an expert in child and parental health and well-being and has worked extensively with early childhood service organizations over the past 10 years.

ORCID

Claire Blewitt ⓘ http://orcid.org/0000-0002-4990-2334

References

Achenbach, T. M., Dumenci, L., & Rescorla, L. A. (2002). Ten-year comparisons of problems and competencies for national samples of youth: Self, parent, and teacher reports. *Journal of Emotional and Behavioral Disorders*, *10*(4), 194–203.

Allen, L., & Kelly, B. (2015). *Transforming the workforce for children birth through age 8: A unifying foundation*. Washington, DC: The National Academies Press.

Anderson, D. H., Trinh, S. M., Caldarella, P., Hansen, B. D., & Richardson, M. J. (2018). Increasing positive playground interaction for kindergarten students at risk for emotional and behavioral disorders. *Early Childhood Education Journal*, *46*(5), 487–496.

Australian Early Development Census. (2018). *Australian early development census national report 2018: A snapshot of early childhood development in Australia*. Retrieved from https://www.aedc.gov.au/resources/detail/2018-aedc-national-report

Barkley, R. A., & Shelton, T. L. (2000). Multi-method psycho-educational intervention for preschool children with disruptive behavior: Preliminary results at post-treatment. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, *41*(3), 319–332.

Bayer, J. K., Ukoumunne, O. C., Mathers, M., Wake, M., Abdi, N., & Hiscock, H. (2012). Development of children's internalising and externalising problems from infancy to five years of age. *Australian and New Zealand Journal of Psychiatry*, *46*(7), 659–668.

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on social and emotional learning: Research and practice* (pp. 135–150). New York, NY: The Guilford Press.

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., … Skouteris, H. (2018). Social and emotional learning associated with universal curriculum-based interventions in early childhood education and care centers: A systematic review and meta-analysis. *JAMA Network Open*, *1*(8), e185727–e185727.

Bornstein, M. H., Hahn, C. S., & Haynes, O. M. (2010). Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and Psychopathology*, *22*(4), 717–735.

Brauner, C. B., & Stephens, C. B. (2006). Estimating the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports*, *121*(3), 303–310.

Carpenter, E. M., & Nangle, D. W. (2002). Effects of brief verbal instructions on aggression: A replication in a Head Start setting. *Child & Family Behavior Therapy*, *24*(4), 21–38.

CASEL. (2019). *What is SEL?* Retrieved from https://casel.org/what-is-sel/

Cicchetti, D. V. (2011). On the reliability and accuracy of the evaluative method for identifying evidence-based practices in autism. In B. Reichow, P. Doehring, D. V. Cicchetti, & F. R. Volkmar (Eds.), *Evidence-based practices and treatments for children with autism* (pp. 41–51). New York, NY: Springer Science.

Conroy, M. A., Sutherland, K. S., Algina, J. J., Wilson, R. E., Martinez, J. R., & Whalon, K. J. (2015). Measuring teacher implementation of the "BEST in CLASS" intervention program and corollary child outcomes. *Journal of Emotional and Behavioral Disorders*, *23*(3), 144–155.

Craig-Unkefer, L. A., & Kaiser, A. P. (2002). Improving the social communication skills of at-risk preschool children in a play context. *Topics in Early Childhood Special Education*, *22*(1), 3–13.

Craig-Unkefer, L. A., & Kaiser, A. P. (2003). Increasing peer-directed social-communication skills of children enrolled in Head Start. *Journal of Early Intervention*, *25*(4), 229–247.

Darling-Churchill, K. E., & Lippman, L. (2016). Early childhood social and emotional development: Advancing the field of measurement. *Journal of Applied Developmental Psychology*, *45*, 1–7.

Daunic, A., Corbett, N., Smith, S., Barnes, T., Santiago-Poventud, L., Chalfant, P., … Gleaton, J. (2013). Brief report: Integrating social-emotional learning with literacy instruction: An intervention for children at risk for emotional and behavioral disorders. *Behavioral Disorders*, *39*(1), 43–51.

Denham, S. A., & Brown, C. (2010). "Plays nice with others": Social–emotional learning and academic success. *Early Education and Development*, *21(5)*, 652–680.

Driscoll, K. C., & Pianta, R. C. (2010). Banking time in Head Start: Early efficacy of an intervention designed to promote supportive teacher-child relationships. *Early Education and Development*, *21*(1), 38–64.

Drogan, R. R., & Kern, L. (2014). Examination of the mechanisms underlying effectiveness of the turtle technique. *Topics in Early Childhood Special Education*, *33*(4), 237–248.

Durlak, J. A. (2015). What everyone should know about implementation. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on social and emotional learning: Research and practice* (pp. 395–405). New York, NY: The Guilford Press.

Elias, M. J., & Haynes, N. M. (2008). Social competence, social support, and academic achievement in minority, low-income, urban elementary school children. *School Psychology Quarterly*, *23*, 474–495.

Erskine, H. E., Baxter, A. J., Patton, G., Moffitt, T. E., Patel, V., Whiteford, H. A., & Scott, J. G. (2017). The global coverage of prevalence data for mental disorders in children and adolescents. *Epidemiology and Psychiatric Sciences*, *26*(4), 395–402.

Forness, S. R., Kim, J., & Walker, H. M. (2012). Prevalence of students with EBD: Impact on general education. *Beyond Behavior*, *21*(2), 3–10.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behavior in young children. *Young Children*, *58*(4), 48–52.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, *41*(1), 93–99.

Gatzke-Kopp, L. M., Greenberg, M., & Bierman, K. (2015). Children's parasympathetic reactivity to specific emotions moderates response to intervention for early-onset aggression. *Journal of Clinical Child & Adolescent Psychology*, *44*(2), 291–304.

Gilliam, W. S., & Shahar, G. (2006). Preschool and child care expulsion and suspension: Rates and predictors in one state. *Infants & Young Children*, *19*(3), 228–245.

Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *Future of Children*, *27*(1), 13–32.

Halle, T. G., & Darling-Churchill, K. E. (2016). Review of measures of social and emotional development. *Journal of Applied Developmental Psychology*, *45*, 8–18.

Helker, W. P., & Ray, D. C. (2009). Impact of child teacher relationship training on teachers' and aides' use of relationship-building skills and the effects on student classroom behavior. *International Journal of Play Therapy*, *18*(2), 70–83.

Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review*, *35*(4), 583–601.

Hemmeter, M. L., Santos, R. M., & Ostrosky, M. M. (2008). Preparing early childhood educators to address young children's social-emotional development and challenging behavior: A survey of higher education programs in nine states. *Journal of Early Intervention*, *30*(4), 321–340.

Huaqing qi, C., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education*, *23*(4), 188–216.

Johnston, P. H. (2011). Response to intervention in literacy: Problems and possibilities. *Elementary School Journal*, *111*(4), 511–534.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health*, *105* (11), 2283–2290.

Larmar, S., Dadds, M. R., & Shochet, I. (2006). Successes and challenges in preventing conduct problems in Australian pre-school-aged children through the early impact (EI) program. *Behaviour Change*, *23*(2), 121–137.

Li, Y., Coplan, R. J., Wang, Y., Yin, J., Zhu, J., Gao, Z., & Li, L. (2016). Preliminary evaluation of a social skills training and facilitated play early intervention programme for extremely shy young children in China. *Infant and Child Development*, *25*(6), 565–574.

Lösel, F., Stemmler, M., & Bender, D. (2013). Long-term evaluation of a bimodal universal prevention program: Effects on antisocial development from kindergarten to adolescence. *Journal of Experimental Criminology*, *9*(4), 429–449.

Macklem, G. L. (2011). Evidence-based Tier 1, Tier 2, and Tier 3 mental health interventions in schools. In G. L. Macklem (Ed.), *Evidence-based school mental health services* (pp. 19–37). New York, NY: Springer.

McCabe, P. C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of pre-school children. *Psychology in the Schools*, *48*(5), 513–540.

McClelland, M. M., Tominey, S. L., Schmitt, S. A., & Duncan, R. (2017). SEL interventions in early childhood. *The Future of Children*, *27*, 33–47.

McIntosh, K., & Goodman, S. (2016). *Integrated multi-tiered systems of support: Blending RTI and PBIS*. New York, NY: Guilford Press.

Morrison, M. O., & Bratton, S. C. (2010). Preliminary investigation of an early mental health intervention for Head Start programs: Effects of child teacher relationship training on children's behavior problems. *Psychology in the Schools*, *47*(10), 1003–1017.

Neville, H. J., Stevens, C., Pakulak, E., Bell, T. A., Fanning, J., Klein, S., & Isbell, E. (2013). Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers. *Proceedings of the National Academy of Sciences*, *110*(29), 12138–12143.

OECD. (2015). *Skills for social progress: The power of social and emotional skills*. Paris: OECD.

OECD. (2018). *Mental health*. Retrieved from http://www.oecd.org/health/mental-health.htm

Powell, D., Fixsen, D., Dunlap, G., Smith, B., & Fox, L. (2007). A synthesis of knowledge relevant to pathways of service delivery for young children with or at risk of challenging behavior. *Journal of Early Intervention*, *29*(2), 81–106.

Reichow, B. (2011). Development, procedures, and application of the evaluative method for determining evidence-based practices in autism. In B. Reichow, P. Doehring, D. V. Cicchetti, & F. R. Volkmar (Eds.), *Evidence-based practices and treatments for children with autism* (pp. 25–39). New York, NY: Springer Science.

Sabey, C. V., Charlton, C. T., Pyle, D., Lignugaris-Kraft, B., & Ross, S. W. (2017). A review of classwide or universal social, emotional, behavioral programs for students in kindergarten. *Review of Educational Research*, *87*(3), 512–543.

Saeki, E., Jimerson, S. R., Earhart, J., Hart, S. R., Renshaw, T., Singh, R. D., & Stewart, K. (2011). Response to intervention (RtI) in the social, emotional, and behavioral domains: Current challenges and emerging possibilities. *Contemporary School Psychology*, *15*(1), 43–52.

Salvas, M.-C., Vitaro, F., Brendgen, M., & Cantin, S. P. (2016). Prospective links between friendship and early physical aggression: Preliminary evidence supporting the role of friendship quality through a dyadic intervention. *Merrill-Palmer Quarterly: Journal of Developmental Psychology*, *62*(3), 285–305.

Schindler, H. S., Kholoptseva, J., Oh, S. S., Shonkoff, J. P., Yoshikawa, H., Duncan, G. J., & Magnuson, K. A. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology*, *53*(3), 243–263.

Shepley, C., & Grisham-Brown, J. (2019). Multi-tiered systems of support for preschool-aged children: A review and meta-analysis. *Early Childhood Research Quarterly*, *47*, 296–308.

139

Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development*, *20*(3), 377–401.

Stanton-Chapman, T. L., Kaiser, A. P., Vijay, P., & Chapman, C. (2008). A multicomponent intervention to increase peer-directed communication in Head Start children. *Journal of Early Intervention*, *30*(3), 188–212.

Stanton-Chapman, T. L., Walker, V., & Jamison, K. R. (2014). Building social competence in preschool: The effects of a social skills intervention targeting children enrolled in Head Start. *Journal of Early Childhood Teacher Education*, *35*(2), 185–200.

Ştefan, C. A., & Miclea, M. (2013). Effects of a multifocused prevention program on preschool children's competencies and behavior problems. *Psychology in the Schools*, *50*(4), 382–402.

Sutherland, K. S., Conroy, M. A., Algina, J., Ladwig, C., Jessee, G., & Gyure, M. (2018). Reducing child problem behaviors and improving teacher-child interactions and relationships: A randomized controlled trial of BEST in CLASS. *Early Childhood Research Quarterly*, *42*, 31–43.

Vancraeyveldt, C., Verschueren, K., Van Craeyevelt, S., Wouters, S., & Colpin, H. (2015). Teacher-reported effects of the playing-2-gether intervention on child externalising problem behaviour. *Educational Psychology*, *35*(4), 466–483.

VanDerHeyden, A. M., & Snyder, P. (2006). Integrating frameworks from early childhood intervention and school psychology to accelerate growth for all young children. *School Psychology Review*, *35*(4), 519–534.

Wendt, O., & Miller, B. (2012). Quality appraisal of single-subject experimental designs: An overview and comparison of different appraisal tools. *Education and Treatment of Children*, *35*(2), 235–268.

Werner, C. D., Linting, M., Vermeer, H. J., & Van IJzendoorn, M. H. (2016). Do intervention programs in child care promote the quality of caregiver-child interactions? A meta-analysis of randomized controlled trials. *Prevention Science*, *17*(2), 259–273.

Williford, A. P., LoCasale-Crouch, J., Whittaker, J. V., DeCoster, J., Hartz, K. A., Carter, L. M., … Hatfield, B. E. (2017). Changing teacher-child dyadic interactions to improve preschool children's externalizing behaviors. *Child Development*, *88*(5), 1544–1553.

Zahavi, S., & Asher, S. R. (1978). The effect of verbal instructions on preschool children's aggressive behavior. *Journal of School Psychology*, *16*(2), 146–153.

3.5 Educator-Led Tier 3 SEL Intervention and Child Outcomes

The final review, a narrative review, in this Chapter sought to examine the breadth and summarise the research findings related to educator-led Tier 3 SEL intervention for children with diagnosed mental health conditions or developmental delays in inclusive ECEC settings. Four types of programs were identified: (i) instruction embedded into daily routines and activities; (ii) direct skill instruction; (iii) peer-mediated interventions; and (iv) individualised assessment-based approaches. Educators delivered programs to children with neurodevelopmental disorders, and developmental, social, and communication delays, with results highlighting improvement in children's social skill during or post intervention; once again, there are limited programs for young children experiencing anxiety or mood disorders. This paper was published on 27 December 2019 in *Early Child Development and Care* and is presented in its published form.

Routledge
Taylor & Francis Group

Check for updates

REVIEW ARTICLE

Strengthening the social and emotional skills of pre-schoolers with mental health and developmental challenges in inclusive early childhood education and care settings: a narrative review of educator-led interventions

Claire Blewitt [a], Amanda O'Connor[a], Tamara May[b], Heather Morris[a], Aya Mousa[a], Heidi Bergmeier[a], Kylie Jackson[c], Helen Barrett[c] and Helen Skouteris[a,d]

[a]Monash Centre for Health Research and Implementation, Monash University, Melbourne, Australia; [b]Department of Paediatrics, Monash University, Melbourne, Australia; [c]bestchance Child Family Care, Melbourne, Australia; [d]Warwick Business School, Warwick University, Coventry, UK

ABSTRACT

Mental health and developmental challenges that emerge in early childhood can be associated with difficulty in social interactions and behavioural regulation. With educational policies increasingly promoting inclusion in early learning settings, educators are being called upon to support children's social-emotional competence through evidence-informed practice. A narrative review was undertaken to explore the breadth and summarize research findings related to educator-led Tier 3 social and emotional learning intervention for children with diagnosed mental health conditions or developmental delays. Nineteen evaluation studies were reviewed and synthesized into four themes: (i) instruction embedded into daily routines and activities; (ii) direct skill instruction; (iii) peer-mediated interventions; and (iv) individualized assessment-based approaches. Interventions targeted children with neurodevelopmental disorders, and developmental, social and communication delays, with findings suggesting improvement in children's social skill during or post intervention. Evidence of maintenance and generalization were, however, inconsistent. There is a paucity of peer-reviewed research examining interventions for young children experiencing anxiety or mood disorders.

Significant social and emotional challenges can emerge in young children with neurodevelopmental, behavioural and mental health conditions. Neurodevelopmental disorders diagnosed in early childhood include autism spectrum disorder (ASD), global developmental delay, social communication disorder, and attention deficit hyperactivity disorder (ADHD). Anxiety disorders such as separation anxiety and selective mutism, disruptive, impulse control and conduct disorders including oppositional defiant disorder, and depressive disorders can also present in preschool-aged children (American Psychiatric Association, 2013; Egger & Angold, 2006). These conditions, hereon referred to as mental health and developmental challenges, can be associated with serious and persistent difficulty with social interactions, emotional understanding and expression, autonomy and behavioural regulation (Bufferd, Dougherty, Carlson, Rose, & Klein, 2012; Dougherty et al., 2015), and detrimental outcomes across different life stages, for both children (e.g. Lee, Humphreys, Flory, Liu, &

142

Glass, 2011; Loe & Feldman, 2007; Magiati, Tay, & Howlin, 2014) and their families (Harpin, 2005; Towe-Goodman, Franz, Copeland, Angold, & Egger, 2014).

An estimated 5.5% of children aged 2–4 years in the United Kingdom meet diagnostic criteria for at least one mental health disorder (including emotional, behavioural and hyperactivity disorders, and autism spectrum disorder), increasing to 9.5% in the 5–10-year age group (National Health Service, 2017). Similar prevalence data are reported in Australia (Lawrence et al., 2015), and the United States where almost one in five children aged 2–8 years will be diagnosed with a mental, behavioural or developmental disorder (Cree et al., 2018). As pre-schoolers are increasingly captured in epidemiological surveys of mental health, accumulating evidence suggests mental disorders and patterns of co-morbidity traditionally identified in primary school-aged children can present in the preschool years (Atladottir et al., 2015; Bayer et al., 2012; Carter et al., 2010; Egger & Angold, 2006; Merikangas, Nakamura, & Kessler, 2009).

Research suggests that many children experiencing mental health and developmental challenges do not access treatment or support (Brauner & Stephens, 2006; Kessler et al., 2007; Lavigne, LeBailly, Hopkins, Gouze, & Binns, 2009). This may be influenced by the belief that pre-schoolers can outgrow emotional and behavioural challenges, a lack of valid and reliable assessments for the age group, concern that variation in achieving developmental milestones could be misinterpreted as psychiatric symptomology, and the potential stigmatization from early diagnosis (Lavigne et al., 2009; Wichstrøm et al., 2012).

Intervention studies suggest positive outcomes associated with caregiver-mediated programmes targeting the social skills of preschool-aged children experiencing or at risk of mental health and developmental challenges including ASD (McConachie & Diggle, 2007; Oono, Honey, & McConachie, 2013; Pickles et al., 2016), ADHD (Charach et al., 2013; Halperin, Bédard, & Curchack-Lichtin, 2012; Jones, Daley, Hutchings, Bywater, & Eames, 2007; LaForett, Murray, & Kollins, 2008), and anxiety (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005).

Positive findings have led to exploration of other community-level models, including approaches delivered within early childhood education and care (ECEC) (Charach et al., 2013; Halperin et al., 2012; LaForett et al., 2008). There are several reasons why early childhood educators are well positioned for this role: (i) they spend regular and ongoing time with children; (ii) they develop a unique understanding of each child's interests, strengths and challenges; and (iii) once trained, they can use skills with children currently and in the future, potentially extending the reach of early intervention (Lawton & Kasari, 2012). This approach has been further encouraged by global emphasis on the inclusive education of children with a wide range of developmental and learning needs in general learning settings (Odom, Buysse, & Soukakou, 2011; United Nations Educational, Scientific, and Cultural Organization, 2005), where instructional practices including naturalistic intervention embedded within and across routines, activities and the environment, explicit teaching of targeted skills, and peer mediated programmes have been associated with improved learning and developmental outcomes for young children who have or are at risk for developmental delay or disabilities (Barton & Smith, 2015; Division for Early Childhood, 2014; Division for Early Childhood & National Association for the Education for Young Children, 2009; Odom et al., 2011).

Increasingly, ECEC services are responding to children's social and emotional needs through social and emotional learning (SEL), embedded into multi-tiered systems of support (Odom et al., 2011; Shepley & Grisham-Brown, 2019). SEL describes the active process by which children acquire and apply knowledge to recognize, understand and regulate their emotions, thoughts and behaviour, empathize with the feelings and experiences of others, build prosocial relationships and make responsible decisions. SEL programmes encourage learning through explicit teaching opportunities (e.g. lesson-based curricula), integration into other areas of learning, and implicitly through practices embedded into every-day interactions and the learning environment (Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Multi-tiered systems of support enable educators to customize intervention to the needs of each child. The first level (universal) includes programmes delivered to all children as a proactive and preventive approach. Tier 2 (targeted) interventions are typically offered to

select children at risk of, or already experiencing social, emotional or behavioural challenges to prevent the escalation of more serious mental health concerns. Finally, Tier 3 interventions are delivered to children requiring intensive and comprehensive assistance, who may be diagnosed with mental health or developmental challenges (Macklem, 2011). Tiered models have been identified as a promising approach for promoting inclusion in the early childhood field (Odom et al., 2011).

Evaluation studies suggest that SEL intervention in ECEC settings can improve children's social, emotional, and behavioural outcomes (Bierman & Motamedi, 2015; Blewitt et al., 2018; McCabe & Altamura, 2011; McClelland, Tominey, Schmitt, & Duncan, 2017), and reduce externalizing behaviour (Schindler et al., 2015). Recent systematic reviews have examined the impact of behaviour-based social skill training (Camargo et al., 2014), peer-mediated (Aldabas, 2019) and instructional (Martinez, Werch, & Conroy, 2016) interventions in inclusive early learning settings for pre-schoolers with an ASD diagnosis, generally reporting positive impact on social, communication and behavioural outcomes. However, many approaches rely on interventionists other than the classroom teacher, and approaches for young children with diverse mental health needs have not been explored comprehensively.

The current study

Early childhood educators emphasize the need for resources to build their capacity and capability to identify and effectively support children's mental health needs (Quesenberry, Hemmeter, Ostrosky, & Hamann, 2014; Reinke, Stormont, Herman, Puri, & Goel, 2011). Research reviews have focused on evaluating the impact of SEL intervention on children's social, emotional and behavioural skills, generally concentrating on universal programmes, or those delivered to children at risk of social-emotional difficulties (e.g. Bierman & Motamedi, 2015; Blewitt et al., 2018; McCabe & Altamura, 2011; McClelland et al., 2017; Schindler et al., 2015). However, the benefits of teacher-led intervention for children with the most serious and persistent challenges has been less clearly defined and reported in the literature. The aim of this narrative review, therefore, was to: (i) explore the breadth of educator-led Tier 3 SEL intervention delivered to children with diagnosed mental health or developmental challenges in inclusive centre-based ECEC settings; and (ii) summarize the research findings with regards to children's social or emotional skills.

Methodology

Design

A narrative review of Tier 3 interventions that sought to support early childhood teachers to promote social and emotional skill growth in children with diagnosed mental health or developmental challenges was undertaken. Narrative reviews are suitable to consider the scope and breadth of current practice, and to explore the significance of new research (Cronin, Ryan, & Coughlan, 2008). They can be strengthened by adopting some of the techniques of systematic reviews such as transparency in reporting methods (Collins & Fauser, 2005); as such, the current review includes a detailed description of the search strategy that was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009).

Search strategy

Peer-reviewed articles published in English between January 1999 and July 2019 were identified from three online databases: MEDLINE Complete, PsychINFO and ERIC. All searches were conducted between August and September 2019. Searches included combinations of the following groups of key terms: (intervention*, program*, curricul*, plan, strategy) and ("early learning centre", "early

learning center", preschool*, "pre school", "pre-school", childcare, "child?care", kinder*, "pre?kinder-garten", "pre-K", "pre K", "day care", daycare, "Head Start", HeadStart) and (behavior*, behaviour*, social*, emotion*, "self-esteem", empathy, "emotional intelligence", "conflict resolution", "problem?solving", resilien*, aggress*, anxi*, externali*, internali*, withdraw*) and (educator, teacher, leader) and (disorder, delay, GDD, "pervasive developmental" autism, asperger, ASD, ADHD, depression, anxi*, speech, fluency, "selective mutism," communication, "development* coordination disorder," "intellectual disability," "mental retardation", ID). Manual searching of references cited in selected papers, and relevant reviews and meta-analyses of individualized intervention programmes targeting mental health in early childhood settings was undertaken and suitable papers included.

Inclusion and exclusion criteria

Criteria for inclusion in the current narrative review were as follows:

 (i) *Research Design*: A broad range of study designs were captured, including randomized controlled trials (RCT), quasi-experimental trials with a comparator group (no limits applied on the type of comparison group), single-case experimental designs and within group designs;
 (ii) *Research Setting:* Intervention was delivered within an inclusive, centre-based ECEC setting, including kindergarten, preschool or child care;
(iii) *Intervention:* Evaluated a Tier 3 intervention that sought to strengthen any aspect of children's social or emotional competence;
(iv) *Interventionist:* The intervention was delivered by or in partnership with the classroom teacher, assistant teacher or paraprofessional;
 (v) *Target Children:* The intervention targeted child(ren) from birth to age five years who had a formal diagnosis of neurodevelopmental disorder (e.g. ASD, ADHD, global development delay), anxiety disorder, depressive or mood disorder, or any other mental health condition, or had received an assessment and were found to have a development or communication delay. Studies that explicitly stated participating children met criteria for diagnosis, however, did not have a formal diagnosis, were also included; and
(vi) *Outcome Measures*: Assessed at least one individual-level social or emotional outcome following the intervention.

Studies that focused on intensive early behavioural intervention or a behavioural modification that was not related to the child's social or emotional skill were excluded from the current review, as were evaluations of Functional Behavioural Assessment and Function-Based Interventions unless the individualized intervention described an explicit or implicit SEL component (that is, a person-centred approach to foster social, emotional or behavioural skills).

Review procedures and data abstraction

The search identified 2,088 articles after the removal of duplicates (Figure 1), which were screened by two authors (AO'C and CB). These authors co-screened 10% of the titles and abstracts; agreement for articles to be read in full was 100% after discussion. One hundred and thirty-one papers remained after the initial screening stage and were read in full. Twenty-one articles were included in this review. In two instances, two papers reported data relating to the same study (Kaale, Fagerland, Martinsen, & Smith, 2014; Kaale, Smith, & Sponheim, 2012; Katz & Girolametto, 2013; Katz & Girolametto, 2015). Articles that reported data relating to the same evaluation have been captured as a single study in this review. Table 1 provides a brief description of the 19 unique studies in this review, including participant characteristics, intervention description, and findings. Interventions were mapped against three forms of developmentally appropriate practices recognized in the Division for Early Childhood's (2014) Recommended Practices: (i) instruction embedded into daily routines
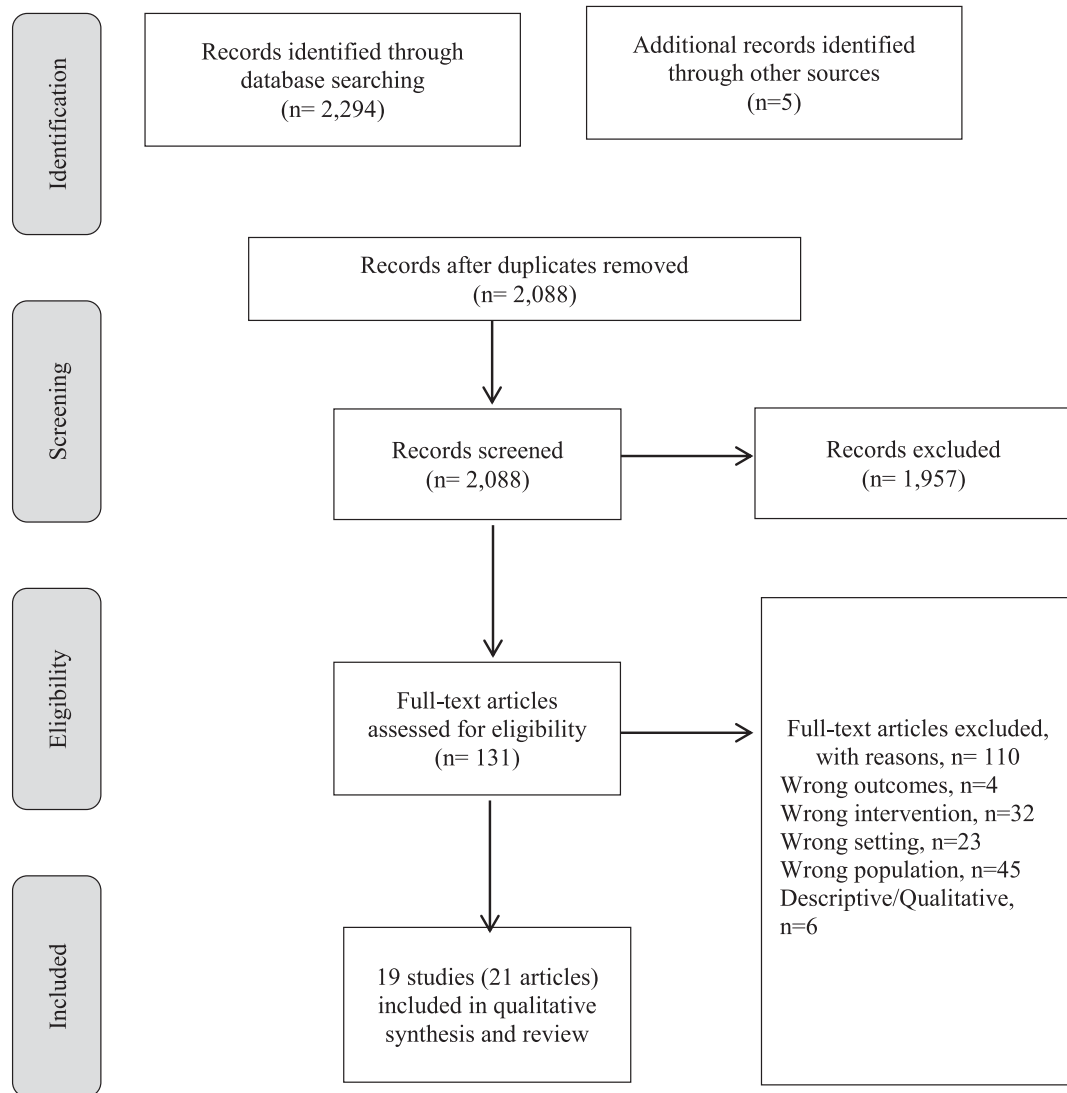
Figure 1. Flow diagram of studies included in review.

and activities; (ii) direct skill instruction; and (iii) peer-mediated approaches. In instances where interventions could be allocated to more than one category, we assigned the category that best matched a core component of the programme.

Results

Most studies focused on interventions for pre-schoolers with an ASD diagnosis; 14 evaluated interventions delivered to children with ASD, developmental, communication or social delay. Three included only children with developmental delays, and one targeted children with symptoms that aligned to a clinical diagnosis of ADHD, who may not have received a formal diagnosis. Finally, one study included children with severe and persistent behavioural challenges, with almost half having a disability and individualized education programme. Our search did not identify teacher-led interventions designed specifically for children with internalizing disorders such as anxiety or depression. The majority of studies were conducted in the United States, with one in each Poland (Szumski, Smogorzewska, & Karwowski, 2016), Norway (Kaale et al., 2012), and the United Kingdom (Kalyva & Avramidis, 2005). Diverse methodologies were utilized including between group experimental designs (n = 7), single–case methodologies (n = 11), and within group pre–post designs (n = 1). The outcomes

associated with social skill instruction embedded into daily routines and activities, direct skill instruction, and peer mediated approaches are presented. An additional category captures individualized assessment-based approaches that incorporated social skill instruction.

Instruction embedded into daily routines and activities

In six studies (Douglas, McNaughton, & Light, 2013; Friedman & Woods, 2015; Harjusola-Webb & Robbins, 2012; Kohler, Anthony, Steighner, & Hoyson, 2001; Ottley & Hanline, 2014; Romano & Woods, 2018), teaching staff were coached to embed instructional practices to improve children's social communication skills into their daily practices and activities. In one evaluation, researchers met weekly with teachers, providing regular performance feedback to increase naturalistic communication-promoting strategies: commenting and labelling, modelling, imitating, expanding, positive feedback, joint attention, responding to child's initiations, and asking questions, with teachers encouraged to embed strategies into their daily activities. All three participating children with ASD demonstrated significant improvement in communicative behaviours post intervention (Harjusola-Webb & Robbins, 2012). In another study, teachers were encouraged to utilize a number of naturalistic teaching techniques during daily 10-minute activities with four children with ASD and developmental delays, and their classmates. The researchers examined the benefit of intervention for teachers with and then without daily feedback and assistance, finding target children displayed increased frequency of social interactions during the feedback and assistance phase, with 50% continuing to maintain improvement at follow-up (Kohler et al., 2001). Friedman and Woods (2015) offered daily coaching to teacher/child dyads to increase teachers' use of naturalistic communication strategies in Early Head Start classrooms, reporting focal children generally increased their rates of communication during play and caregiving routines, though variability was observed.

Over a two to three-month intervention period, Romano and Woods (2018) coached three early years teachers to support children's communication in the natural environment. All children (n = 3) with communication and developmental delays exhibited increased social communication during the intervention, with continued improvement during maintenance sessions. Another study used bug-in-the-ear coaching to strengthen teachers' use of targeted communication strategies with four pre-schoolers. While the intervention strengthened teaching practice, associations with children's expressive communication were small during intervention and maintenance (Ottley & Hanline, 2014).

Douglas et al. (2013) provided three paraprofessionals a five-week online training course focused on supporting children's communication in the classroom. These educators then worked one-on-one with a pre-schooler with ASD or developmental delay, with children exhibiting gains in the number of communication acts across the course of the study. Patterns of performance did not, however, emerge in generalized settings.

Direct skill instruction

Teachers delivered explicit social skills instruction in combination with a peer-mediated play-based component in three evaluations (Hyatt & Filler, 2007; Katz & Girolametto, 2013; Szumski et al., 2016). Pre-schoolers with ASD joined two typically developing peers in five social skills training sessions co-facilitated by the classroom teacher and a speech pathologist (Katz & Girolametto, 2013). Lessons addressed initiating and maintaining play using storybooks, role play, puppetry and communication boards, and were followed by twelve teacher-supported play sessions. Focal children demonstrated significant improvement in the number and length of interactions with their peers, with gains maintained at follow-up. Additionally, target children showed improvement in their responses and initiations to peers during the intervention, that were maintained at 4-weeks follow up and generalized to interactions with an untrained peer (Katz & Girolametto, 2015).

147

Similarly drawing on social lessons and peer support, children with developmental delays and typically developing peers participated in eight small group social skill training sessions during an art lesson in Hyatt and Filler's (2007) study. One group received explicit SEL lessons (*Skillsteaming in Early Childhood,* a 5-minute lesson focused on joining in, sharing, waiting your turn, and asking for someone to play), another group received teacher praise for positive interactions, initiation or response but no explicit lessons, and the third did not take part in intervention. The social skills lesson did not appear to influence positive initiations or responses (analyses were based on combined data from focal children and typically developing peers), with the authors suggesting the short length of each lesson may not have been sufficient for behaviour change. Participating children did demonstrate significantly fewer negative reactions compared to the comparison group. In contrast, the group who received praise without social skills training demonstrated significantly greater number of positive initiations, positive responses and fewer negative initiations that control group peers.

Another approach*, Play Time/Social Time*, included social skills lessons focused on six skills: sharing, requesting to share, persistence, organizing play, agreeing, and helping others or asking others for help, with structured play in pairs. Szumski et al. (2016) investigated the intervention effect for children with disabilities (including ASD, intellectual disability, physical or sensory disabilities), children with low social-emotional skill, and typically developing peers. Based on teacher report, children in all groups exhibited improved social skills, with the largest gains observed in children with disabilities and low social-emotional skill. Participants with ASD however made fewer gains than children with other forms of disability.

Three studies evaluated teacher-mediated interventions, delivered during individualized 1:1 training and play sessions (Boyd et al., 2018; Kaale et al., 2012; Lawton & Kasari, 2012). In a RCT, Kaale et al. (2012) examined the effects of 5-minute joint attention training followed by 15-minute play, delivered twice daily for eight weeks. Participating children were almost five times more likely to demonstrate initiation of joint attention during teacher–child play, and more likely to initiate and engage longer during play with their mother compared to controls. At 12-months post intervention, children displayed significantly greater gains in the initiation of joint attention with teachers and joint engagement with their parent. Intervention effects were not observed on measures of language, communication or social functioning (Kaale et al., 2014). In a smaller RCT evaluating *the Joint Attention and Symbolic Play/Engagement and Regulation Intervention (JASP/ER)*, teachers were encouraged to implement 11 strategies that prompted initiation of joint attention (this intervention could also be classified embedded instruction). Intervention group children showed significantly greater levels of joint attention in the classroom, and spent more time in supported engagement and less time in object engagement than comparison peers (Lawton & Kasari, 2012). Finally, in a cluster randomized trial, teams including the classroom teacher, paraprofessional and at least one related service provider (e.g. speech pathologist or occupational therapist) delivered a year-long programme to 161 children with ASD focusing on social-communication skills (social interaction, requesting and joint attention) and play skills (exploratory, relational, functional and symbolic). The manualized intervention included skill training with embedded opportunities to learn and practice targeted skills through group activities each day. While groups did not differ on observed social-communication and play skills post-intervention, participating children appeared more engaged during normal classroom routines than controls (Boyd et al., 2018).

Peer-mediated interventions

The current review identified four evaluations of peer-mediated interventions in inclusive ECEC settings; all captured children with an ASD diagnosis, focused on peer imitation, and targeted the length and reciprocity of social interactions (Garfinkle & Schwartz, 2002; Kalyva & Avramidis, 2005; Kohler, Greteman, Raschke, & Highnam, 2007; Morrier & Ziegler, 2018). In the study conducted by Garfinkle and Schwartz (2002), four children with ASD and their typically developing peers took

part in a daily small group intervention. During each session, the teacher instructed the group to select a leader and imitate their behaviour, with each child having the opportunity to lead two times per session. Participants increased peer imitations during small group and play sessions, albeit this did not sustain into the follow-up period, and the intervention did not appear to improve social interactions. Focal children did however increase non-social engagement (appropriate play with materials) and proximity (physical closeness to their peers) from baseline to intervention, with improvements maintained at follow-up. Further, teacher prompts to encourage appropriate behaviour decreased.

In a similar study, five pre-schoolers with ASD and 25 typically developing classmates participated in *Circle of Friends*, an approach that utilized social networks to proactively support inclusion and communication skills. Small groups (each including a focal child) met once a week over three months. Teachers provided each child with a set of objects and introduced an activity that children imitated. Intervention group participants displayed a significant increase in successful initiations and responses, and a reduction in unsuccessful initiations and responses compared to controls (Kalyva & Avramidis, 2005).

Two studies paired focal children with a 'buddy'. In the first, a 4-year old with ASD took part in *Play Stay and Talk* with typically developing peers (Kohler et al., 2007). During eight small-group training sessions, the teacher introduced and modelled a target skill within a play-based activity to all children. The typically developing children then practiced the skill with each other before practicing the skill with the target child, supported by visual cues and teacher feedback and praise. Observations indicated peers increased positive overtures directed to the focal child, who also showed improvement in the length and reciprocity of interactions during the intervention. While the number of exchanges decreased during follow-up observations, the proportion of reciprocal interactions increased. Morrier and Ziegler (2018) examined *Buddy Game,* a daily 15-minute outdoor curriculum that paired children with and without ASD, utilizing movement, songs and games to promote peer engagement. Results indicated children with and without ASD increased social bids during play sessions directly following the intervention. Interestingly, children displayed higher frequencies of initiation and receipt of social bids during generalization to free play, suggesting effects may not appear immediately, but translate to different settings without direct teaching intervention.

Individualized assessment-based approaches

Two studies incorporated behavioural assessment to understand child behaviour and develop individualized interventions that respond to the function of the targeted behaviour (Dunlap, Strain, Lee, Joseph, & Leech, 2018; Kern et al., 2007). This approach typically involves observing the focal child to identify the antecedents and consequences maintaining an undesirable behaviour, that can be modified to improve children's functioning (Conroy, Dunlap, Clarke, & Alter, 2005; Lloyd & Kennedy, 2014; Walker, Chung, & Bonnet, 2018).

Kern et al. (2007) compared a multicomponent intervention including parent education and individualized assessment-based intervention in home and preschool settings, with a parent education intervention alone for children at risk of ADHD. In a sample of 135 participants, the authors reported both approaches resulted in significant improvement in behavioural and early learning outcomes, however, there were no differences between groups; the individualized assessment-based components in the preschool and home setting did not appear to provide additional benefit to parent education alone. The authors noted many of the children did not receive the full complement of interventions which may have influenced the findings. In contrast, Dunlap et al. (2018) evaluated *Prevent – Teach – Reinforce for Young Children*, a team-based approach drawing on functional behavioural assessment to develop and implement individualized positive behaviour support interventions, including direct teaching of peer related skills. An RCT across preschool, Head Start and childcare settings showed participation was associated with reduced problem behaviour, improved social skill and engagement based on teacher report and direct observations.

Discussion

The early childhood period may offer a window of opportunity for early intervention and prevention of mental health and developmental challenges, with potential to improve developmental and mental health trajectories (Phillips & Shonkoff, 2000). However, many young children with symptoms of mental health and developmental challenges do not receive early treatment, highlighting the research to practice gap that can exist in the early intervention and early childhood education fields (Odom, 2009). As educational policies increasingly promote inclusivity in early learning programmes (Odom et al., 2011), educators and experts emphasize that resources and support systems are critical to providing learning environments that foster the social and emotional needs of all children (Reicher, 2010). Tier 3 SEL programming may support teachers to offer responsive and evidence-based intervention. To our knowledge, this is the first review to examine the breadth and outcomes associated with educator-led programmes targeting the social and emotional competence of pre-schoolers with serious and persistent mental health concerns.

Findings of the studies captured in this review suggest, with suitable training and support, early years teachers can successfully deliver a range of Tier 3 interventions in ECEC classrooms. Programmes sought to promote naturalistic and embedded social skill instruction within and across everyday interactions, play, activities and the environment, thereby offering contexually relevant opportunities to strengthen children's social-emotional skills. Embedded approaches included identifying the needs of the focal child, proactively planning for specific learning experiences within the context of their ongoing activity and routines, and opportunity to reflect and improve practice (Horn, Lieber, Li, Sandall, & Schwartz, 2000). Furthermore, this form of intervention enabled specialized teaching without requiring the educator to leave the broader group, and may encourage skill growth in other children in the room through observation and modelling. Explicit teaching incorporated both small group social skills lessons, involving target children and typically developing peers, as well as 1:1 teacher–child sessions. Explicit teaching sessions generally targeted a limited range of social skills, were usually short in duration (between 5 and 20 minutes), and followed by play or a group activity to encourage practice and skill generalization. Peer-mediated interventions involved teachers, focal children and their typically developing peers who modelled and prompted the targeted social skills. Peers thereby promoted social interaction and encouraged acquisition of new skills in the focal child (Watkins et al., 2015).

Programmes predominately targeted children with ASD or a developmental delay (74%). Research suggests that early intervention for young children with ASD be based in both evidence-based behavioural learning methods (e.g. Applied Behaviour Analysis) and developmental science; that is, intervention embedded into natural play activities, daily routines and social contexts using child-directed teaching strategies (Schreibman et al., 2015). Studies captured in this review support the feasibility and effectiveness of this approach; techniques included explicit skill instruction, peer mediated training, imitation, modelling, cues, prompts, positive reinforcement, rehersal, scaffolded support, pivitol response, attention to naturalistic teaching, use of daily routines and activities within the ECEC environment, and the maintenance and generalization of new skills across settings. Similar techniques have been identified in reviews of social skill programmes for children with ASD in inclusive educational settings (e.g. Gillis & Butler, 2007; Watkins et al., 2015).

Most interventions (74%, see Table 1) included some form of consultation or coaching to strengthen teachers' engagement with focal children. A robust research base has reported benefits of early mental health consultation in ECEC settings for both educators and children. For example, in their review, Brennan, Bradley, Allen, and Perry (2008) found that staff who participated in consultation reported increased self-efficacy and competence in addressing challenging pre-school behaviours. Further, participation was associated with reduced work-related stress, lower levels of staff turnover, and increased sensitivity towards children.

Significant gaps relating to a lack of programmes targeting children's early emotional competence were identified in this review. Interventions focused predominantly on children's behavioural and

Table 1. Characteristics and findings of included studies.

First author (year) location	Setting	Study design	N (focal children) at baseline	Child Characteristics	Mental health/ developmental challenges	Intervention	Teacher education	Child-level outcome(s)	Key findings related to child outcomes
Boyd (2018) USA	P I/SC	C-RT	161 IG 85, CG 76	Age: IG 49.06 (7.37) months, CG 50.12 (7.41) months Female: IG 11.11%, CG 18.18%	ASD	Advancing Social-Communication and Play (ASAP): Team based (educator, paraprofessional and service provider), addressing classroom environment, embedding naturalistic teaching opportunities, monitoring progress and evaluating effectiveness. Focus on social-communication and play. 40 mins of 1:1 interaction across the week, at least 3 group-based activities to practice skills each day/one year duration.	Training sessions, coaching, manual	Engagement, social communication and play skills, challenging behaviour	• IG decreased unengaged time ($d = -0.56$, $p = .02$), and increased overall engagement ($d = .49$, $p = .047$) compared to CG. • Other engagement measures (onlooking, object engagement, person engagement, supported joint engagement, coordinated joint engagement) did not differ post-intervention. No group differences observed for play skills, social-communication skills or challenging behaviours.
Douglas (2013) USA	ECC, HS	MBD	3	Age: 4–5.5 years Female: 33.3%	ASD, DD including communication	PoWR Strategy: 1:1 Communication interaction strategy. Focus on providing opportunities for communication, waiting for child's communication, and responding to child's communication. Delivered by paraeducators.	5 online modules, training play sessions	Number of communication acts	• All children increased number of communication acts from baseline to play sessions during training phase. For 2/3 children, communication acts increased again from play sessions to maintenance (NAP = .88–.96). • No clear pattern of performance between baseline and generalization for child communication acts.
Dunlap (2018) USA	P, HS, CC	RCT	169 IG 89, CG 80	Female: 18%	Children with severe and persistent challenging behaviour, 45% disability with an IEP	Prevent-Teach-Reinforce for Young Children (PTR-YC): 5-step team-based approach to implement PBS interventions, including direct teaching of behavioural expectations and peer-related social skills. Process completed in approx. 2–3 months.	Facilitator worked with team during each step, coaching, manual	Problem behaviour and social skills, engaged time, challenging behaviour that disrupts learning	• IG reduced problem behaviour ($p = .002$, $\eta_p^2 = .062$) and increased social skills ($p = .001$, $\eta_p^2 = .062$) compared to CG based on teacher report, decreased challenging behaviour ($p = .014$, $\eta_p^2 = .040$), and increased engaged time ($p = .007$, $\eta_p^2 = .048$).
Friedman (2015) USA	EHS	MBD	3	Age: 29–30 months Female: 33.3%	ASD, DD, communication delay	SSOOPR Situated Coaching Approach: Coach works with teacher/child dyad to increase teachers' use of naturalistic	Group training, daily coaching	Overall rate of communication with gestures, vocalisations and single words during	• Children increased rates of communication during play and caregiving routines, though variability was

						communication strategies (arranging the communication environment, responding, target talk and mirroring) to improve child communication.		play and caregiving routines	observed. Two children showed increase during generalization to art activity.
Garfinkle (2002) USA	P	MBD	4	Age: 3.7–5.5 years Female: 0%	ASD, DD	Small Group Peer Imitation Training: Assistant teacher facilitated small groups including focal child and typically developing peers. Sessions included selecting and imitating a leader. Each session continued until each child had opportunity to be leader twice (approx. 10 min daily), followed by free play.	-	Social interaction and imitation of peers	• Children increased peer imitations during small group activities post training, but levels of social interactions remained low and variable. Participants varied in the level of prompting needed to imitate peers. In only one case did the peer imitation maintain into the follow-up period. • In the generalized setting (free play), small increase in imitations and social interactions after intervention started, however frequency was low and variable. Mean number of social interactions was higher in intervention condition than baseline for all children. • Increase in non-social engagement from baseline to intervention was maintained at follow-up. Proximity of target child to peers increased. Number of teacher prompts decreased for all participants and maintained at follow-up.
Harjusola-Webb (2012) USA	P	MBD	3	Age: 37–44 months Female: 0%	ASD	Teacher team training (2–3 staff per focal child) to increase use of naturalistic communication promoting strategies. Teachers encouraged to embed strategies into daily activities.	Intervention strategies manual, weekly meetings, performance feedback	Expressive communication	• Communicative behaviour increased after teachers embedded strategies into daily activities. Non-overlapping data points between baseline and intervention ranged from 80% to 100%.
Hughett (2013) USA	P	MBD	3	Age: 3–5 years Female: 33.3%	Social and communication delays	Buddy Skills Intervention: Focal child and 2 typically developing peers took part in playgroup. Paraeducator facilitated 3 10-minute lessons to teach stay,	–	Quality of play (solitary play, parallel play, cooperative play), verbal interactions	• Focal children increased cooperative play during intervention, that continued during maintenance phase.

(*Continued*)

Table 1. Continued.

First author (year) location	Setting	Study design	N (focal children) at baseline	Child Characteristics	Mental health/ developmental challenges	Intervention	Teacher education	Child-level outcome(s)	Key findings related to child outcomes
						play, and talk with one's friends. Educator then supported children to integrate "stay play and talk" strategies into play activities.			• Solitary play reduced from 76%, 45%, and 41%for the three participants during baseline to 0% during maintenance. • Children's talk increased from averages ranging from 45%–22% at baseline to 74%–80% during maintenance.
Hyatt (2007) USA	P	RT	24 (6 focal children) Proactive 8, Reactive 8, CG 8	Age: 4–5 years Female: 50%	DD	Skillstreaming in Early Childhood: Groups of 4 children (including 1 focal child) participated in 10-minute art activities daily for 8 days. In one group, the teacher taught a 5-minute social skills lesson (proactive). In another, the teacher provided praise for children who initiated positive interactions or responded positively to peers, but did not offer explicit lessons (reactive).	Training, performance feedback	Positive interactions with peer, positive responses to peer	• Data for focal children and typically developing peers combined. Reactive group exhibited more positive initiations and positive responses than controls. CG showed more negative initiations than reactive or proactive groups. At follow-up, reactive group showed more positive interactions than controls.
Kaale (2012, 2014) Norway	P	RCT	61 IG 34, CG 27	Age: IG 47.6 (8.30) months, CG 50.3 (8.3) months Female: 21.3%	ASD	Joint Attention (JA) Intervention: 1:1 individualized intervention to increase child initiation. Each session included 5 minutes table top training priming for the JA skill (teacher-led) and 15 minutes floor play (child-led) focused on generalization of skill. Two sessions per day for 8 weeks.	Didactic training, weekly supervision	Joint attention (JA), joint engagement (JE) 12m follow up: teacher-child and mother-child play: Social communication, language	• Increased JA skills during teacher-child play ($p = .036$). Children in IG were almost five times more likely than controls to demonstrate initiation of JA skills during 10 mins play ($d = .44$). No effect on duration of JE during teacher-child play at post. • Significant effect on duration of JE during mother-child play ($p = .015$). IG was engaged, on average, 12.2% longer in JE with mother compared to CG ($d = .67$). Groups did not differ on frequency of JA skills, however were almost two times more likely to demonstrate initiation of JA skills during interaction with mothers compared in controls. No group differences on frequency of initiation of JA

153

									• skill at post based on the Early Social Communication Scale. • IG showed greater gains than CG between baseline and12-month follow up on 2/5 social communication outcomes: increase in initiation of JA with preschool teachers ($p = .045$), and increase in JE during interactions with mothers ($p = .041$). No group differences on language, social functioning and communication.
Kalyva (2005) UK	P	E	5 IG 3, CG 2	Age: 3.1–4.7 years Female: 0%	ASD	Circle of Friends: Utilizes social networks to proactively support inclusion and communication skills. Each group included target child and five typically developing peers. One session per week (30 mins), 12 sessions in total.	–	Response to peers' contact, initiation attempts	• IG increased number of successful responses and initiations compared to CG ($p < .05$). • Total initiations did not differ between groups. Greater improvement in successful and unsuccessful initiations in IG ($p < .05$).
Katz (2013, 2015) USA	CC	MBD	3	Age: 4–5 years Female: 33.3%	ASD	Peer mediated intervention: Each group included 3 children (1 target child and 2 typically developing peers). Groups took part in five 30-minute social skills training sessions co-taught by the researcher and educator, followed by 20-minute play sessions (3 times week for 4 weeks).	Training, manuals, programme co-taught with a speech-language pathologist, follow-up support	Engagement (extended interactive engagement and average length of extended interactions), reponses and initiations to peers	• All children made significant gains in the number and average length of their interactions with peers, that were maintained at follow-up. • All children improved responses and initiations to peers during intervention. These gains were maintained at 4-weeks follow up and generalized during interactions with an untrained peer.
Kern (2007) USA	P, DC	RT	135 IG 71, AC 64	Age: 4.0 (0.69) years Female: 21.6%	At risk for ADHD	Multicomponent intervention for home and preschool. Preschool component included assessment-based interventions developed by teacher and consultant. Individualized plans included antecedent interventions, replacement behaviours (e.g.	Consultant worked with educator throughout process	Behavioural functioning and pre-academic functioning	• Children in both groups made significant gains in behaviour and preacademic skills compared with baseline. Groups did not differ from each other.

(*Continued*)

Table 1. Continued.

First author (year) location	Setting	Study design	N (focal children) at baseline	Child Characteristics	Mental health/ developmental challenges	Intervention	Teacher education	Child-level outcome(s)	Key findings related to child outcomes
						teaching specific social skills) and responses to behaviour. Teachers introduced to a variety of naturalistic teaching tactics to stimulate children's play and interaction with others.			
Kohler (2001) USA	P	MBD	4	Age: 4 years Female: 0%	ASD, DD		Daily feedback and technical assistance	Social interaction, other activity-related behaviour, passive responding	• All children increased social interactions between baseline (range = 12%–31%) and the technical assistance phase (range = 29%–37%). 2/3 children continued to display high levels of social interaction with others during maintenance phase (40% and 70%).
Kohler (2007) USA	P	MBD	1	Age: 4 years 9 months Female: 100%	ASD	Play, Stay and Talk: Teacher provides feedback, praise and picture cards to support two peers' positive overtures to their classmate with ASD. Training focused on sharing and requesting materials and providing play suggestions to other children, initiating and responding to others, taking part in conversations, giving compliments and assistance and showing affection.	–	Frequency, reciprocity, and length of children's social interactions	• Quality of interactions between focal child and peers improved during intervention phase. Mean number of interactions increased from 1–2.33 episodes/session to 12–13/ session. A higher proportion involved reciprocal participation from both focal child and peers. • At maintenance, average number of episodes decreased for 2/3 groups, but proportion of reciprocal interactions and length of reciprocal interactions increased for all three groups.
Lawton (2012), USA	P I/SC	RCT	16 IG 9, CG 7	Age: IG 46.0 (5.0) months, CG 43.01(6.00) months Female: NR	ASD	JASP/ER manualized developmental behavioural intervention, one child and one teacher/paraprofessional. Focus on 11 strategies: setting up the environment, following the child's toy choice, imitating the child's play actions, prompting for play actions, establishing play routines, waiting for communication, promoting for joint attention, modelling joint attention and encouraging eye	Workshop, regular meetings with each dyad	Initiating joint attention (IJA), engagement states	• IG children used more IJA than CG at post ($p < .005$, $d = 1.85$), and showed significant improvement in pointing ($p < .005$, $d = 2.02$) and showing ($p < .01$, $d = 1.85$). Groups did not differ on looking or giving. Total IJA frequency did not differ between groups on ESCS. • Improvement in object engagement ($p = .01$, $d = 1.41$) and supported engagement ($p = .05$, $d = 1.24$).

Morrier (2018) USA	P	MBD	10	Age: 55.70 (13.92) months Female: 40%	ASD	contact. Implemented daily over 6 weeks. Buddy Game: Daily outdoor intervention using songs, movement and games to promote peer engagement. Focal children paired with typically developing child. Daily for 15 minutes.	–	Proximity to peer, social bid received from peer, social bid initiated by target child towards peer	• Overall, no change in proximity to peers after intervention, however children with ASD showed significantly higher rates of proximity during the Buddy Game than during baseline or generalization to free play, although this interaction had a small effect size. • Children initiated more social bids to peers during generalization to free-play over baseline levels ($p < .015$, $\eta2 = 0.01$). Focal children initiated significantly more social bids towards their peers during the intervention and generalization than during baseline, while typically developing children initiated more towards peers during generalization to free-play only. Children with and without ASD received fewer social bids during Buddy Game than baseline or generalization sessions. Typically developing children received more social bids from peers during generalization to free play than children with ASD.
Ottley (2014) USA	ECC	MBD	4	Age: 25–31 months Female: 25%	ASD, social-emotional delay, communication delay	Bug-in-ear (BIE) coaching (3–5 20-minute sessions per week): Ongoing performance-based feedback targeting educators' use of embedded communication strategies to improve children's expressive communication (each educator focused on three strategies).	Training, BIE coaching	Expressive communication	• Associations with expressive communication were small during both intervention and maintenance phases. One child decreased expressive communication from baseline to post test. One child remained the same from baseline to post-intervention, but increased at maintenance, and two children showed improvement. Effect sizes were generally small/questionable.

(Continued)

Table 1. Continued.

First author (year) location	Setting	Study design	N (focal children) at baseline	Child Characteristics	Mental health/ developmental challenges	Intervention	Teacher education	Child-level outcome(s)	Key findings related to child outcomes
Romano (2018) USA	EHS	MBD	3	Age: 19–30 months Female: 66%	GDD, communication delay	SSOOPPRR (Setting the Stage, Observation and Opportunities to Practice, Problem Solving and Planning, and Reflection and Review): Coaching educators to support children's communication development. Teachers took part in coaching 2 times per week (30–45 mins per session) for 2–3 months.	Coaching	Child's use of specific communication targets	• All children increased communication targets during intervention and again at maintenance, during both play and caregiving routines.
Szumski (2015) Poland	P	PP	196	Age: 4.23 (0.87) years Female: NR	ASD, ID, physical or sensory disabilities, children with low social-emotional skill and typically developing children	Play Time/Social Time: Focus on sharing, requesting to share, persistence, organizing play, agreeing, helping others or asking others for help. Mixed programme includes social skills lessons, structured play in pairs to work on given topic, verbal reinforcement and non-persuasive prompting of children to play together.	Teacher Training, programme handbook and lesson plans	Social skills	• All three groups (children with disabilities, children with low social skills, and typically developing children) showed linear improvement over time ($p < .001$, $\eta^2 = .56$). Larger gains in children with disabilities and children with low social-emotional skills ($p < .001$, $\eta^2 = .32$) than typically developing children. • Analysis of whether the programme was similarly effective for children with different types of disability show children with ASD scored significantly lower than children with physical and sensory disabilities at post-test.

Note: AC = Active Control, ADHD = Attention Deficit Hyperactivity Disorder, ASD = Autism Spectrum Disorder, C-RT = Cluster Randomized Trial, CC = Childcare, CG = Control Group, DC = Day Care, DD = Developmental Delay/ Disability, E = Experimental, ECC = Early Childhood Classroom, EHS = Early Head Start, GDD = Global Developmental Delay, HS = Head Start, I = Integrated, ID = Intellectual Disability, IG = Intervention Group, MBD = Multiple Baseline Design, NAP = Non Overlap of All Pairs, P = Preschool, PP = One Group Pre-Post Design, RCT = Randomized Controlled Trial, SC = Self-Contained, MBD = Single Subject Multiple Baseline Design.

social skill, with limited supports for emotional competence, and studies did not include measures of emotional skill. Children who can monitor, understand and regulate their emotions are more equipped to be empathic, navigate friendships and develop pro-social relationships (Denham, 2006). Research suggests early emotional competence is associated with social competence concurrently and later in kindergarten (Denham et al., 2003), and emotional knowledge has been shown to predict social behaviour and academic competence in later childhood (Izard et al., 2001). Notwithstanding the importance of addressing problematic behaviours, support for educators to strengthen the emotional understanding, knowledge and regulation of pre-schoolers with mental health challenges appears limited. This may also reflect the paucity of ECEC-based interventions for children experiencing internalizing and mood disorders. All programmes identified in the current review targeted children with symptoms relating to neurodevelopmental conditions and developmental delays. The lack of focus on internalizing conditions is surprising as anxiety disorders can emerge as early as 6 years of age (Merikangas et al., 2009).

Several recommendations for early childhood professionals and policy-makers can be drawn from the findings of this review. First, stronger emphasis on children's social and emotional development in preservice training may equip graduating teachers to recognize the signs of social, emotional or behavioural difficulty, and implement evidence-informed teaching practices to address specific needs. The limited studies that have explored the extent to which preservice education programmes address children's social and emotional development suggest that teachers are not adequately prepared to deal with children's social, emotional and behavioural challenges (Hemmeter, Santos, & Ostrosky, 2008; Schonert-Reichl, Hanson-Peterson, & Hymel, 2015). The collective knowledge emerging from SEL research and multi-tiered intervention frameworks may offer valuable learning and content for accreditation training, particularly with regards to pedagogical practices that support children's social and emotional functioning.

Second, this review highlights that with adequate support, early childhood educators can effectively deliver interventions that may traditionally have been offered by mental health professionals. Actively enabling and encouraging partnerships between educators, educational psychologists and other mental health professionals through coaching and consultation may increase the likelihood that SEL intervention within inclusive ECEC services will respond to the unique needs of children within the setting, build upon teachers' current skill and expertise, and encourage reflection, goal setting and behaviour change (Elek & Page, 2019). Finally, the research literature suggests there are limited supports for teachers working with children experiencing internalizing challenges. There appears opportunity for greater collaboration between teachers, mental health professionals, researchers, policy-makers and caregivers to design, implement and evaluate teacher-led pedagogical approaches to address this gap.

There are several limitations to this research synthesis. The aetiology, assessment and management of mental health and developmental challenges in young children is complex, as are the diverse impacts on child, family and community outcomes. As a narrative review, we have attempted to provide a broad overview of the current state of knowledge. Although we utilized a systematic search, we may have missed relevant research due to the breadth of the topic, and our focus on common early childhood mental health and developmental challenges. In addition, while this review examined interventions for children at the more complex end of the continuum, particularly those with diagnosed mental health conditions, it is important to note there is not a clearly defined distinction between Tier 2 and 3 interventions. It is likely Tier 2 programmes may offer benefits for both clinical and sub-clinical populations.

The majority of studies included small sample sizes and single-case experimental designs. While these offer high levels of internal validity, external validity is limited. Most studies did not include follow-up assessments beyond the maintenance period (the days directly following the intervention) so evidence of sustainability for the focal children or teacher's continued use of the intervention, is lacking.

Conclusion

This review highlights the potential benefits of building capacity in early childhood educators to deliver evidence-based Tier 3 early intervention to children experiencing mental health and developmental challenges in inclusive ECEC settings. A small but promising body of research suggests that interventions based in person-centred SEL perspectives can be effectively embedded into daily practice, routines, activities, and play. Evaluations focused on social and behavioural outcomes, with limited data reported on children's emotional functioning, self-esteem, relationship quality, early learning or social problem-solving post-intervention. It is recommended that future research considers the role teachers can play in providing early intervention support for children with anxiety and mood disorders, in addition to the sustainability of implementation and positive outcomes over time.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Claire Blewitt is a PhD Candidate in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is working on the co-design, delivery and evaluation of pedagogical intervention to support early childhood educators foster positive mental health outcomes in pre-schoolers.

Dr Amanda O'Connor is a Research Fellow at Monash Centre for Health Research and Implementation. Her qualifications include Doctor of Philosophy (Psychology), Graduate Diploma of Psychology and Bachelor of Health Science (Psychology, Health Promotion and Family Studies). She is an expert in Implementation Science intervention and program development and evaluations. Her research interests include parent-child relationships, child development, family violence, women's health and wellbeing. Mandy works collaboratively with industry partners, intermediary research organisations and multiple academic research centres.

Dr Tamara May is a psychologist and senior research fellow at Monash University in the Department of Paediatrics. Her research contributes to advancing knowledge about the epidemiology and clinical characteristics of autism, attention deficit hyperactivity disorder and other neurodevelopmental disorders. Her research and clinical interests also include mental health problems such as complex trauma and depression.

Dr Heather Morris is an early career research fellow with expertise in developmental psychology and early childhood research. Her recent experience includes conducting a randomised trial in early childhood, evaluation of an early childhood wrap-around service for vulnerable families, and an evaluation of a co-designed parenting program. Her research interests include child health and development with a special interest in obesity prevention, and parenting support.

Dr Aya Mousa is a postdoctoral research fellow of the National Health and Medical Research Council of Australia, working within the School of Public Health and Preventive Medicine at Monash University. She has experience in teaching epidemiology and biostatistics, evidence synthesis as well as a background in public health and health services research including national studies exploring psychosocial care across New Zealand primary health care services. Her interest is in preventive research, primarily focusing on interventions for improving maternal and child health.

Dr Heidi Bergmeier is a Postdoctoral Research Fellow with expertise in child development and health behaviour. Her special interest areas are child attachment, self-regulation, temperament, social and emotional learning and maternal mental health. Heidi works closely with parents, educators and children in both the home and early education settings to gain a better understanding of caregiver-child interactions that promote optimal child development, including learning and health outcomes. Her research has informed the development of educational programs in both the health and education sectors.

Dr Kylie Jackson has over 20 years experience working intensively with young people and their families in a variety of roles in early childhood and educational settings, including early childhood intervention, private practice, Principal of The Cheshire School and more recently as Senior Manager/Supervising Psychologist at bestchance Child Family Care. Kylie holds a Masters in Counselling Psychology and a PhD working with parents of young children with an intellectual disability and anxiety. Kylie is committed to ensuring best possible outcomes for young people and their families. Her professional interest areas include attachment, school readiness and developmental disabilities.

Helen Barrett has been teaching for 17 years and has worked with every age group from 3 through to 16 years although most of her experience is in the primary sector working with children who have social, emotional and behavioural needs. Helen has taught in a number of schools both in the UK and Australia. She has held a variety of roles such as Principal, Assistant Principal, Leading Teacher, Curriculum Writer, and ICT Specialist. Helen is currently the Principal at The Cheshire School which is a specialist primary school for children who have social. emotional and behavioural challenges.

Helen Skouteris is the Monash Warwick Professor in Healthcare Improvement and Implementation Science in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is an expert in child and parental health and wellbeing and has worked extensively with early childhood service organisations over the past 10 years.

ORCID

Claire Blewitt 🆔 http://orcid.org/0000-0002-4990-2334

References

Aldabas, R. (2019). Effectiveness of peer-mediated interventions (PMIs) on children with autism spectrum disorder (ASD): A systematic review. *Early Child Development and Care*, 1–18. doi:10.1080/03004430.2019.1580275.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders. *BMC Medicine*, *17*, 133–137.

Atladottir, H., Gyllenberg, D., Langridge, A., Sandin, S., Hansen, S., Leonard, H., … Parner, E. (2015). The increasing prevalence of reported diagnoses of childhood psychiatric disorders: A descriptive multinational comparison. *European Child & Adolescent Psychiatry*, *24*(2), 173–183. doi:10.1007/s00787-014-0553-8

Barton, E. E., & Smith, B. J. (2015). Advancing high-quality preschool inclusion: A discussion and recommendations for the field. *Topics in Early Childhood Special Education*, *35*(2), 69–78.

Bayer, J. K., Ukoumunne, O. C., Mathers, M., Wake, M., Abdi, N., & Hiscock, H. (2012). Development of children's internalising and externalising problems from infancy to five years of age. *Australian and New Zealand Journal of Psychiatry*, *46*(7), 659–668. doi:10.1177/0004867412450076

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on social and emotional learning: Research and practice* (pp. 135–150). New York: The Guilford Press.

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., … Skouteris, H. (2018). Social and emotional learning associated with universal curriculum-based interventions in early childhood education and care centers: A systematic review and meta-analysis. *JAMA Network Open*, *1*(8), e185727–e185727. doi:10.1001/jamanetworkopen.2018.5727

Boyd, B. A., Watson, L. R., Reszka, S. S., Sideris, J., Alessandri, M., Baranek, G. T., … Johnson, L. (2018). Efficacy of the ASAP intervention for preschoolers with ASD: A cluster randomized controlled trial. *Journal of Autism and Developmental Disorders*, *48*(9), 3144–3162.

Brauner, C. B., & Stephens, C. B. (2006). Estimating the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports*, *121*(3), 303–310.

Brennan, E. M., Bradley, J. R., Allen, M. D., & Perry, D. F. (2008). The evidence base for mental health consultation in early childhood settings: Research synthesis addressing staff and program outcomes. *Early Education & Development*, *19*(6), 982–1022. doi:10.1080/10409280801975834

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., Rose, S., & Klein, D. N. (2012). Psychiatric disorders in preschoolers: Continuity from ages 3 to 6. *American Journal of Psychiatry*, *169*(11), 1157–1164. doi:10.1176/appi.ajp.2012.12020268

Camargo, S., Rispoli, M., Ganz, J., Hong, E., Davis, H., & Mason, R. (2014). A review of the quality of behaviorally-based intervention research to improve social interaction skills of children with ASD in inclusive settings. *Journal of Autism and Developmental Disorders*, *44*(9), 2096–2116. doi:10.1007/s10803-014-2060-7

Carter, A. S., Wagmiller, R. J., Gray, S. A. O., McCarthy, K. J., Horwitz, S. M., & Briggs-Gowan, M. J. (2010). Prevalence of DSM-IV disorder in a representative, healthy birth cohort at school entry: Sociodemographic risks and social adaptation. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(7), 686–698.

Charach, A., Carson, P., Fox, S., Ali, M. U., Beckett, J., & Lim, C. G. (2013). Interventions for preschool children at high risk for ADHD: A comparative effectiveness review. *Pediatrics*, *131*(5), e1584–e1604.

Collins, J. A., & Fauser, B. C. J. M. (2005). Balancing the strengths of systematic and narrative reviews. *Human Reproduction Update*, *11*(2), 103–104. doi:10.1093/humupd/dmh058

Conroy, M. A., Dunlap, G., Clarke, S., & Alter, P. J. (2005). A descriptive analysis of positive behavioral intervention research with young children with challenging behavior. *Topics in Early Childhood Special Education*, *25*(3), 157–166.

Cree, R. A., Bitsko, R. H., Robinson, L. R., Holbrook, J. R., Danielson, M. L., Smith, C., … Peacock, G. (2018). Health care, family, and community factors associated with mental, behavioral, and developmental disorders and poverty among children aged 2–8 years—United States, 2016. *Morbidity and Mortality Weekly Report*, *67*(50), 1377–1383.

Cronin, P., Ryan, F., & Coughlan, M. (2008). Undertaking a literature review: A step-by-step approach. *British Journal of Nursing*, *17*(1), 38–43. doi:10.12968/bjon.2008.17.1.28059

Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development*, *17*(1), 57–89.

Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S., & Queenan, P. (2003). Preschool emotional competence: Pathway to social competence? *Child Development*, *74*(1), 238–256.

Division for Early Childhood. (2014). *DEC recommended practices in early intervention/early childhood special education 2014*. Retrieved from http://www.dec-sped.org/recommendedpractices

Division for Early Childhood & National Association for the Education for Young Children. (2009). *Early childhood inclusion: A joint position statement of the Division for Early Childhood (DEC) and the National Association for the Education of Young Children (NAEYC)*. Chapel Hill: The University of North Carolina, FPG Child Development Institute.

Dougherty, L. R., Leppert, K. A., Merwin, S. M., Smith, V. C., Bufferd, S. J., & Kushner, M. R. (2015). Advances and directions in preschool mental health research. *Child Development Perspectives*, *9*(1), 14–19. doi:10.1111/cdep.12099

Douglas, S. N., McNaughton, D., & Light, J. (2013). Online training for paraeducators to support the communication of young children. *Journal Of Early Intervention*, *35*(3), 223–242.

Dunlap, G., Strain, P., Lee, J. K., Joseph, J., & Leech, N. (2018). A randomized controlled evaluation of Prevent-Teach-Reinforce for young children. *Topics in Early Childhood Special Education*, *37*(4), 195–205.

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*, *47*(3), 313–337.

Elek, C., & Page, J. (2019). Critical features of effective coaching for early childhood educators: A review of empirical research literature. *Professional Development in Education*, *45*(4), 567–585.

Friedman, M., & Woods, J. (2015). Coaching teachers to support child communication across daily routines in early head start classrooms. *Infants & Young Children*, *28*(4), 308–322.

Garfinkle, A. N., & Schwartz, I. S. (2002). Peer imitation: Increasing social interactions in children with autism and other developmental disabilities in inclusive preschool classrooms. *Topics in Early Childhood Special Education*, *22*(1), 26–38. doi:10.1177/027112140202200103

Gillis, J. M., & Butler, R. C. (2007). Social skills interventions for preschoolers with autism spectrum disorder: A description of single-subject design studies. *Journal of Early and Intensive Behavior Intervention*, *4*(3), 532–547.

Halperin, J. M., Bédard, A.-C. V., & Curchack-Lichtin, J. T. (2012). Preventive interventions for ADHD: A neurodevelopmental perspective. *Neurotherapeutics*, *9*(3), 531–541.

Harjusola-Webb, S. M., & Robbins, S. H. (2012). The effects of teacher-implemented naturalistic intervention on the communication of preschoolers with autism. *Topics in Early Childhood Special Education*, *32*(2), 99–110.

Harpin, V. A. (2005). The effect of ADHD on the life of an individual, their family, and community from preschool to adult life. *Archives of Disease in Childhood*, *90*(Suppl. 1), i2–i7.

Hemmeter, M. L., Santos, R. M., & Ostrosky, M. M. (2008). Preparing early childhood educators to address young children's social-emotional development and challenging behavior: A survey of higher education programs in nine states. *Journal of Early Intervention*, *30*(4), 321–340.

Horn, E., Lieber, J., Li, S. M., Sandall, S., & Schwartz, I. (2000). Supporting young children's IEP goals in inclusive settings through embedded learning opportunities. *Topics in Early Childhood Special Education*, *20*, 208–223.

Hyatt, K. J., & Filler, J. W. (2007). A comparison of the effects of two social skill training approaches on teacher and child behavior. *Journal of Research in Childhood Education*, *22*(1), 85–96. doi:10.1080/02568540709594614

Izard, C., Fine, S., Schultz, D., Mostow, A., Ackerman, B., & Youngstrom, E. (2001). Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychological Science*, *12*(1), 18–23.

Jones, K., Daley, D., Hutchings, J., Bywater, T., & Eames, C. (2007). Efficacy of the incredible years basic parent training programme as an early intervention for children with conduct problems and ADHD. *Child: Care, Health and Development*, *33*(6), 749–756.

Kaale, A., Fagerland, M. W., Martinsen, E. W., & Smith, L. (2014). Preschool-based social communication treatment for children with autism: 12-month follow-up of a randomized trial. *Journal of the American Academy Of Child And Adolescent Psychiatry*, *53*(2), 188–198. doi:10.1016/j.jaac.2013.09.019

Kaale, A., Smith, L., & Sponheim, E. (2012). A randomized controlled trial of preschool-based joint attention intervention for children with autism. *Journal of Child Psychology and Psychiatry*, *53*(1), 97–105.

Kalyva, E., & Avramidis, E. (2005). Improving communication between children with autism and their peers through the "circle of friends": A small-scale intervention study. *Journal of Applied Research in Intellectual Disabilities*, *18*(3), 253–261.

Katz, E., & Girolametto, L. (2013). Peer-mediated intervention for preschoolers with ASD implemented in early childhood education settings. *Topics in Early Childhood Special Education*, *33*(3), 133–143.

Katz, E., & Girolametto, L. (2015). Peer-mediated intervention for pre-schoolers with ASD: Effects on responses and initiations. *International Journal of Speech-Language Pathology*, *17*(6), 565–576. doi:10.3109/17549507.2015.1024166

161

Kern, L., DuPaul, G. J., Volpe, R. J., Sokol, N. G., Lutz, J. G., Arbolino, L. A., … VanBrakle, J. D. (2007). Multisetting assessment-based intervention for young children at risk for attention deficit hyperactivity disorder: Initial effects on academic and behavioral functioning. *School Psychology Review*, *36*(2), 237–255.

Kessler, C. R., Amminger, P. G., Aguilar-Gaxiola, B. S., Alonso, B. J., Lee, B. S., & Üstün, B. T. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry*, *20*(4), 359–364. doi:10.1097/YCO.0b013e32816ebc8c

Kohler, F. W., Anthony, L. J., Steighner, S. A., & Hoyson, M. (2001). Teaching social interaction skills in the integrated preschool: An examination of naturalistic tactics. *Topics in Early Childhood Special Education*, *21*(2), 93–103. doi:10.1177/027112140102100203

Kohler, F. W., Greteman, C., Raschke, D., & Highnam, C. (2007). Using a buddy skills package to increase the social interactions between a preschooler with autism and her peers. *Topics in Early Childhood Special Education*, *27*(3), 155–163.

LaForett, D. R., Murray, D. W., & Kollins, S. H. (2008). Psychosocial treatments for preschool-aged children with attention-deficit hyperactivity disorder. *Developmental Disabilities Research Reviews*, *14*(4), 300–310.

Lavigne, J. V., LeBailly, S. A., Hopkins, J., Gouze, K. R., & Binns, H. J. (2009). The prevalence of ADHD, ODD, depression, and anxiety in a community sample of 4-year-olds. *Journal of Clinical Child and Adolescent Psychology*, *38*(3), 315–328.

Lawrence, D., Johnson, S., Hafekost, J., Boterhoven de Haan, K., Sawyer, M., Ainley, J., & Zubrick, S. R. (2015). *The mental health of children and adolescents: Report on the second Australian child and adolescent survey of mental health and wellbeing*. Canberra: Commonwealth of Australia.

Lawton, K., & Kasari, C. (2012). Teacher-implemented joint attention intervention: Pilot randomized controlled study for preschoolers with autism. *Journal of Consulting and Clinical Psychology*, *80*(4), 687–693. doi:10.1037/a0028506

Lee, S. S., Humphreys, K. L., Flory, K., Liu, R., & Glass, K. (2011). Prospective association of childhood attention-deficit/hyperactivity disorder (ADHD) and substance use and abuse/dependence: A meta-analytic review. *Clinical Psychology Review*, *31*(3), 328–341. doi:10.1016/j.cpr.2011.01.006

Lloyd, B. P., & Kennedy, C. H. (2014). Assessment and treatment of challenging behaviour for individuals with intellectual disability: A research review. *Journal of Applied Research in Intellectual Disabilities*, *27*(3), 187–199.

Loe, I. M., & Feldman, H. M. (2007). Academic and educational outcomes of children with ADHD. *Journal of Pediatric Psychology*, *32*(6), 643–654. doi:10.1093/jpepsy/jsl054

Macklem, G. L. (2011). Evidence-based Tier 1, Tier 2, and Tier 3 mental health interventions in schools. In G. L. Macklem (Ed.), *Evidence-based school mental health services* (pp. 19–37). New York: Springer.

Magiati, I., Tay, X. W., & Howlin, P. (2014). Cognitive, language, social and behavioural outcomes in adults with autism spectrum disorders: A systematic review of longitudinal follow-up studies in adulthood. *Clinical Psychology Review*, *34*(1), 73–86.

Martinez, J. R., Werch, B. L., & Conroy, M. A. (2016). School-based interventions targeting challenging behaviors exhibited by young children with autism spectrum disorder: A systematic literature review. *Education and Training in Autism and Developmental Disabilities*, *51*(3), 265–280.

McCabe, P. C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools*, *48*(5), 513–540.

McClelland, M. M., Tominey, S. L., Schmitt, S. A., & Duncan, R. (2017). SEL interventions in early childhood. *The Future of Children*, *27*, 33–47.

McConachie, H., & Diggle, T. (2007). Parent implemented early intervention for young children with autism spectrum disorder: A systematic review. *Journal of Evaluation in Clinical Practice*, *13*(1), 120–129.

Merikangas, K. R., Nakamura, E. F., & Kessler, R. C. (2009). Epidemiology of mental disorders in children and adolescents. *Dialogues in Clinical Neuroscience*, *11*(1), 7–20.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, *151*(4), 264–269.

Morrier, M. J., & Ziegler, S. M. (2018). I Wanna play too: Factors related to changes in social behavior for children with and without autism spectrum disorder after implementation of a structured outdoor play curriculum. *Journal of Autism and Developmental Disorders*, *48*(7), 2530–2541.

National Health Service (NHS) Digital. (2017). Mental health of children and young people in England, 2017: Summary of key findings. Retrieved from https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2017/2017

Odom, S. L. (2009). The tie that binds: Evidence-based practice, implementation science, and outcomes for children. *Topics in Early Childhood Special Education*, *29*(1), 53–61.

Odom, S. L., Buysse, V., & Soukakou, E. (2011). Inclusion for young children with disabilities: A quarter century of research perspectives. *Journal of Early Intervention*, *33*(4), 344–356.

Oono, I. P., Honey, E. J., & McConachie, H. (2013). Parent-mediated early intervention for young children with autism spectrum disorders (ASD). *Evidence-Based Child Health: A Cochrane Review Journal*, *8*(6), 2380–2479.

Ottley, J. R., & Hanline, M. F. (2014). Bug-in-ear coaching: Impacts on early childhood educators' practices and associations with toddlers' expressive communication. *Journal of Early Intervention*, *36*(2), 90–110.

Phillips, D., & Shonkoff, J. P. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

162

Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., … Byford, S. (2016). Parent-mediated social communication therapy for young children with autism (PACT): Long-term follow-up of a randomised controlled trial. *The Lancet*, *388*(10059), 2501–2509.

Quesenberry, A. C., Hemmeter, M. L., Ostrosky, M. M., & Hamann, K. (2014). Child care teachers' perspectives on including children with challenging behavior in child care settings. *Infants & Young Children*, *27*(3), 241–258.

Rapee, R. M., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting and Clinical Psychology*, *73*(3), 488–497.

Reicher, H. (2010). Building inclusive education on social and emotional learning: Challenges and perspectives – A review. *International Journal of Inclusive Education*, *14*(3), 213–246.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, *26*(1), 1–13.

Romano, M., & Woods, J. (2018). Collaborative coaching with early head start teachers using responsive communication strategies. *Topics in Early Childhood Special Education*, *38*(1), 30–41.

Schindler, H. S., Kholoptseva, J., Oh, S. S., Yoshikawa, H., Duncan, G. J., Magnuson, K. A., & Shonkoff, J. P. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology*, *53*(3), 243–263. doi:10.1016/j.jsp.2015.04.001

Schonert-Reichl, K. A., Hanson-Peterson, J. L., & Hymel, S. (2015). SEL and preservice teacher education. In J. A. Durlak (Ed.), *Handbook of social and emotional learning: Research and practice* (pp. 406–421). New York: The Guilford Press.

Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., … Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *45*(8), 2411–2428. doi:10.1007/s10803-015-2407-8

Shepley, C., & Grisham-Brown, J. (2019). Multi-tiered systems of support for preschool-aged children: A review and meta-analysis. *Early Childhood Research Quarterly*, *47*, 296–308. doi:10.1016/j.ecresq.2019.01.004

Szumski, G., Smogorzewska, J., & Karwowski, M. (2016). Can play develop social skills? The effects of 'play time/social time' programme implementation. *International Journal of Developmental Disabilities*, *62*(1), 41–50. doi:10.1179/2047387715Y.0000000002

Towe-Goodman, N. R., Franz, L., Copeland, W., Angold, A., & Egger, H. (2014). Perceived family impact of preschool anxiety disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, *53*(4), 437–446. doi:10.1016/j.jaac.2013.12.017

United Nations Educational, Scientific, and Cultural Organization. (2005). *Guidelines for inclusion: Ensuring access to education for all*. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000140224

Walker, V. L., Chung, Y.-C., & Bonnet, L. K. (2018). Function-based intervention in inclusive school settings: A meta-analysis. *Journal of Positive Behavior Interventions*, *20*(4), 203–216.

Watkins, L., O'Reilly, M., Kuhn, M., Gevarter, C., Lancioni, G. E., Sigafoos, J., & Lang, R. (2015). A review of peer-mediated social interaction interventions for students with autism in inclusive settings. *Journal of Autism and Developmental Disorders*, *45*(4), 1070–1083.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak (Ed.), *Handbook of social and emotional learning* (pp. 3–19). New York: The Guilford Press.

Wichstrøm, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry*, *53*(6), 695–705. doi:10.1111/j.1469-7610.2011.02514.x

3.6 Chapter References

Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and

emotional learning as a public health approach to education. *Future of Children*,

27(1), 13–32.

Macklem, G. L. (2011). Evidence-based Tier 1, Tier 2, and Tier 3 mental health interventions

in schools. In *Evidence-based school mental health services* (pp. 19–37). New York:

Springer.

Shepley, C., & Grisham-Brown, J. (2019). Multi-tiered systems of support for preschool-aged

children: A review and meta-analysis. *Early Childhood Research Quarterly*, *47*, 296–

308.

CHAPTER FOUR

Social and Emotional Learning in Victorian Early Childhood Education and Care Settings

4.1 Early Childhood Professionals' Perceptions of Social and Emotional Learning: A Qualitative Study

Chapter Three presented four literature reviews that explored the outcomes associated with SEL intervention in early learning settings. Overall it appeared SEL programming can strengthen children's social, emotional, and behavioural outcomes. With sufficient support, educators delivered SEL programs effectively across a multi-tiered system of support. Several gaps in the literature were identified, including the limited supports for children experiencing internalising challenges (e.g., anxiety, withdrawal, difficulty with emotional regulation), and the limited understanding of program impact on emotional competencies.

The aim of Chapter Four was to explore educators' knowledge of early social and emotional development, their perceptions regarding the strategies or approaches they use to support children's social and emotional development, enablers that support knowledge and skills, perceived barriers to SEL, and potential pathways to overcome these barriers. The research included both early childhood educators and other early childhood professionals. This paper was submitted 31 December 2019 to *Early Childhood Education Journal* for peer review.

Manuscript Title: "It's embedded in what we do for every child": A qualitative exploration of how Australian early childhood educators support preschoolers' social and emotional learning

Authors: Claire Blewitt[1], Amanda O'Connor[1], Heather Morris[1], Andrea Nolan[2], Aya Mousa[1], Rachael Green[1], Amalia Ifanti[3], Kylie Jackson[4], Helen Skouteris[1, 5]

[1]Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine, Monash University, Clayton, Australia

[2] Deakin University, Geelong, Australia

[3] University of Patras, Greece

[4] bestchance Child Family Care, Melbourne, Australia

[5] Warwick Business School, Warwick University, United Kingdom

Corresponding Author: Professor Helen Skouteris, Monash Centre for Health Research and Implementation, Monash University, Level 1, 43-52 Kanooka Grove, Clayton, 3168, Victoria, Australia. Email:helen.skouteris@monash.edu

Keywords: Early childhood, kindergarten, preschool, qualitative research, social and emotional development, social and emotional learning.

Abstract

Early childhood educators play an important role in supporting children's social, emotional, and cognitive development. While a growing body of research has examined the impact of curriculum-based social and emotional learning (SEL) programs on child outcomes, the techniques educators use to strengthen children's social and emotional functioning through their everyday practice and interactions are less defined. This study explored Australian ECEC educators' perceptions of how they foster children's social and emotional skills, the enablers and barriers to SEL within the preschool environment, and the additional support needed. Thirty ECEC professionals participated in semi-structured interviews and focus group discussions. Findings suggest children's social-emotional development is at the forefront of educator planning, practice and reflection, with educators drawing on explicit and tacit knowledge to deliver SEL strategies through their everyday practice. Specifically, strategies could be categorised into three broad domains of teacher-child interactions: emotional support, classroom organisation and instructional support. There was, however, inconsistency in the variety and type of strategies identified. Time constraints, group size, educator confidence and capability, high staff turnover, and limited guidance regarding high quality social and emotional pedagogy were identified as key barriers. Participants sought practical techniques that could be embedded into daily practice to build upon current knowledge.

Early childhood presents a unique window for social and emotional skill development. The competencies that emerge during the preschool years provide a foundation for ongoing learning and wellbeing, shaped largely by a child's early relationships and care experiences (Center on the Developing Child, 2016; Shonkoff & Phillips, 2000). Increasingly, children are accessing Early Childhood Education and Care (ECEC) services in the formative years before they commence formal schooling (OECD, 2018a). High-quality ECEC, as described by the OECD (2018b), includes a stimulating environment, high-quality pedagogy, highly qualified educators and positive working conditions. Studies suggest that together, these factors can strengthen children's social, emotional and cognitive functioning and subsequent school readiness, with research suggesting improvement in short and long-term health and vocational outcomes (Barnett, 2011; Camilli, Vargas, Ryan, & Barnett, 2010; Oberklaid, Baird, Blair, Melhuish, & Hall, 2013; Yoshikawa, 2013). A growing body of research evidence suggests early learning programs may be particularly effective at fostering children's social and emotional learning (SEL) (Blewitt et al., 2018; McCabe & Altamura, 2011; Schindler et al., 2015). SEL is the process by which children acquire and apply knowledge and skills relating to self-awareness, social awareness, self-management, relationship skills, and responsible decision-making (Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Early childhood educators can promote these competencies through: (i) explicit lesson-based instruction; (ii) integrating SEL into other areas of learning; and (iii) practices, interactions, strategies and techniques to build skills organically during everyday practice (Bierman & Motamedi, 2015; Weissberg, Goren, Domitrovich, & Dusenbury, 2013).

Increased awareness of the importance of high-quality early learning experiences has seen children's social and emotional skills prioritised in learning policy and curricula documents (Hamre et al., 2012; Palaiologou, 2016). In Australia, *Belonging, Being and Becoming – The Early Years Learning Framework* (EYLF; Department of Education

Employment and Workplace Relations, 2009) guides early childhood curriculum and pedagogy. The EYLF describes the expected outcomes for all children who attend ECEC services, with a strong emphasis on social and emotional wellbeing, including: that they have a strong sense of identity, are connected with and contribute to their world, have a strong sense of wellbeing, are confident and involved learners and effective communicators.

This Framework calls attention to child-centered and integrated teaching approaches to facilitate knowledge and skill acquisition, while recognising children learn at different rates, in different ways and at different times. Further, it acknowledges educator practice and decision-making is based upon knowledge and skill, knowledge of children, families and communities, self-awareness of how their own beliefs and values impact on children's learning, personal styles and past experiences. ECEC practice is assessed against a National Quality Standard (Australian Children's Education & Care Quality Authority, 2012), targeting both the organisational and individual level to encourage excellence in children's social, emotional, cognitive and physical care. Underpinning the EYLF learning philosophy is contemporary knowledge of early social and emotional development, encouraging educators to consider children's learning and development within daily practice, curriculum decisions, planning, and reflection. A similar emphasis on children's social and emotional wellbeing is found in policy frameworks and guidelines in countries including England (Department for Education, 2017), United States (Administration for Children and Families, 2015) and Singapore (Ministry of Education, 2013).

If early years learning frameworks such as the EYLF are to be successful at guiding educator practice to promote children's social and emotional skill growth, SEL is an important concept that can contribute towards this goal. However, to date, the majority of theoretical and empirical effort has been directed towards understanding the impact of interventions at the child and classroom level using explicit, lesson-based SEL programs.

Few research studies have captured the voices of childcare professionals regarding their perceptions of the strategies and techniques they use to foster SEL through their everyday practice and interactions, without deliberate intervention (i.e. without utilising an explicit SEL program).

In England, Aubrey and Ward (2013) used survey (n=46) and follow up interviews (n=3) to explore the views of early years practitioners regarding early intervention for young children experiencing difficulties in personal, social and emotional development (PSED). They identified a variety of strategies to strengthen PSED including modelling, establishing clear expectations, formally teaching social skills, dialogue and explanation, shared games and activities, and scaffolding. A similar mixed-methods approach was adopted by Hollingsworth and Winter (2013) in the United States, who used surveys and focus groups to explore preschool teachers' beliefs relating to social-emotional competencies and the teacher practices that support these skills. In a study from the United States involving 32 Head Start and Pre-K teachers, educators placed higher importance on social-emotional skills than early language, literacy and math, and employed a variety of responsive practices to promote prosocial skills, pretend play and friendship formation. The authors argued for further research to identify the pre-service and in-service professional development needed to encourage educators to effectively implement intentional SEL strategies.

In a more recent study, Ng and Bull (2018) recognised strategies and activities that support SEL are embedded in policy frameworks and guidelines, however little is understood about whether, when, or how kindergarten teachers actively adopt these strategies to facilitate SEL in their classrooms. Observational data from six Singaporean kindergarten rooms indicated educators employ various strategies during day-to-day interactions which provided opportunities to facilitate children's SEL through informal rather than formal teaching.

The EYLF captures a clear expectation that ECEC programs nurture and promote young children's social and emotional skill growth through high-quality pedagogy and interactions. To our knowledge, there lacks research exploring Australian educators' perceptions regarding how they achieve this task through their everyday practice. Furthermore, qualitative studies have not addressed the barriers and enablers for SEL, or sought to include the views of non-classroom based early childhood professionals. This is an important gap in knowledge that could influence implementation of early years policy and inform future intervention models. The aim of this paper, therefore, was to explore the strategies and techniques ECEC educators utilise to encourage children's social and emotional development, and the barriers and opportunities for strengthened practice across the sector. Specifically, we considered the following research questions:

1. How do professionals within the early childhood sector conceptualise children's social and emotional development?

2. What strategies and approaches do early childhood educators believe they are using to support social and emotional skill growth within the classroom?

3. What are the enablers and barriers for early childhood educators in fostering social-emotional development within their classrooms, and what additional resources and support could assist in this respect?

Methodology

Participants

Thirty professionals were recruited due to their experience and knowledge of early childhood education and learning. Twenty educators (working in kindergarten and long daycare rooms) from four Melbourne-based ECEC centres took part, along with five staff

who held a leadership or executive management position with oversight of ECEC service provision. In addition, three researchers with expertise in early child development within ECEC settings, and two staff from non-government agencies with knowledge or involvement in efforts to increase early social and emotional development participated. The demographic characteristics of participants are provided in Table 1.

Research Design

This study included both semi-structured key informant interviews (n=13) and focus group discussions (n=17) with professionals working within the ECEC sector. Ethics approval to conduct the study was granted by the Deakin University Human Ethics Advisory Group.

Key Informant Interviews

Key informant interviews were carried out with 13 professionals. Participants were provided a Plain Language Statement from the research team via email. Where written consent was provided, a key informant interview was conducted via phone by a member of the research team (CB). Interview questions, designed by authors of this study, aimed to ascertain participants knowledge of children's social and emotional development in early childhood, approaches to support children develop both socially and emotionally in ECEC settings, perceived barriers to SEL, and potential pathways to overcome these barriers. The structure of the discussions included an introductory statement on each topic (knowledge, approaches, barriers, and pathways), followed by a series of open-ended questions. Each interview was audio-recorded.

Focus Groups

In one of the four participating ECEC centres, educators were invited to take part in a focus group discussion with their peers during a planned professional development session. All educators received a Plain Language Statement and a member of the research team described the project. Educators (17 in total) were separated into three groups. A member of the research team facilitated each group discussion using the interview schedule, which was audio-recorded.

Coding

Two authors (CB, AO'C) coded 20% of transcripts to ensure the identification of consistent themes. Any discrepancies were resolved by discussion. One author (CB) then coded the remaining transcripts. The research team cross-checked research themes to ensure accurate coding of participant perspectives.

Analysis

Thematic analysis was used to identify the patterns and themes reported by ECEC professionals during the interviews and focus groups. This qualitative technique enables researchers to organise data and compare detailed descriptions (Braun & Clarke, 2006). Our analyses were guided by the approach used by O'Connor, Nolan, Bergmeier, Williams-Smith, and Skouteris (2018). The interviews were first transcribed by one author (CB). Next, the participant or focus group response to each question within each transcript was reviewed and descriptive topics identified. The descriptive topics from each interview and focus group transcript were assigned to categories, which were then compared across interviews and focus groups to identify the consistent themes reported in this paper.

<center>**Results**</center>

Findings are reported within the following themes: (i) Educator knowledge – explicit and tacit dimensions; (ii) Mobilising knowledge - social and emotional learning is embedded within interactions, supported by relationships and programs; (iii) Room for improvement - capacity and capability; and (iv) Strengthening educator skill – building knowledge through practical strategies. Quotes are verbatim comments from participants (E = Educator, FG = Focus Group and P = ECEC professional who does not work directly with children).

Educator Knowledge – Explicit and Tacit Dimensions

Participants referred to a broad range of competencies to describe early social and emotional development, reflecting their explicit knowledge (objective and rational knowledge that can be easily transferred through words, sentences or numbers and is context free; Nonaka & Takeuchi, 1995). Social development was recognised through prosocial interactions and communication with peers, caregivers and groups, ability to communicate own needs, and confidence to separate from parents. Emotional skills included understanding, labelling, expressing and regulating emotion, recognising emotion in others and displaying empathy. Self-awareness and identity, confidence, responsible decision-making, resilience and coping were also identified. Professionals who were not employed directly within the classroom (i.e. ECEC leaders, researchers and program managers) were more likely to describe social and emotional development as the demonstrated growth in capabilities against expected milestones or norms, compared with educators who described observed behaviours and reflected on their own encounters and experiences working with children. Only two participants discussed the relationship between social-emotional development and mental health, however all recognised social-emotional functioning as one of the most important areas of focus for ECEC, and foundational for future development:

Really for me social and emotional development is the most important thing to focus on for young children, I think all of the academic stuff will come if they have the right sort of social and emotional development [E08]

When asked to describe the factors that influence children's social and emotional health, educators and other ECEC professionals referred to individual, interpersonal and environmental aspects. At the individual level, child temperament, communication skills, stage of development, confidence and resilience were identified. Most emphasised the importance of secure, consistent relationships with parents and caregivers, as well as other adults outside the family. In addition, organisational and environmental factors were acknowledged in many interviews as important determinants of social and emotional growth, including the home environment, general surroundings and experiences, cultural influences, high-quality early years learning programs, and exposure to environments that encourage exploration.

Participants pointed to various indicators of early social challenges. Behavioural problems including aggression, attention-seeking, lack of initiative and excessive physical expression were highlighted, as well as difficulty engaging in prosocial interaction and play, evident through high levels of conflict, lack of confidence and social disconnection. A number of educators identified difficulty separating from parents, internalising behaviour, over-reliance on the educator, and speech and language delays as indicative of broader social difficulties. Similar themes were identified as markers of emotional problems. Several respondents also referred to dysregulated emotional responses as an important indicator of potential emotional challenges. ECEC professionals recognised the need to consider children's behaviour in terms of what would be expected of a child that age, as well as the 'normal' behaviour of the individual child.

Educators derived knowledge through structured learning experiences such as pre-service education, professional development, online training, and conferences, as well as educator-led learning through internet and print research, sourcing journal articles and referring to theory. Many discussed drawing upon tacit knowledge (mental models, values, beliefs, perceptions, insights and assumptions; Silby & Watts, 2015), including their own experiences in the classroom, working with children and families with diverse and individual needs, knowledge gained through the trial and error nature of the ECEC educator role, observation of their peers, specialists and preschool field officers, insights from parents, knowledge gained from being a parent themselves, and interaction, discussion and reflection with colleagues:

> *It's talking amongst our peers too, and observing, and learning as you go along with the children [FG5]*

Mobilising Knowledge - Social and Emotional Learning is Embedded Within Interactions

Participants described various strategies to support children's social and emotional skills, predominately embedded within interactions. The educator-child relationship was widely acknowledged by educators and other professionals as critical to children's development. Through a responsive and nurturing relationship, educators 'tune into' children, gaining knowledge and understanding of each child's individual needs. They can then identify concerns quickly and predict possible future behaviour. Staff from ECEC services (both educators and management) described this relationship in terms of attachment theory, emphasising that educators offer security by building trust and being emotionally available. One educator noted how this secure and safe base allows children to feel supported and build

confidence as they experience 'big feelings', and practice the skills to master them; the conversations children have with educators help them to make sense of what they are feeling.

I think it's just really being available to the children, so really being in tune with them, to their emotions and being emotionally available yourself so that you can respond to children appropriately, you know you can support them through managing their emotions appropriately [P03]

Targeted strategies to support SEL were embedded within everyday experiences and interactions, during child-directed play and learning, guided play and learning and adult-led learning. Educators discussed utilising a broad range of approaches tailored to child need, however there was variation in the breadth of strategies identified across interviews. As noted by an ECEC leader:

Supporting children with social and emotional [development] shouldn't sit separate to what we do every day with every child…it's embedded in what we do for every child [P01]

Educator role-modelling was identified as especially beneficial for children experiencing behavioural difficulty. Educators discussed allowing children to observe and absorb appropriate behaviour without expectations, and gradually participate at their own pace. Many educators also discussed assisting children to identify and label their emotions, understand there is nothing wrong with their feelings, and build strategies and skills to move forward. The following comment is representative of findings:

We label the emotion, "I can see you're really angry that your friend walked away from you, and I can see that made you upset, let's try and solve the problem together" and getting in the moment rather than teaching on the mat [FG5]

Tapping into teachable moments during child-led play was identified by several participants, who recognised the learning that occurs through responsive interactions and gentle conversations. Individual and small group discussions allow educators to work alongside children, talk about how they are feeling and help them to identify the words to explain their emotions. Educators also described working with children through adult-led teaching, using social stories, structured activities, songs, books, games, puppets and role play. As one educator noted, stories are an especially effective way to help children identify with what might be happening around them, and how they and others might be feeling, thereby starting to develop empathy:

Children are quite egocentric and our role is to get them to start thinking about how our behaviours and actions can affect other people as well [E14]

The influence of the layout and organisation of the preschool classroom on children's development was also highlighted. Educators noted visual aids (e.g., visual schedules and visual cards) are especially helpful for children with additional needs (requiring or able to benefit from specific considerations or adaptations). These can assist children to understand and predict what the day will look like, self-regulate and control their emotions. Educators used the physical resources and materials within the room as a behaviour management technique. For example, redirecting children to activities or play stations which educators knew were enjoyable for that child, and setting up play spaces that responded to different

sensory needs. The variety of play spaces and activities available encourage creativity, social interaction and quiet time. As one educator explained:

> *I think everything in a kindergarten setting is set up to help children socially and emotionally, from the types of play spaces that are provided, they're active, there are quiet play spaces, there's play spaces for one child, there's places for four children, everything in the room is set up to help them engage socially in their environment and with the people around them. [FG4]*

Educators relied on relationships and programs to assist them in their role. Participants consistently emphasised the importance of working in partnership with caregivers to support children's social and emotional functioning. Parents were recognised as the most important influence on their child's life, and therefore any strategies implemented in the preschool classroom are unlikely to be effective without reinforcement and consistency at home. Educators built relationships with families, recognised the individual needs of the child and family, and worked with the family to identify and implement strategies. ECEC centres use a range of approaches to build this partnership, including intake interviews, questionnaires, meetings, making parents feel welcome when dropping off and picking up their child from the centre, online learning stories (written observations and photographs shared with caregivers via an online system) and home visits.

Several educators emphasised the benefits of working closely with other professionals, including preschool field officers and early intervention services who can provide targeted and intensive strategies and assistance. One service provided their educators with monthly consultations with a clinical psychologist. During each session, an educator presented on a child exhibiting difficult or challenging behaviour. The group then worked

together on strategies, and the psychologist offered input and advice in relation to mental health and possible influential family factors.

Educators were asked if they used a curriculum to guide SEL. The responses were mixed. Several noted their practice was guided by the EYLF. Others advised they did not use a specific curriculum, but practices to support social and emotional development were embedded within a shared philosophy and approach, experience and understanding of the dynamics of the children and group, planning for children's learning, reflection, and professional development. A small number of respondents suggested they would welcome specific SEL curricula:

> *I think a curriculum would be a great thing, because then you could be quite sure what all children are getting….all the children would have the same foundation [E08]*

> *I would say it's possibly the forgotten area a little bit. I think there's a big focus on literacy, a big focus on numeracy, STEM is the big buzz word at the moment, that everybody is focusing on, which is fantastic but as these things come into fashion, some of the other things fall off a bit and I think because social and emotional* [development] *is different, I don't think there is a one size fits all…… just from an intentional teaching perspective, I think it's something we could definitely do some more work on [E14]*

Professionals identified an extensive range of programs and resources that they drew upon to support social and emotional development within preschool (educators were asked to identify any programs they use or have used in the past, and other professionals were asked to discuss programs they were aware were being used in ECEC settings). The KidsMatter Early

Childhood Framework (Slee et al., 2012) had been utilised by several participants. Other programs which centres were currently or had previously implemented included Animal Fun (Piek et al., 2010), 1,2,3 Magic (Bradley et al., 2003), Circle of Security (Marvin, Cooper, Hoffman, & Powell, 2002), PALS Program (Vaughn, Ridley, & Levine, 1986), and Early ABLES (Woods, Coles-Janess, Griffin, Awwal, & Pavlovic, 2014). However, some highlighted the volume of programs available and increasing expectations placed upon educators meant programmatic approaches were less likely to be embedded and sustained within ECEC services over time:

> ...you know every couple of years there's a revolution in childcare, everyone's got a new idea and everyone's got to implement the new idea and then you go back to 10 years ago, and go this worked then [FG4]

Room for Improvement - Capacity and Capability

Several barriers to supporting social and emotional skills were identified: a lack of time to focus on SEL, group size, educator capability, confidence and training, high staff turnover, difficulty engaging with families, perceived lack of recognition of the educator's role, and a lack of consistency across services. Most respondents identified that time constraints and high educator-to-child ratio (in Australia, centre-based ratio requirements are as follows: birth to 24 months: 1:4, between 24 and 36 months: 1:4 or 1:5 depending on the State, over 36 months and up to preschool age: 1:10 or 1:11 depending on the State) negatively influenced educators' ability to embed social and emotional learning. Several emphasised children need one-on-one time to work through emotions and challenges at the time they experience them, but this is often not possible due to competing priorities. Practitioners identified challenges associated with a perceived increased proportion of children attending ECEC services with additional or undiagnosed additional needs. These

included ensuring the service caters to the needs of all children, the time required to complete documentation to access additional support, and the risk of overlooking the needs of both children experiencing social, emotional and behavioural difficulties as well as typically developing pre-schoolers.

Educator capability to nurture social and emotional skills was identified as a potential barrier in several interviews, with respondents acknowledging capability is shaped by pre-service education and professional development, experience in different settings, time in the sector, and motivation. Two participants in ECEC leadership positions suggested a lack of confidence and self-esteem can influence educator practice, with one noting educators often develop attachments with children and will instinctually know how to support social and emotional skills, however lack confidence and belief in the importance of their role. Gaps in educators' skillset were also identified by a small number of respondents, specifically working with children experiencing social and emotional difficulty, and engaging with parents who the educator may perceive as difficult to communicate with. Educator motivation to up-skill and explore the resources available, and their ability to be mindful and reflective in prioritisation of activities was also noted as potential barriers (e.g., what is most important to do for the child). Participants working directly with children did not specifically discuss their capability to attend training. A number of respondents suggested tertiary training programs needed to place greater emphasis on social and emotional competencies, and the evidence-based approaches to translate concepts to effective practice.

Notwithstanding the importance of working in partnership with families, engaging with caregivers regarding children's social and emotional development was emphasised as a significant challenge, particularly due to parental expectations. For example, a number of educators noted a disconnect between some parents' focus on literacy and numeracy skill, compared to social and emotional development, which was described as the critical

developmental focus from the educator perspective. Educators can find it difficult to communicate the value of SEL to parents, while being respectful of their culture and beliefs. One educator described a lack of interaction with parents as a barrier to learning more about their child. In addition, the complexity of working with parents of children who may be experiencing difficulties was noted, particularly when parents are not ready or able to engage in a dialogue, or accept that their child may be having difficulty.

And a lot of families they don't get it, that social and emotional is so important for school [it's language and literacy] that if they're not coping and they're not managing at school just with their emotions and socially, they're not going to be happy therefore they're not going to learn and they don't understand that [they don't make that connection] [FG4]

Sometimes it's hard to have that initial conversion with the parent, so you just have to know and understand what the family structure is about because you can't sort of go in and go "your child's got…", you have be quite tactful [respectful]. Sometimes it might take you.., one of the children in my room it took me 12 months to have that conversation because it was never ever the right time and then one time it happened and I was there ready to go you know [FG5]

Educators and other professionals were aware of many resources to support SEL, however these were not consistently applied within or across services. Two educators highlighted the range of resources available, but noted the approach to implementation was ad-hoc, with classrooms within the same centre groups independently selecting certain components or themes each year. Another respondent (researcher) discussed the lack of clarity regarding what a high-quality SEL pedagogy looks like, suggesting if you asked a

group of educators to describe the key elements of SEL, the key capabilities, progression and pedagogies that support learning, you would likely receive different responses:

> *Educators can't pick up a journal and see that example, a really well targeted description of what capabilities in SE look like, progression low to high, what effective pedagogy looks like, what effective measurement and clinical practice looks like [P10]*

Strengthening Educator Skill – Building Knowledge Through Practical Strategies

Participants identified a need for support that responds to the unique context and requirements of ECEC centres, aligned with the National Quality Standard and EYLF, and not requiring additional time or resources to implement. That is, resources that are accessible, easy to use and can be embedded into daily practice and routines, as reflected in the following comment:

> *It needs to be something that's easy to implement, that's quickly accessible, that you can put into your program without having to think too much about it, so it naturally fits in, it links it with everything that's already existing, it links with the NQS, it links with the EYLF, it links with all those things, but it's not something else to learn, we don't have to go oh my gosh, it's another box we have to tick, it's another thing we have to meet, it's another criteria that has to be acknowledged in the program and then adding to it, it would be nice if it just fit nicely into the social and emotional area in everything [FG4]*

Up-skilling educators in practical strategies and techniques that foster SEL was suggested by several participants, who noted that tools need to respond to the different ways

educators build knowledge, considering sensory learning styles and delivery modalities, for example:

> *Educators always want practical stuff. Tell me how to do it, they like to have the information, but then give me the strategies, what do I have to do? So, practical stuff is really important, whether that's conversation starters, actual sentences that you can use with children to support that, and I think video can be useful as well, just seeing how an educator does approach that kind of development in action is often, I think useful as well [E14]*

Coaching and mentoring were highlighted as effective in building capability within ECEC classrooms. Two ECEC providers had implemented a mentoring program to nurture and develop educator practice, with participants suggesting more was needed. Increased opportunity to reflect, collaborate and share knowledge with team members was suggested. Greater focus on explicit social and emotional skill instruction in addition to warm and responsive play, approaches tailored to the developmental stage of the child, and greater emphasis on collecting and interpreting data relating to child progress were also raised as mechanisms to strengthen educator practice and child outcomes.

Discussion

The current study examined ECEC professionals' understanding of early social and emotional development, the practices and approaches that encourage children's social and emotional skills in ECEC settings, the enablers and barriers for early childhood educators in fostering skill growth, and the additional resources and support that could assist in this respect. The findings suggest children's social and emotional development is at the forefront of educator planning, practice and reflection, supporting the findings of similar research with

early childhood educators in England (Aubrey & Ward, 2013), United States (Hollingsworth & Winter, 2013; Kowalski, Pretti-Frontczak, & Johnson, 2001), and Singapore (Ng & Bull, 2018). In addition, professionals unanimously endorsed the role of early childhood educators in fostering children's social and emotional skills, in partnership with families, as the building block for healthy learning and development.

Social-emotional competence is a multifaceted concept based on emotional, cognitive, and behavioural knowledge and skill (Domitrovich, Cortes, & Greenberg, 2007). Frameworks of social-emotional functioning in early childhood grapple with the rapid, non-linear development that occurs during this period and the overlap between various skills and behaviours. As such, scholars often suggest domains of development and discrete skills that sit within each (Campbell et al., 2016; Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). Based on a review of social-emotional domains most often captured in theoretical models, Halle and Darling-Churchill (2016) offer social competence, emotional competence, self-regulation and behaviour problems as central to understanding and assessing child development. Executive functioning is increasingly included as a distinct but related dimension, referring to the cognitive processes which enable children to organise their thinking and behaviour, facilitating self-regulation and learning. Participants in the current study recognised this breadth and complexity of social-emotional skills, and the linkages that exist between social and emotional competencies. For example, several educators discussed the importance of the secure attachment that can form between an educator and child, how this encourages children to feel safe and explore the social world, and provide a model for social interactions on which to build future relationships

Professionals collectively identified a broad range of intentional strategies and techniques to foster SEL through their day-to-day practice and interactions. Studies have used various categories to organise the SEL strategies identified by early childhood teachers.

O'Conner et al. (2017) identified three classroom factors (beyond using a SEL curriculum) associated with SEL for children aged 3 to 8 years: positive classroom climate (modifying the physical space and materials, classroom management strategies and routines, and a supportive and emotionally positive environment), instructional strategies (modelling, reacting to, and instructing about children's expression of emotions) and teacher's own social and emotional competence (supported through direct training, reflective supervision and relationship building, and stress-reduction strategies). Hollingsworth and Winter (2013) found teachers fostered prosocial skills by setting the tone of the social environment and responding to situations as they arose, and Ng and Bull (2018) observed educators using action-related strategies (setting a positive tone and allocating tasks) and oral-related strategies (suggesting solutions and extension) to promote SEL in preschool classrooms.

The majority of SEL strategies identified by participants in the current study could be mapped against three broad domains of interactions which theory and evidence show are most effective for children's development: emotional support, classroom organisation and instructional support (Hamre & Pianta, 2007). Professionals appeared to draw on both explicit and tacit knowledge when describing strategies to support SEL. Explicit knowledge is that which educators are consciously aware they are using, that can be documented and communicated, for example, the EYLF, manualised SEL programs, and the step-by-step description of strategies where educators could clearly articulate why they were using the approach and the outcome for children. Tacit knowledge, in contrast, is personal, subjective and tends to be local and linked to context. Across several interviews, educators suggested their practice was based in their knowledge and relationships with children, however found it difficult to describe the specific strategies and techniques applied, which may reflect their tacit knowledge base.

Professionals recognised knowledge and insight from families as vital to fostering children's SEL. They worked with caregivers to understand the unique needs and context for each child, identify proactive, preventative and early intervention strategies, and scaffold learning across home and service settings, reflective of socio-cultural approaches. In early childhood, family-child relationships are the primary source of learning experiences. SEL in preschool settings can be reinforced and enhanced by enlisting families as partners in the overall SEL approach (Albright, Weissberg, & Dusenbury, 2011). Preschool-based intervention research has shown that when parents are not involved in the program, effects may remain specific to the classroom (Barkley & Shelton, 2000), and that more intensive models which combine parent and teacher training lead to stronger impacts that last over time (Neville et al., 2013).

Importantly, the findings highlighted inconsistency across organisations in the variety and type of strategies educators used to support social and emotional skill growth. With respect to supporting preschoolers' social and emotional development, it appears there may be a lack of guidance on translating the EYLF into practice. As a result, children's exposure to high-quality interactions, strategies and techniques that facilitate SEL is influenced by the knowledge, skill and confidence of educators, and the culture, leadership, philosophy and structural quality of the service, including educator-to-child ratio, space, resources, staff qualifications, programmes and curricula.

Teaching in early childhood is often characterised by continuous analyses of children's understanding and decisions about curriculum and pedagogy, highlighting the importance of understanding the range of knowledge educators draw on in their decision-making processes (Hedges, 2012). While making educator knowledge explicit is critical to support teacher learning (Beijaard, Korthagen, & Verloop, 2007), research indicates much teacher knowledge is implicit and not articulated (Loughran, Mitchell, & Mitchell, 2003). Reliance on tacit

knowledge also limits the opportunity to replicate high-quality, evidence-based practice across settings. The findings of the current study highlight that although social-emotional development is a priority for early years professionals, there is inconsistency in training and application of programs and support to enable this to occur. ECEC professionals seek practical strategies that will support them to strengthen children's social and emotional skills through their everyday interactions and practice. Building upon educators' tacit knowledge through the provision of explicit, documented techniques could allow educators to combine formal learning with personal experience (Dovigo & Gasparini, 2014). More could also be done to assist educators to connect with families to foster social-emotional development within the home environment.

Conclusion

This paper sought to explore how the Australian ECEC sector perceives social and emotional learning in preschool classrooms. Aligned to the EYLF, ECEC professionals uniformly conceptualised children's social and emotional skills as critical to ongoing development and a primary focus for the sector. However, findings suggest the breadth of strategies and techniques to support this development vary across organisations, influenced by a range of factors including structural quality, educator knowledge, skill and confidence, and qualifications and experience. Educators acknowledge trial and error is necessary in early years settings, and an approach that works for one child may not have the same impact or benefit for the next. Attention towards ensuring all children receive the type of interactions that will support positive social and emotional outcomes is warranted. Strengthening knowledge through a variety of explicit and practical strategies that can be embedded into daily practice was recommended by professionals. These findings will inform the

development of a pedagogical intervention to promote positive mental health in preschool

classrooms.

References

Administration for Children and Families. (2015). *Head start early learning outcomes framework: Ages birth to five*. Retrieved from https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/elof-ohs-framework.pdf

Albright, M. I., Weissberg, R. P., & Dusenbury, L. A. (2011). *School-Family Partnership Strategies to Enhance Children's Social, Emotional, And Academic Growth*. Retrieved from https://casel.org/school-family-partnership-strategies-to-enhance-childrens-social-emotional-and-academic-growth/

Aubrey, C., & Ward, K. (2013). Early years practitioners' views on early personal, social and emotional development. *Emotional and Behavioural Difficulties, 18*(4), 435-447.

Australian Children's Education & Care Quality Authority. (2012). *The National Quality Standard*. Retrieved from https://www.acecqa.gov.au/nqf/national-quality-standard

Barkley, R. A., & Shelton, T. L. (2000). Multi-method Psycho-educational Intervention for Preschool Children with Disruptive Behavior: Preliminary Results at Post-treatment. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 41*(3), 319-332.

Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science, 333*(6045), 975-978.

Beijaard, D., Korthagen, F., & Verloop, N. (2007). Understanding how teachers learn as a prerequisite for promoting teacher learning. *Teachers and Teaching: Theory and Practice, 13*(2), 105-108.

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In C. E. D. J. A. Durlak, R. P. Weissberg, & T. P. Gullotta (Ed.), *Handbook on social and emofional learning: Research and pracfice*. New York: The Guilford Press.

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., . . . Skouteris, H. (2018). Social and Emotional Learning Associated With Universal

Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open, 1*(8), e185727-e185727.

Bradley, S. J., Jadaa, D.-A., Brody, J., Landy, S., Tallett, S. E., Watson, W., . . . Stephens, D. (2003). Brief psychoeducational parenting program: An evaluation and 1-year follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*(10), 1171-1178.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-Analysis of the Effects of Early Education Interventions on Cognitive and Social Development. *Teachers College Record, 112*(3), 579-620.

Campbell, S. B., Denham, S. A., Howarth, G. Z., Jones, S. M., Yudron, M., Whittaker, J. V., . . . Darling-Churchill, K. (2016). Commentary on the review of measures of early childhood social and emotional development: Conceptualization, critique, and recommendations. *Journal of Applied Developmental Psychology, 45*, 19-41.

Center on the Developing Child. (2016). *From Best Practices to Breakthrough Impacts: A Science-Based Approach to Building a More Promising Future for Young Children and Families.* Retrieved from http://www.developingchild.harvard.edu/

Denham, S. A., Wyatt, T. M., Bassett, H. H., Echeverria, D., & Knox, S. S. (2009). Assessing social-emotional development in children from a longitudinal perspective. *Journal of Epidemiology and Community Health, 63*, I37-I52.

Department for Education. (2017). Statutory framework for the early years foundation stage. Retrieved from https://www.gov.uk/government/publications/early-years-foundation-stage-framework--2

Department of Education Employment and Workplace Relations. (2009). *Belonging, Being &*
    Becoming - The Early Years Learning Framework for Australia. Canberra, A.C.T.
    Retrieved from http://nla.gov.au/nla.arc-109966.

Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's
    social and emotional competence: A randomized trial of the preschool 'PATHS'
    curriculum. *The Journal of Primary Prevention, 28*(2), 67-91.

Dovigo, F., & Gasparini, F. (2014). *Blending Knowledge: The Role Of Tacit And Explicit*
    Expertise Of Day Nursery Teachers In Empowering Parents. Paper presented at the
    ECER 2014: The Past, Present and Future of Educational Research in Europe, Porto.

Halle, T. G., & Darling-Churchill, K. E. (2016). Review of measures of social and emotional
    development. *Journal of Applied Developmental Psychology, 45*, 8-18.

Hamre, B. K., & Pianta, R. C. (2007). Learning opportunities in preschool and early
    elementary classrooms. In R. C. Pianta, M. J. Cox, & K. L. Snow (Eds.), *School*
    readiness and the transition to kindergarten in the era of accountability. Baltimore,
    MD, US: Paul H Brookes Publishing.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., . . .
    Scott-Little, C. (2012). A Course on Effective Teacher-Child Interactions: Effects on
    Teacher Beliefs, Knowledge, and Observed Practice. *American Educational Research*
    Journal, 49(1), 88-123.

Hedges, H. (2012). Teachers funds of knowledge: A challenge to evidence-based practice.
    Teachers and Teaching: Theory and Practice, 18(1), 7-24.

Hollingsworth, H. L., & Winter, M. K. (2013). Teacher beliefs and practices relating to
    development in preschool: importance placed on social-emotional behaviours and
    skills. *Early Child Development and Care, 183*(12), 1758-1781.

Kowalski, K., Pretti-Frontczak, K., & Johnson, L. (2001). Preschool Teachers' Beliefs Concerning the Importance of Various Developmental Skills and Abilities. *Journal of Research in Childhood Education, 16*(1), 5-14.

Loughran, J., Mitchell, I., & Mitchell, J. (2003). Attempting to document teachers' professional knowledge. *International Journal of Qualitative Studies in Education, 16*(6), 853-873.

Marvin, R., Cooper, G., Hoffman, K., & Powell, B. T. (2002). The Circle of Security project: Attachment-based intervention with caregiver-pre-school child dyads. *Attachment & human development, 4*(1), 107-124.

McCabe, P. C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools, 48*(5), 513-540.

Ministry of Education. (2013). Nurturing early learners: Social and emotional development. Singapore: Author.

Neville, H. J., Stevens, C., Pakulak, E., Bell, T. A., Fanning, J., Klein, S., & Isbell, E. (2013). Family-based training program improves brain function, cognition, and behavior in lower socioeconomic status preschoolers. *Proceedings of the National Academy of Sciences of the United States*(29), 12138-12143.

Ng, S. C., & Bull, R. (2018). Facilitating Social Emotional Learning in Kindergarten Classrooms: Situational Factors and Teachers' Strategies. *International Journal of Early Childhood, 50*, 335-352.

Nonaka, I., & Takeuchi, H. (1995*) The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.

O'Conner, R., De Feyter, J., Carr, A., Luo, J. L., Romm, H., Regional Educational Laboratory, M.-A., & International, I. C. F. (2017). *A Review of the Literature on*

Social and Emotional Learning for Students Ages 3-8: Characteristics of Effective Social and Emotional Learning Programs Retrieved from

http://ezproxy.deakin.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED572721&site=ehost-live&scope=site

O'Connor, A., Nolan, A., Bergmeier, H., Williams-Smith, J., & Skouteris, H. (2018). Early childhood educators' perceptions of parent–child relationships: A qualitative study. *Australasian journal of early childhood, 43*(1), 4-15.

Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: approaches to early identification and intervention. *Archives Of Disease in Childhood, 98*(12), 1008-1011.

OECD. (2018a). *Education at a Glance 2018: OECD Indicators*. Paris: OECD Publishing.

OECD. (2018b). *Engaging Young Children: Lessons from Research about Quality in Early Childhood Education and Care*. Paris: OECD Publishing.

Palaiologou, I. (2016). *The Early Years Foundation Stage: Theory and Practice* (3rd ed.). London: Sage

Piek, J., Straker, L., Jensen, L., Dender, A., Barrett, N., McLaren, S., . . . Elsley, S. (2010). Rationale, design and methods for a randomised and controlled trial to evaluate "Animal Fun" - a program designed to enhance physical and mental health in young children. *BMC Pediatrics, 10*, 78.

Schindler, H. S., Kholoptseva, J., Oh, S. S., Yoshikawa, H., Duncan, G. J., Magnuson, K. A., & Shonkoff, J. P. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology, 53*(3), 243-263.

Shonkoff, J. P., & Phillips, D. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

Silby, A., & Watts, M. (2015). Making the tacit explicit: Children's strategies for classroom writing. *British Educational Research Journal, 41*(5), 801-819.

Slee, P. T., Murray-Harvey, R., Dix, K. L., Skrzypiec, G., Askell-Williams, H., Lawson, M. J., & Krieg, S. (2012). *KidsMatter early childhood evaluation report.* Retrieved from https://www.kidsmatter.edu.au/early-childhood/about/evaluation

Vaughn, S. R., Ridley, C. R., & Levine, L. (1986). *PALS: Developing social skills through language*. Chicago: Science Research Associates.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak (Ed.), *Handbook of Social and Emotional Learning*. New York: The Guilford Press.

Weissberg, R. P., Goren, P., Domitrovich, C., & Dusenbury, L. (2013). *CASEL guide effective social and emotional learning programs: Preschool and elementary school edition.* Chicago: CASEL. Retrieved from https://casel.org/preschool-and-elementary-edition-casel-guide/

Woods, K., Coles-Janess, B., Griffin, P., Awwal, N., & Pavlovic, M. (2014). *Adaptation and Validation of the Abilities Based Learning and Education Support Assessment and Reporting Materials for Early Childhood Settings: Phase One Report.* Retrieved from https://education.unimelb.edu.au/research/projects/abilities-based-learning-and-education-support-ables-research

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., ... & Zaslow, M. J. (2013). *Investing in our future: The evidence base on preschool education*. New York, NY: Foundation for Child Development.

CHAPTER FIVE

Conceptual Model

5.1 A Conceptual Model to Support Social and Emotional Learning in Early Childhood Education and Care Settings

Based on the findings of the needs assessment, the intervention design group determined the overall goal of Cheshire SEED was to improve children's mental health in ECEC settings. Specifically, it sought to strengthen the everyday interactions between educators, children and families so that early childhood educators could support and foster all children's social and emotional development.

To assist the intervention design process, a conceptual model was developed that embedded the intentional language, conversational techniques and responsive practices, that underpin high quality educator–child interactions, within the framework of SEL strategies. As such, the aim of this model was to provide a roadmap for enhancing the quality and sustainability of the educator–child interactions critical in the social and emotional development of young children. The paper describing this research was published in *Early Child Development and Care* in 2018 and is presented in published form below.

Routledge
Taylor & Francis Group

Check for updates

Strengthening the quality of educator-child interactions in early childhood education and care settings: a conceptual model to improve mental health outcomes for preschoolers

Claire Blewitt [a], Heather Morris[a], Andrea Nolan[b], Kylie Jackson[c], Helen Barrett[c] and Helen Skouteris[a]

[a]Monash Centre for Health Research and Implementation, Monash University, Melbourne, Australia; [b]School of Education, Faculty of Arts & Education, Deakin University, Geelong, Australia; [c]bestchance Child Family Care, Melbourne, Australia

ABSTRACT

High-quality early childhood education and care (ECEC) programmes can strengthen the social, emotional and cognitive skills that are crucial for future learning and wellbeing. Teacher–child interactions are the most vital component of ECEC service quality in terms of children's social-emotional functioning. However, many children are not consistently exposed to the quality of interactions required for optimal development. We propose a conceptual model to encourage social and emotional learning in preschoolers by targeting the quality and intentionality of teacher–child interactions. We draw upon two frameworks relevant in early childhood settings, the Teaching Through Interactions Framework, describing the type of interactions associated with positive child outcomes, and The Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children, a tiered, systematic approach to implement strategies that improve social-emotional health. This model could inform the development of social and emotional learning programmes that support educators to apply responsive techniques through everyday interactions.

The social and emotional competencies that develop in early childhood form the foundation for ongoing health and wellbeing (Phillips & Shonkoff, 2000). Through responsive and nurturing relationships, interactions and experiences, young children learn to understand and regulate their emotion, attention and behaviour, equipping them to form pro-social relationships and engage in learning when they commence primary school (Allen & Kelly, 2015; Denham & Brown, 2010; National Scientific Council on the Developing Child, 2007). High-quality Early Childhood Education and Care (ECEC) programmes can strengthen the social, emotional and cognitive skills that are crucial for future learning and wellbeing (Barnett, 2011; Camilli, Vargas, Ryan, & Barnett, 2010; Oberklaid, Baird, Blair, Melhuish, & Hall, 2013; Yoshikawa et al., 2013), especially for children experiencing economic disadvantage or early social-emotional difficulties (Duncan & Sojourner, 2013; Loeb, Fuller, Kagan, & Carrol, 2004; Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Palaiologou, 2016).

Quality in ECEC settings is defined by process and structural elements (Howes et al., 2008; Sylva et al., 2006). Process quality refers to the proximal-level interactions and emotional, organizational and instructional support offered within the programme. Structural quality includes the educator-to-child ratio, space, resources, staff qualifications, programmes and curricula, all of which support

process quality (Ishimine, Tayler, & Thorpe, 2009). Research recognizes teacher–child interactions are the most salient component of ECEC service quality in terms of children's social-emotional functioning (Early, Pan, Maxwell, & Ponder, 2017; Howes et al., 2008; Howes & Smith, 1995; Mashburn et al., 2008; Tayler, 2017; Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). As such, governments globally emphasize the importance of teacher–child relationships in early years programme and quality improvement policy (Hamre et al., 2012; Palaiologou, 2016). Despite this, studies suggest children attending ECEC services are not consistently exposed to the quality of interactions required for optimal development (Early et al., 2007; Hamre, 2014; Justice, Mashburn, Hamre, & Pianta, 2008; Tayler, 2017; Pianta, Barnett, Burchinal, & Thornburg, 2009; Stuck, Kammermeyer, & Roux, 2016). Greater focus on the quality of relational processes within early years classrooms is needed to ensure school readiness (Mashburn et al., 2008).

Social and emotional learning (SEL) is an approach that relies heavily on high-quality teacher–child interactions to encourage children's social-emotional development. SEL is the process by which children acquire and apply knowledge and skills relating to self-awareness, social awareness, self-management, relationships, and responsible decision-making (Weissberg, Durlak, Domitrovich, & Gullotta, 2015). There are a growing number of SEL approaches tailored specifically for ECEC settings. These include explicit lesson-based skill instruction, integrating SEL into other areas of learning, and the use of instructional practices, techniques and strategies to build skills organically through everyday practice (Bierman & Motamedi, 2015; Weissberg, Goren, Domitrovich, & Dusenbury, 2013). However, there are few programmes available that explicitly centre upon teacher's capability to promote SEL through their everyday interactions, by utilizing the language, conversational strategies and responsive practices that can support pre-schooler's social-emotional competencies and learning outcomes.

The aim of this paper, therefore, is to introduce a conceptual model (Figure 1) that operationalizes how to target the quality and intentionality of teacher–child interactions to foster positive social-emotional outcomes in preschool children. This paper discusses each stage of the model presented in Figure 1, including: (1) teacher attributes that influence the quality of teacher–child interactions; (2) the types of teacher–child interactions that are associated with positive social, emotional and cognitive outcomes, informed by The Teaching Through Interactions Framework (Hamre & Pianta, 2007); and (3) a tiered, systematic approach to utilize high quality teacher–child interactions to deliver strategies that strengthen children's social-emotional functioning, based on The Pyramid Model for Supporting Social-Emotional Competence in Infants and Young Children (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Hemmeter, Ostrosky, & Fox, 2006). A definition of the key terms included in this paper are provided in Box 1. Before discussing the three stages of our proposed model
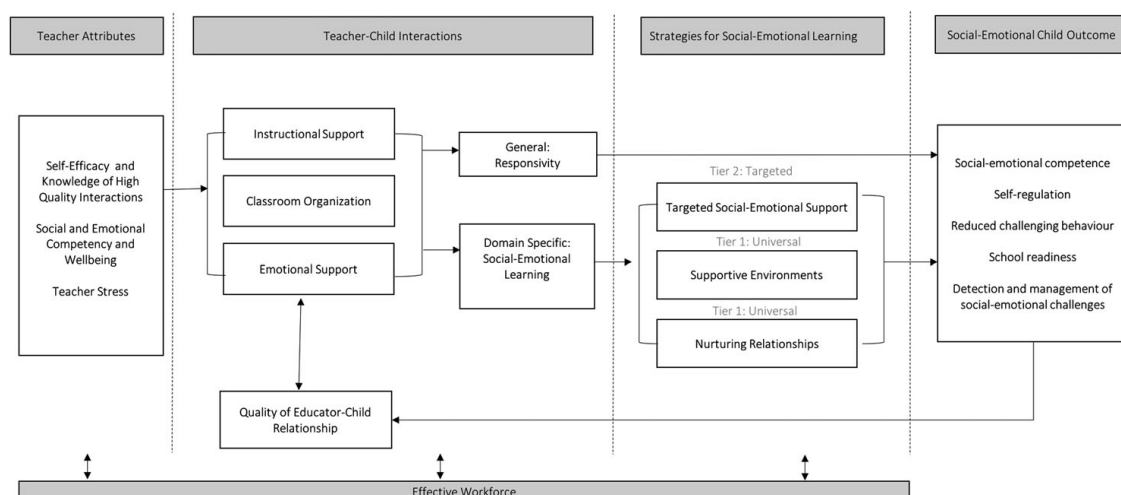
Figure 1. A conceptual model to foster social-emotional learning in preschool children by targeting the quality and intentionality of teacher-child interactions.

199

(Teacher Attributes; Teacher–Child Interactions; Strategies for Social-Emotional Development), we provide the rationale for the model by presenting a brief overview of social-emotional outcomes in early years policy and the importance of teacher–child relationships and interactions in early years settings.

Box 1. Definition of Key Terms.
Quality in Early Childhood Education and Care (ECEC): Quality in ECEC settings can be described by process and structural elements.
ECEC Process Quality: The proximal-level interactions, and emotional, organizational and instructional support offered to children within the programme.
ECEC Structural Quality: Characteristics including educator-to-child ratio, space, resources, staff qualifications, programmes and curricula, considered a precondition of process quality.
Teacher-Child Interaction: The back-and-forth exchanges that children and educators have throughout the day which allow teachers and children to share information and experiences.
Teacher-Child Relationship: dyadic system between teacher and child, often defined in terms of closeness, conflict and dependency.
Teacher-Child Closeness: The amount of warmth, openness and positive affect between teacher and child.
Teacher-Child Conflict: The level of negativity, anger and discordance between teacher and child.
Teacher-Child Dependency: Extent to which the child displays overreliance and possessiveness, reflecting a degree of reliance on their teacher that is not age-appropriate.

Social-emotional outcomes in early years policy

Over recent decades, enrolment in ECEC programmes has increased steadily across The Organization for Economic Co-operation and Development [OECD] countries (27 European nations, United States, Canada, Australia, New Zealand, Chile, Japan, Israel, Korea, and Mexico). On average, 78% of 3-year-olds and 87% of 4-year-olds in OECD countries attend early childhood and pre-primary programmes (OECD, 2017), encouraging attention from policymakers, educators and researchers on the social, emotional and cognitive development that occurs within these settings. A review of studies conducted in North America and Europe estimated between 9.5% and 14.2% of preschool children will experience serious emotional and/or behavioural disturbance, defined as a diagnosed mental health problem that substantially impairs a child's social, academic and emotional functioning (Brauner & Stephens, 2006). These early challenges can contribute to continued social, emotional and behavioural difficulties during childhood (Carter, Briggs-Gowan, & Davis, 2004; Denham, Wyatt, Bassett, Echeverria, & Knox, 2009; Gardner & Shaw, 2008; Sroufe, 2009), and long-term maladaptive behavioural, emotional, academic and health outcomes (Allen & Kelly, 2015; Aviles, Anderson, & Davila, 2006; OECD, 2015; Smart, 2005). Consequently, early years policies are beginning to recognize the important role that preschool teachers play in setting children on a positive developmental trajectory, including those experiencing or at risk of early social-emotional difficulties, in addition to typically developing pre-schoolers.

In the United Kingdom for instance, The Early Years Foundation Stage (Department for Education, 2017) identifies personal, social and emotional skill growth as crucial for learning and development. The document states that experiences and activities within ECEC programmes 'must' support children to develop a positive sense of self and others, positive relationships and respect for others, social skills, an ability to manage emotions, an understanding of appropriate group behaviour, and confidence in their abilities. Similarly, in Australia, where practice is guided by the Early Years Learning Framework (Department of Education Employment and Workplace Relations & Council of Australian Governments, 2009), teachers encourage children to have a strong sense of identity, be connected with and contribute to their world, have a strong sense of wellbeing, be confident and involved learners and effective communicators. Teacher practice is assessed against a National Quality Standard (Australian Children's Education & Care Quality Authority, 2012), pitched at both the organizational and individual level in an effort to strive for excellence in children's social, emotional, cognitive and physical care.

Given the known benefits of early childhood education programmes for vulnerable children, ECEC policy is often aligned to educational equity or anti-poverty initiatives (Herczog, 2012; Kamerman, Neuman, Waldfogel, & Brooks-Gunn, 2003). For example, in the United States, government investment enabled almost one million children from low-income families to attend Head Start, the largest provider of early childhood education for children from disadvantaged families (Head Start Early Childhood Learning and Knowledge Center, 2017). Head Start programmes and teaching practices emphasize relationships with adults and children, emotional functioning and sense of identity and belonging (Administration for Children and Families, 2015), and teacher–child interaction is assessed as part of quality accountability measures (Hamre et al., 2012). Overall, policy across countries recognize children's social-emotional development occurs within the context of responsive and cognitively stimulating interactions, warm and supportive relationships, peer engagement, and intentional strategies implemented during play and structured group time.

Importance of teacher-child relationships and interactions in early years settings

Nurturing teacher–child interactions are imperative in creating an environment that fosters children's learning and development. As seen in Figure 1, the conceptual model recognizes a bi-directional association between teacher–child interactions and the teacher–child relationship. Hamre, Hatfield, Pianta, and Jamil (2014) conceptualized adult–child relationships as dyadic, reciprocal systems that include psychological, behavioural, biological, cultural and temporal processes, embedded within an ecological systems theory of development (Bronfenbrenner & Morris, 1998), while teacher–child interactions capture the 'back-and-forth exchanges that teachers and children have with one another throughout each day, including those that are social and instructional in nature' (Hamre et al., 2012, p. 89). These exchanges enable the teacher and child to share information and experiences, thereby building and strengthening the relationship (Sroufe, 2005).

Children benefit from relationships with caregiving adults who are nurturing and consistent (Ainsworth, 1989; Bowlby, 1988; Reis, Collins, & Berscheid, 2000). The sense of security instilled through these relationships encourages the child to manage their emotional responses, demonstrate empathy and care towards others and initiate social interactions (Denham & Burton, 1996). As such, teacher–child relationships are often evaluated through an attachment lens, considering the closeness, conflict, and dependency between the teacher and child (Pianta & Steinberg, 1992; Pianta, Steinberg, & Rollins, 1995). Sensitive and stimulating interactions between teacher and child predict the acquisition of language, pre-academic and social skills (Burchinal et al., 2008), whereas relational negativity in kindergarten children, evident through conflict and dependency, has been shown to predict poor academic and behavioural outcomes in eighth grade (Pianta & Hamre, 2001). A more recent study reported elevated teacher–child conflict at 36 months of age was associated with externalizing behaviour in late childhood, and low levels of closeness with internalizing behaviour. In addition, the impact of insecure parent attachment on externalizing and internalizing behaviours in late childhood was mediated by teacher–child relationships during early childhood (O'Connor, Collins, & Supplee, 2012), pointing to the potential for positive teacher–child relationships to influence developmental pathways. This knowledge of teacher–child relationships informs the model proposed in Figure 1, described further in the following sections.

Teacher attributes: factors influencing teacher-child interactions

Our model begins with the teacher attributes that influence the quality and quantity of teacher–child interactions. The effectiveness of each teacher–child interaction depends, in part, upon the adult's ability to understand social and emotional cues and respond appropriately (Pianta, Hamre, & Stuhlman, 2003; Sabol & Pianta, 2012). As such, there is particular interest in the teacher characteristics, knowledge and skills that can be modified to improve educator-child relationships (Sabol & Pianta, 2012). Our model focuses on three teacher attributes related to the quality of the teacher–child

relationship: self-efficacy and knowledge of high quality interactions, social-emotional competency and wellbeing, and teacher stress.

Self-efficacy

Teacher's capability to strengthen children's social-emotional skills is influenced by their self-efficacy (Bandura, 2001; Woolfolk & Hoy, 1990). High levels of self-efficacy are related to more positive expectations for students in elementary and middle school (Tournaki & Podell, 2005), increased understanding and use of high quality practices in preschool and primary classrooms (McMullen, 1999), and increased time teaching social-emotional and cognitive skills, and engaging with parents (Fantuzzo et al., 2012). Emotional self-efficacy describes an individual's self-assessment of their capacity to manage emotional information. Goroshit and Hen (2014) examined teacher's emotional self-efficacy. They found high levels of emotional self-efficacy predicted both empathy and teaching self-efficacy, two variables critical for positive teaching and student learning.

A related attribute is domain-specific self-efficacy, or the confidence in one's knowledge and understanding of specific content (Gerde, Pierce, Lee, & Van Egeren, 2018; Vartuli, 1999). SEL approaches employ instructional processes to strengthen social-emotional competencies. Here, social-emotional skills can be considered a content area, similar to literacy and numeracy. Research shows greater content knowledge is related to improved pedagogical self-efficacy (Gerde et al., 2018).

Social and emotional competency and well-being

Socially and emotionally competent teachers have high self and social awareness, understand and regulate their own emotions, and recognize and understand emotions in others, thereby helping to build strong relationships and facilitate positive outcomes for children (Jennings & Greenberg, 2009). The Prosocial Classroom Model (Jennings & Greenberg, 2009) posits teachers who exhibit high levels of social and emotional competence and wellbeing, experience stronger teacher-student relationships and more effective classroom management and SEL implementation, leading to a healthy classroom climate and positive social, emotional and cognitive outcomes for children. Supporting this model, Hamre, Pianta, Downer, and Mashburn (2008) found teachers who experienced higher levels of depression were observed to provide less emotional support to children and were more likely to report greater conflict with students than anticipated, based on levels of problem behaviours within the classroom.

Teacher stress

The ECEC workforce reports that high levels of stress can impact the provision of consistent emotional support and positive behaviour management (McGinty, Justice, & Rimm-Kaufman, 2008; The Social Research Centre, 2014). Teacher stress in preschool settings is associated with lower levels and less consistent emotional support for children (Zinsser, Bailey, Curby, Denham, & Bassett, 2013), lower quality teaching practices, and lower quality communication with parents (Fantuzzo et al., 2012). An accumulation of personal stress is related to reduced behaviour management, and high levels of work stress, combined with low confidence in behaviour management can result in less responsive caregiving practices (Li Grining et al., 2010). Friedman-Krauss, Raver, Neuspiel, and Kinsel (2014) found teachers' perception of behavioural problems in children was associated with higher work-related job stress, suggesting the emotional and cognitive resources needed when working with children experiencing challenging behaviour may exacerbate stress levels.

Teacher–child interactions: the teaching through interactions framework

The next stage of the model addresses the everyday interactions that occur between teacher and child. The Teaching Through Interactions (TTI) Framework (Hamre & Pianta, 2007) identifies three

broad domains of interactions which theory and evidence suggest are most effective for children's development: emotional support, classroom organization and instructional support. Each domain contains specific dimensions of teacher–child interactions, described in the corresponding observational measure to the TTI, the Classroom Assessment Scoring System (CLASS) (Pianta, La Paro, & Hamre, 2008).

Emotional support is associated with consistent, positive and sensitive relationships that foster children's prosocial and self-regulatory skills, and may alleviate the impact of behavioural problems on learning. This domain is assessed against positive tone and connection within the classroom, overall expressed negativity, teacher sensitivity and responsivity, the extent to which the classroom is overly structured or regimented, and teachers' regard for student perspectives (Pianta et al., 2008). Teachers who effectively manage behaviour and attention through classroom organization encourage children's self-regulation, executive control, and cognitive development. Classroom organization includes effective behaviour management, management of instructional time and routines, the provision of instructional learning formats that maximize engagement, and the degree to which ineffective classroom management leads to disruption (Pianta et al., 2008). Finally, instructional support embedded into daily practice is associated with improved academic development. Within the classroom this is identified through the instructional discussions and activities that encourage higher order thinking, the quality of teachers' feedback, the use of language facilitation strategies and the diversity of instructional methods (see Downer, Sabol, & Hamre, 2010 for review).

In a study of almost 2,500 children enrolled in pre-kindergarten programmes in the United States, instructional interactions predicted academic and language skills and emotional interactions predicted teacher-reported social skills, after adjusting for prior skills, child and family characteristics, and programme characteristics (Mashburn et al., 2008), providing support for the influence of daily interactions on developmental outcomes. However, Downer et al. (2010) cautioned against conceptualizing the TTI system in a purely aligned way, that is, examining the impact of emotional support on social-emotional outcomes, classroom organization on self-regulation and instructional support on academic-cognitive outcomes only. They argue that this limits the opportunity to better understand the interaction between domains and aspects of development, and the bi-directional influence between teacher and child. Instead, they propose a model that includes within-domain pathways (e.g. emotional support → social-emotional outcomes) and cross-domain pathways (e.g. emotional support → academic outcomes). Therefore, intervention efforts to encourage early social-emotional development benefit from consideration of not only emotional support, but classroom organization and instructional practices.

The TTI Framework has been extensively tested and validated using the CLASS (Pianta et al., 2008) in countries including the United States (Hamre et al., 2013), Finland (Pakarinen et al., 2010), Germany (Stuck et al., 2016), Chile (Leyva et al., 2015), China (Hu, Fan, Gu, & Yang, 2016), and Australia (Cloney et al., 2017). Across studies, the TTI domains align to real-world pre- and primary school settings (Hamre, 2014). Assessments suggest children are not consistently exposed to high-quality interactions in ECEC. For example, pre-schoolers in the United States are likely to receive moderate emotional and organizational support, however little instructional support (Hamre, 2014; Justice et al., 2008; Phillips, Gormley, & Lowenstein, 2009; Pianta et al., 2005). In a cohort of German pre-schoolers, emotional support and classroom organization were high, however quality of instructional support was very low (Stuck et al., 2016). E4Kids was a five-year longitudinal study, the aim of which was to evaluate the impact of everyday ECEC programmes on Australian children's learning and developmental outcomes (Tayler, 2017). The E4Kids research reported moderately high, to high levels of emotional support being provided within ECEC programmes and moderate levels of room organization; however, the research has also revealed low levels of teaching behaviours that encourage learning during play activities, particularly for children from low socioeconomic backgrounds. These researchers concluded that even for those services that met or exceeded Australia's National Quality Standard, the interactions may not be of a sufficient quality to overcome educational disadvantage (Tayler, 2017).

Hamre et al. (2014) proposed a general domain of 'responsivity' sitting across domain-specific interactions that benefits the social, emotional and academic learning of the child, characterized by engagement, ability to read and respond to children's cues in a timely manner, as well as individualizing teaching style to child need. Massey (2004) suggests while early childhood teachers devote significant time to facilitating children's play, there can be a tendency for infrequent responsive and cognitively challenging conversations. This may be especially relevant for children from disadvantaged backgrounds, with research finding preschool programmes serving low-income populations appear to offer limited opportunities for multi-turn conversations (Justice et al., 2008; LoCasale-Crouch et al., 2007). Hence, there is growing interest in promoting teachers' conversational responsivity to enhance teacher–child relationship and developmental outcomes (Sabol & Pianta, 2012), particularly in the areas of language and literacy (Cabell et al., 2011; Girolametto, Weitzman, & Greenberg, 2003; Wasik & Hindman, 2011).

Translating the essence of each domain of the TTI into professional learning to improve teacher–child interactions has been evaluated in a number of studies. Hamre et al. (2012) delivered a course focused on teacher beliefs, skills and knowledge of effective teacher–child interactions, and children's literacy and learning. Participating teachers demonstrated greater knowledge of, and skills in, detecting effective interactions, and were observed to demonstrate more effective emotional and instructional interactions compared to the control group. In another study, Making the Most of Classroom Interactions (MMCI), a programme modelled on this course to engage small groups of teachers in five days of instruction and support was compared with MyTeaching Partner (MTP), where teachers worked one-on-on with a coach using cycles of videotaped teaching sessions, review and feedback (Early et al., 2017). Based on the CLASS assessment, MMCI teachers displayed significantly improved emotional and instructional support at post-test. Participation in MTP resulted in improvement in the emotional support domain. MTP has been evaluated in a number of other studies, with researchers finding teachers who took part in coaching were more likely to use strategies that facilitate children's higher-order thinking skills, provide more intensive and frequent feedback, and support children's language development (Pianta et al., 2014), and influence greater language and literacy gains compared to control classrooms (Mashburn, Downer, Hamre, Justice, & Pianta, 2010). In addition to programmes based specifically on the TTI Framework, several recent studies have evaluated efforts to improve responsive interactions through teacher training (Driscoll & Pianta, 2010; Fukkink & Tavecchio, 2010; Landry et al., 2014; Lyon et al., 2009). Providing teachers with knowledge, skill and support within the context of their individual classroom appears to be an effective means to improve relationships and interactions between teachers and children.

The TTI Framework suggests high quality, responsive relationships, founded in emotional, organizational and instructional support are associated with improved child outcomes. However, the general instructional supports described in the TTI model do not ensure learning within content areas; effective teachers must utilize content-specific instructional strategies (Hamre et al., 2012). The model in Figure 1 therefore suggests efforts to improve social-emotional outcomes should target generalized, foundational interactions, and explicitly clarify the relevance of these interactions for children's development of social-emotional skills; where intentional use of supportive and instructional teaching practices can directly influence skill growth. SEL approaches offer a mechanism to identify, organize and deliver interactional strategies to early childhood teachers.

Strategies for social-emotional learning

In Figure 1, we propose embedding the intentional language, conversational techniques and responsive practices that underpin high quality teacher–child interactions within a framework of SEL strategies. There is a growing body of evidence supporting the effectiveness and implementation of SEL programmes in early years services, with several meta-analyses and reviews suggesting favourable outcomes (e.g. Manning, Homel, & Smith, 2010; McCabe & Altamura, 2011; Nelson, Westhues, & MacLeod, 2003; Schindler et al., 2015). Most SEL approaches are embedded in social learning

theory (Bandura, 1969, 1971) which describes how children learn social behaviour through experience, observation, imitation, instruction, and reinforcement. As children learn how to relate to others and manage their emotions through the teacher–child relationship, they are able to apply these strategies in new situations. In early childhood, family-child relationships are the primary source of learning experiences and a significant body of research shows intervention directed towards improving parenting practices benefits child behaviour (Bakermans-Kranenburg, van Ijzendoorn, & Juffer, 2003; de Graaf, Speetjens, Smit, de Wolff, & Tavecchio, 2008; DeGarmo, Patterson, & Forgatch, 2004; Reid, Webster-Stratton, & Beauchaine, 2001). SEL approaches posit that early childhood teachers can similarly provide social skills instruction, modelling, and feedback, either through explicit lesson-based approaches, or teacher practices delivered through everyday interactions, capable of promoting social-emotional skill development that can be generalized beyond the ECEC classroom.

A SEL framework designed for ECEC settings is the Pyramid Model for Supporting Social Emotional Competence in Infants and Young Children (The Pyramid Model) (Fox et al., 2003; Hemmeter et al., 2006), developed by the Centre on the Social and Emotional Foundations for Early Learning (CSEFEL), and the Technical Assistance Center on Social Emotional Intervention for Youth Children (TACSEI), now the The Pyramid Model Consortium (2016). The Pyramid Model suggests a systematic and implementation science approach to organizing and delivering evidence-based practices in early childhood classrooms to promote social-emotional skill development and reduce challenging behaviour, via multiple tiers of intervention practice (Fox et al., 2003).

The positive behavioral intervention and support (PBIS) prevention logic model

The Pyramid Model is based upon The Positive Behavioural Intervention and Support (PBIS) prevention logic model (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015) which recognizes universal practices and systems (Tier 1) support all students and enable the identification of those who need additional, targeted support (Tier 2). The positive impacts from practices and systems delivered at both Tier 1 and Tier 2 levels mean that only a small number of children will require the intensive Tier 3 programmes. This framework, operationalized as an integrated continuum of behaviour, helps policymakers, funders and organizations channel their resources appropriately, based on the intensity of children's need. Overlaying the PBIS model is a tiered model that was designed specifically to support the social and emotional health of young children.

The pyramid model for supporting social emotional competence in infants and young children

Recognizing the importance of relationships, teacher–child interactions, learning environments and social-emotional skills, The Pyramid Model provides evidence-informed strategies for teachers to build skills in these areas. Two distinct differences are present over the original PBIS model: (1) the introduction of a foundation layer named the effective workforce; and (2) identified core aspects critical to each tier. The effective workforce layer describes the systems needed to ensure continuity, effective training and sustainability of the model. Without this layer of intervention, the capacity to maintain the intention, operationalized vision and overall sustainability of the programme will be lost. Our model therefore reflects the bi-directional relationship between effective workforce and teacher attributes, teacher–child interactions and social-emotional learning strategies.

In a further deviation from the original PBIS model, this Pyramid Model has divided the Tier 1 level into two distinct components needed for universal promotion of healthy social and emotional development of children: nurturing and responsive relationships, and high quality supportive environments. Developing strategies that support these two elements are critical for universal application within early childhood education programmes. The second tier of the model is identified as targeted

social and emotional supports. Within this tier, teachers are moved towards the development of specific skills in children, including social competence, emotional competence and self-regulation, critical for ongoing development (Halle & Darling-Churchill, 2016). Tier 3 programming and support requires intensive, individualized intervention specific to child need, however it is anticipated the skills and strategies delivered through Tier 1 and 2 are highly relevant and useful for teachers working with children requiring this level of support.

An efficacy trial examined the impact of a professional development intervention that trained and coached preschool teachers to use The Pyramid Model. Teacher implementation of Pyramid Model practices, and children's social-emotional skills and challenging behaviour were examined. Participating teachers displayed significant improvement in teaching practices compared to teachers who did not take part in the programme, and children in the intervention group showed improved social skills and reduced challenging behaviours compared to control group peers. Specifically, children with elevated risk of behavioural disorders exhibited improvement in their observed social interaction skills relative to similar children in control classrooms (Hemmeter, Snyder, Fox, & Algina, 2016).

The proposed model (Figure 1) suggests high quality and intentional behaviours and conversations described in the TTI Framework directly integrate with the The Pyramid Model. Emotional support fosters nurturing relationships necessary for healthy social and emotional development of young children. Also necessary for young children's growth are supportive environments which provide the ability for children to interact with peers safely, and explore the boundaries of their behaviour. Together, responsive relationships and supportive environments are universally provided in early childhood education and care, and have qualities which prevent the need for targeted and intensive interventions. For those children who require more targeted social and emotional intervention, high quality instructional support that is more individualized and systematic is needed. The TTI Framework identifies instructional support as a domain because of the focus on the child's progress, building strengths and scaffolding areas where improvement is needed. All of these elements work from the bottom up to inform and support teacher–child interactions.

Conclusion

Supporting teachers to engage in nurturing and intentional interactions with children is vital if ECEC services are to succeed at strengthening children's social-emotional functioning. This paper presented a conceptual model that integrates evidence and theory based frameworks to provide a roadmap for enhancing the quality, methodology and sustainability of the teacher–child interactions critical in the social and emotional development of young children. It is anticipated the proposed model will inform the development of SEL programmes that aim to encourage teachers to apply responsive, deliberate and explicit strategies and techniques through their everyday interactions. Empirical evidence suggests strengthening teacher's ability to recognize and take up opportunities to foster children's social-emotional functioning through teacher–child interactions will expose children to increased opportunity for social-emotional learning, improve social-emotional functioning and kindergarten/school readiness, reduce challenging behaviours and increase early detection and management of social-emotional and behavioural issues.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Claire Blewitt is a PhD Candidate in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is working on the co-design, delivery and evaluation of pedagogical intervention to support early childhood educators foster positive mental health outcomes

in pre-schoolers. Claire also works as a researcher within early childhood, and specialized primary education settings, with a focus on the monitoring and evaluation of programmes for young children and families.

Dr Heather Morris is an early career research fellow with expertise in developmental psychology and early childhood research. Her recent experience includes conducting a randomized trial in early childhood, evaluation of an early childhood wrap-around service for vulnerable families, and an evaluation of a co-designed parenting programme. Her research interests include child health and development with a special interest in obesity prevention, and parenting support.

Andrea Nolan is currently Professor of Early Childhood Education, in the School of Education, Deakin University, Melbourne, Australia. She has had extensive experience teaching in early childhood education settings as well as in primary schools, and has taught in the Technical and Further Education (TAFE) and University sectors. Andrea has worked on a number of State, National and international projects concerning professional learning for teachers, programme evaluation, and social and emotional learning. Her research is framed around workforce capabilities, focusing on the practice of teachers.

Dr Kylie Jackson holds over 20 years experience working intensively with young people and their families in a variety of early childhood and educational settings, including early childhood intervention, private practice and more recently as Principal of The Cheshire School. Kylie holds a Masters in Counselling Psychology and a PhD working with parents of young children with an intellectual disability and anxiety. Kylie is committed to ensuring best possible outcomes for young people and their families. Her professional interest areas include attachment, school readiness and developmental disabilities.

Helen Barrett has been teaching for 17 years and has worked with every age group across primary and secondary school settings, although most of her experience is in the primary sector working with children who have additional social, emotional and behavioural needs. Helen has taught in a number of schools in both the UK and Australia, and is currently the Assistant Principal at The Cheshire School. She has held a variety of roles including Assistant Principal, Leading Teacher, Curriculum Leader and ICT Specialist. Helen continues to develop her teaching skills by working with Cool Australia and writing curriculum content for other teachers.

Helen Skouteris is the Monash Warwick Professor in Healthcare Improvement and Implementation Science in the Monash Centre for Health Research and Implementation, School of Public Health and Preventive Medicine at Monash University, Melbourne Australia. She is an expert in child and parental health and wellbeing and has worked extensively with early childhood service organizations over the past 10 years.

ORCID

Claire Blewitt http://orcid.org/0000-0002-4990-2334

References

Administration for Children and Families. (2015). *Head start early learning outcomes framework: Ages birth to five*. Retrieved from https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/elof-ohs-framework.pdf

Ainsworth, M. (1989). Attachments beyond infancy. *American Psychologist*, 44(4), 709–716.

Allen, L., & Kelly, B. (2015). *Transforming the workforce for children birth through age 8: A unifying foundation*. Washington, DC: The National Academies Press.

Australian Children's Education & Care Quality Authority. (2012). The national quality standard.

Aviles, A. M., Anderson, T. R., & Davila, E. R. (2006). Child and adolescent social-emotional development within the context of school. *Child and Adolescent Mental Health*, 11(1), 32–39.

Bakermans-Kranenburg, M. J., van Ijzendoorn, M. H., & Juffer, F. (2003). Less is more: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129(2), 195–215.

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart and Winston, c1969.

Bandura, A. (1971). *Psychological modeling*. Chicago: Atherton Press.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1–26.

Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science*, 333(6045), 975–978. doi:10.1126/science.1204534

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook on social and emotional learning: Research and practice* (pp. 135–150). New York, NY: The Guilford Press.

Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York, NY: Basic Books, c1988.

Brauner, C. B., & Stephens, C. B. (2006). Estimating the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports*, *121*(3), 303–310.

Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 993–1028). Hoboken, NJ: John Wiley & Sons Inc.

Burchinal, M., Bryant, D., Early, D., Clifford, R., Barbarin, O., Howes, C., & Pianta, R. (2008). Predicting child outcomes at the end of kindergarten from the quality of pre-kindergarten teacher-child interactions and instruction. *Applied Developmental Science*, *12*(3), 140–153. doi:10.1080/10888690802199418

Cabell, S. Q., Justice, L. M., Piasta, S. B., Curenton, S. M., Wiggins, A., Turnbull, K. P., & Petscher, Y. (2011). The impact of teacher responsivity education on preschoolers' language and literacy skills. *American Journal of Speech-Language Pathology*, *20*, 315.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*, *112*(3), 579–620.

Carter, A. S., Briggs-Gowan, M. J., & Davis, N. O. (2004). Assessment of young children's social-emotional development and psychopathology: Recent advances and recommendations for practice. *Journal of Child Psychology and Psychiatry*, *45*(1), 109–134. doi:10.1046/j.0021-9630.2003.00316.x

Cloney, D., Nguyen, C., Adams, R. J., Tayler, C., Cleveland, G., & Thorpe, K. (2017). Psychometric properties of the classroom assessment scoring system (pre-K): implications for measuring interaction quality in diverse early childhood settings. *Journal of Applied Measurement*, *18*(3), 299–318.

DeGarmo, D. S., Patterson, G. R., & Forgatch, M. S. (2004). How do outcomes in a specified parent training intervention maintain or wane over time? *Prevention Science*, *5*(2), 73–89.

de Graaf, I., Speetjens, P., Smit, F., de Wolff, M., & Tavecchio, L. (2008). Effectiveness of the triple P positive parenting program on behavioral problems in children: A meta-analysis. *Behavior Modification*, *32*(5), 714–735. doi:10.1177/0145445508317134

Denham, S. A., & Brown, C. (2010). Plays nice with others': Social-emotional learning and academic success. *Early Education and Development*, *21*(5), 652–680.

Denham, S. A., & Burton, R. (1996). A social-emotional intervention for at-risk 4-year-olds. *Journal of School Psychology*, *34*(3), 225–245.

Denham, S. A., Wyatt, T. M., Bassett, H. H., Echeverria, D., & Knox, S. S. (2009). Assessing social-emotional development in children from a longitudinal perspective. *Journal of Epidemiology and Community Health*, *63*, I37–I52.

Department for Education. (2017). Statutory framework for the early years foundation stage.

Department of Education Employment and Workplace Relations & Council of Australian Governments. (2009). *Belonging, being & becoming the early years learning framework for Australia*. Canberra, A.C.T. Retrieved from http://nla.gov.au/nla.arc-109966

Downer, J., Sabol, T. J., & Hamre, B. (2010). Teacher–child interactions in the classroom: Toward a theory of within- and cross-domain links to children's developmental outcomes. *Early Education and Development*, *21*(5), 699–723. doi:10.1080/10409289.2010.497453

Driscoll, K. C., & Pianta, R. C. (2010). Banking time in head start: Early efficacy of an intervention designed to promote supportive teacher-child relationships. *Early Education and Development*, *21*(1), 38–64.

Duncan, G. J., & Sojourner, A. J. (2013). Can intensive early childhood intervention programs eliminate income-based cognitive and achievement gaps? *Journal of Human Resources*, *48*(4), 945–968.

Early, D. M., Maxwell, K. L., Burchinal, M., Bryant, D., Cai, K., Clifford, R. M., … Pianta, R. C. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, *78*(2), 558–580. doi:10.1111/j.1467-8624.2007.01014.x

Early, D. M., Pan, Y., Maxwell, K. L., & Ponder, B. B. (2017). Improving teacher-child interactions: A randomized controlled trial of making the most of classroom interactions and My Teaching Partner professional development models. *Early Childhood Research Quarterly*, *38*, 57–70. doi:10.1016/j.ecresq.2016.08.005

Fantuzzo, J., Perlman, S., Sproul, F., Minney, A., Perry, M. A., & Li, F. (2012). Making visible teacher reports of their teaching experiences: The early childhood teacher experiences scale. *Psychology in the Schools*, *49*(2), 194–205.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behavior in young children. *Young Children*, *58*(4), 48–52.

Friedman-Krauss, A. H., Raver, C. C., Neuspiel, J. M., & Kinsel, J. (2014). Child behavior problems, teacher executive functions, and teacher stress in head start classrooms. *Early Education and Development*, *25*(5), 681–702. doi:10.1080/10409289.2013.825190

Fukkink, R. G., & Tavecchio, L. W. C. (2010). Effects of video interaction guidance on early childhood teachers. *Teaching and Teacher Education*, *26*(8), 1652–1659. doi:10.1016/j.tate.2010.06.016

Gardner, F., & Shaw, D. (2008). Behavioral problems of infancy and preschool children (0–5). In M. Rutter (Ed.), *Rutter's child and adolescent psychiatry* (5th ed, pp. 882–893). Massachusetts: Blackwell Publishing.

Gerde, H. K., Pierce, S. J., Lee, K., & Van Egeren, L. A. (2018). Early childhood educators' self-efficacy in science, math, and literacy instruction and science practice in the classroom. *Early Education and Development*, *29*(1), 70–90. doi:10.1080/10409289.2017.1360127

Girolametto, L., Weitzman, E., & Greenberg, J. (2003). Training day care staff to facilitate children's language. *American Journal of Speech-Language Pathology*, *12*(3), 299–311. doi:10.1044/1058-0360(2003/076)

Goroshit, M., & Hen, M. (2014). Does emotional self-efficacy predict teachers' self-efficacy and empathy? *Journal of Education and Training Studies*, *2*(3), 26–32.

Halle, T. G., & Darling-Churchill, K. E. (2016). Review of measures of social and emotional development. *Journal of Applied Developmental Psychology*, *45*, 8–18.

Hamre, B. K. (2014). Teachers' daily interactions with children: An essential ingredient in effective early childhood programs. *Child Development Perspectives*, *8*(4), 223–230. doi:10.1111/cdep.12090

Hamre, B., Hatfield, B., Pianta, R., & Jamil, F. (2014). Evidence for general and domain-specific elements of teacher-child interactions: Associations with preschool children's development. *Child Development*, *85*(3), 1257–1274. doi:10.1111/cdev.12184

Hamre, B. K., & Pianta, R. C. (2007). Learning opportunities in preschool and early elementary classrooms. In R. C. Pianta, M. J. Cox, & K. L. Snow (Eds.), *School readiness and the transition to kindergarten in the era of accountability* (pp. 49–84). Baltimore, MD: Paul H Brookes Publishing.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., … Scott-Little, C. (2012). A course on effective teacher-child interactions: Effects on teacher beliefs, knowledge, and observed practice. *American Educational Research Journal*, *49*(1), 88–123.

Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., … Hamagami, A. (2013). Teaching through interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms. *The Elementary School Journal*, *113*(4), 461–487.

Hamre, B. K., Pianta, R. C., Downer, J. T., & Mashburn, A. J. (2008). Teachers' perceptions of conflict with young students: Looking beyond problem behaviors. *Social Development*, *17*(1), 115–136.

Head Start Early Childhood Learning and Knowledge Center. (2017). Head start program facts fiscal year 2017. Retrieved from https://eclkc.ohs.acf.hhs.gov/about-us/article/head-start-program-facts-fiscal-year-2017.

Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review*, *35*(4), 583–601.

Hemmeter, M. L., Snyder, P. A., Fox, L., & Algina, J. (2016). Evaluating the implementation of the "pyramid model for promoting social-emotional competence" in early childhood classrooms. *Topics in Early Childhood Special Education*, *36*(3), 133–146.

Herczog, M. (2012). Rights of the child and early childhood education and care in Europe. *European Journal of Education*, *47*(4), 542–555. doi:10.1111/ejed.12008

Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, *23*(1), 27–50.

Howes, C., & Smith, E. W. (1995). Relations among child care quality, teacher behavior, children's play activities, emotional security, and cognitive activity in child care. *Early Childhood Research Quarterly*, *10*(4), 381–404. doi:10.1016/0885-2006(95)90013-6

Hu, B. Y., Fan, X., Gu, C., & Yang, N. (2016). Applicability of the classroom assessment scoring system in Chinese preschools based on psychometric evidence. *Early Education and Development*, *27*(5), 714–734. doi:10.1080/10409289.2016.1113069

Ishimine, K., Tayler, C., & Thorpe, K. (2009). Accounting for quality in Australian childcare: A dilemma for policymakers. *Journal of Education Policy*, *24*(6), 717–732. doi:10.1080/02680930903207695

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, *79*(1), 491–525. doi:10.3102/0034654308325693

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly*, *23*, 51–68. doi:10.1016/j.ecresq.2007.09.004

Kamerman, B., Neuman, M., Waldfogel, J., & Brooks-Gunn, J. (2003). *Social policies, family types and child outcomes in selected OECD countries: OECD social, employment and migration* (Working Papers, No. 6). Paris.

Landry, S. H., Zucker, T. A., Taylor, H. B., Swank, P. R., Williams, J. M., Assel, M., … Klein, A. (2014). Enhancing early child care quality and learning for toddlers at risk: The responsive early childhood program. *Developmental Psychology*, *50*(2), 526–541.

Leyva, D., Weiland, C., Barata, M., Yoshikawa, H., Snow, C., Trevino, E., & Rolla, A. (2015). Teacher-child interactions in Chile and their associations with prekindergarten outcomes. *Child Development*, *86*(3), 781–799. doi:10.1111/cdev.12342

Li Grining, C. L., Raver, C. C., Champion, K., Sardin, L., Metzger, M., & Jones, S. M. (2010). Understanding and improving classroom emotional climate and behavior management in the 'real world': The role of head start teachers' psychosocial stressors. *Early Education and Development*, *21*(1), 65–94. doi:10.1080/10409280902783509

LoCasale-Crouch, J., Konold, T., Pianta, R., Howes, C., Burchinal, M., Bryant, D., … Barbarin, O. (2007). Observed classroom quality profiles in state-funded pre-kindergarten programs and associations with teacher, program, and classroom characteristics. *Early Childhood Research Quarterly*, *22*(1), 3–17. doi:10.1016/j.ecresq.2006.05.001

Loeb, S., Fuller, B., Kagan, S. L., & Carrol, B. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. *Child Development*, *75*(1), 47–65. doi:10.1111/j.1467-8624.2004.00653.x

209

Lyon, A. R., Gershenson, R. A., Farahmand, F. K., Thaxter, P. J., Behling, S., & Budd, K. S. (2009). Effectiveness of teacher-child interaction training (TCIT) in a preschool setting. *Behavior Modification*, *33*(6), 855–884.

Magnuson, K. A., Meyers, M. K., Ruhm, C. J., & Waldfogel, J. (2004). Inequality in preschool education and school readiness. *American Educational Research Journal*, *41*(1), 115–157.

Manning, M., Homel, R., & Smith, C. (2010). A meta-analysis of the effects of early developmental prevention programs in at-risk populations on non-health outcomes in adolescence. *Children and Youth Services Review*, *32*(4), 506–519. doi:10.1016/j.childyouth.2009.11.003

Mashburn, A. J., Downer, J. T., Hamre, B. K., Justice, L. M., & Pianta, R. C. (2010). Consultation for teachers and children's language and literacy development during Pre-kindergarten. *Applied Developmental Science*, *14*(4), 179–196. doi:10.1080/10888691.2010.516187

Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., … Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, *79*(3), 732–749. doi:10.1111/j.1467-8624.2008.01154.x

Massey, S. L. (2004). Teacher–child conversation in the preschool classroom. *Early Childhood Education Journal*, *31*(4), 227–231.

McCabe, P. C., & Altamura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools*, *48*(5), 513–540. doi:10.1002/pits.20570

McGinty, A. S., Justice, L., & Rimm-Kaufman, S. E. (2008). Sense of school community for preschool teachers serving at-risk children. *Early Education and Development*, *19*(2), 361–384.

McMullen, M. B. (1999). Characteristics of teachers who talk the DAP talk and walk the DAP walk. *Journal of Research in Childhood Education*, *13*(2), 216–230. doi:10.1080/02568549909594742

National Scientific Council on the Developing Child. (2007). *The science of early childhood development: Closing the gap between what we know and what we do*.

Nelson, G., Westhues, A., & MacLeod, J. (2003). A meta-analysis of longitudinal research on preschool prevention programs for children. *Prevention & Treatment*, *6*(1). doi:10.1037/1522-3736.6.1.631a

Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: Approaches to early identification and intervention. *Archives of Disease in Childhood*, *98*(12), 1008–1011.

O'Connor, E. E., Collins, B. A., & Supplee, L. (2012). Behavior problems in late childhood: The roles of early maternal attachment and teacher-child relationship trajectories. *Attachment and Human Development*, *14*(3), 265–288. doi:10.1080/14616734.2012.672280

OECD. (2015). *Skills for social progress: The power of social and emotional skills*. Paris: OECD.

OECD. (2017). *Education at a glance 2017*. Paris: OECD Indicators: Éditions OCDE / OECD Publishing.

OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. (2015). *Positive behavioral interventions and supports (PBIS) implementation blueprint: Part 1 – foundations and supporting information*. Eugene, OR. Retrieved from http://www.pbis.org/

Pakarinen, E., Lerkkanen, M. K., Poikkeus, A. M., Kiuru, N., Siekkinen, M., Rasku-Puttonen, H., & Nurmi, J. E. (2010). A validation of the classroom assessment scoring system in Finnish kindergartens. *Early Education and Development*, *21*(1), 95–124. doi:10.1080/10409280902858764

Palaiologou, I. (2016). *The early years foundation stage: Theory and practice* (3rd ed.). London: SAGE Publications.

Phillips, D. A., Gormley, W. T., & Lowenstein, A. E. (2009). Inside the pre-kindergarten door: Classroom climate and instructional time allocation in Tulsa's pre-K programs. *Early Childhood Research Quarterly*, *24*(3), 213–228. doi:10.1016/j.ecresq.2009.05.002

Phillips, D., & Shonkoff, J. P. (2000). *From neurons to neighborhoods : The science of early childhood development*. Washington, DC: National Academy Press, c2000.

Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, *10*(2), 49–88. doi:10.1177/1529100610381908

Pianta, R. C., DeCoster, J., Cabell, S., Hamre, B. K., Downer, J., LoCasale-Crouch, J., … Howes, C. (2014). Dose-response relations between preschool teachers' exposure to components of professional development and increases in quality of their interactions with children. *Early Childhood Research Quarterly*, *29*(4), 499–508. doi:10.1016/j.ecresq.2014.06.001

Pianta, R. C., & Hamre, B. K. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, *72*(2), 625–638. doi:10.1111/1467-8624.00301

Pianta, R. C., Hamre, B. K., & Stuhlman, M. (2003). Relationships between teachers and children. In W. Reynolds, & G. Miller (Eds.), *Handbook of psychology (Vol. 7) educational psychology* (pp. 199–234). Hoboken, NJ: John Wiley & Sons.

Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science*, *9*(3), 144–159. doi:10.1207/s1532480xads0903_2

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom assessment scoring system™: manual K-3*. Baltimore: Paul H Brookes Publishing.

Pianta, R. C., & Steinberg, M. (1992). Teacher-child relationships and theprocess of adjusting to school. *New Directions for Child and Adolescent Development*, 1992(57), 61–80.

Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology*, 7(2), 295–312. doi:10.1017/S0954579400006519

Ponitz, C. C., Rimm-Kaufman, S. E., Grimm, K. J., & Curby, T. W. (2009). Kindergarten classroom quality, behavioral engagement, and reading achievement. *School Psychology Review*, 38(1), 102–120.

The Pyramid Model Consortium. (2016). Retrieved from http://www.pyramidmodel.org/

Reid, M. J., Webster-Stratton, C., & Beauchaine, T. P. (2001). Parent training in head start: A comparison of program response among african American, Asian American, caucasian, and hispanic mothers. *Prevention Science*, 2(4), 209–227. doi:10.1023/A:1013618309070

Reis, H. T., Collins, W. A., & Berscheid, E. (2000). The relationship context of human behavior and development. *Psychological Bulletin*, 126(6), 844–872. doi:10.1037/0033-2909.126.6.844

Sabol, T. J., & Pianta, R. C. (2012). Recent trends in research on teacher-child relationships. *Attachment and Human Development*, 14(3), 213–231. doi:10.1080/14616734.2012.672262

Schindler, H. S., Kholoptseva, J., Oh, S. S., Yoshikawa, H., Duncan, G. J., Magnuson, K. A., & Shonkoff, J. P. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology*, 53(3), 243–263. doi:10.1016/j.jsp.2015.04.001

Smart, D. (2005). *Patterns and precursors of adolescent antisocial behaviour: Outcomes and connections*. Melbourne: Australian Institute of Family Studies.

The Social Research Centre. (2014). *2013 National Early Childhood Education and Care Workforce Census*. Canberra: Dept. of Education.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development*, 7(4), 349–367. doi:10.1080/14616730500365928

Sroufe, L. A. (2009). The concept of development in developmental psychopathology. *Child Development Perspectives*, 3(3), 178–183.

Stuck, A., Kammermeyer, G., & Roux, S. (2016). The reliability and structure of the classroom assessment scoring system in German pre-schools. *European Early Childhood Education Research Journal*, 24(6), 873–894. doi:10.1080/1350293X.2016.1239324

Sylva, K., Siraj-Blatchford, I., Taggart, B., Sammons, P., Melhuish, E., Elliot, K., & Totsika, V. (2006). Capturing quality in early childhood through environmental rating scales. *Early Childhood Research Quarterly*, 21, 76–92. doi:10.1016/j.ecresq.2006.01.003

Tayler, C. (2017). *The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs: Overview of findings at 2016* (pp. 0). Melbourne: University of Melbourne.

Tournaki, N., & Podell, D. M. (2005). The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and Teacher Education*, 21, 299–314. doi:10.1016/j.tate.2005.01.003

Vartuli, S. (1999). How early childhood teacher beliefs vary across grade level. *Early Childhood Research Quarterly*, 14(4), 489–514. doi:10.1016/S0885-2006(99)00026-5

Wasik, B. A., & Hindman, A. H. (2011). Improving vocabulary and pre-literacy skills of at-risk preschoolers through teacher professional development. *Journal of Educational Psychology*, 103(2), 455–469.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak (Ed.), *Handbook of social and emotional learning* (pp. 3–19). New York, NY: The Guilford Press.

Weissberg, R. P., Goren, P., Domitrovich, C., & Dusenbury, L. (2013). *CASEL guide effective social and emotional learning programs: Preschool and elementary school edition*. Chicago, IL.

Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, 82(1), 81–91.

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., … Zaslow, M. J. (2013). *Investing in our future: The evidence base on preschool education*.

Zinsser, K. M., Bailey, C. S., Curby, T. W., Denham, S. A., & Bassett, H. H. (2013). Exploring the predictable classroom: Preschool teacher stress, emotional supportiveness, and students' social-emotional behavior in private and head start classrooms. *NHSA Dialog*, 16(2), 90–108.

CHAPTER SIX

Intervention Design

6.1 Introduction

The needs assessment described in Chapters Three, Four and Five included literature reviews, qualitative research with early childhood professionals, and the development of a conceptual model. The findings of these studies informed the design and implementation of the Cheshire Social-Emotional Engagement and Development (SEED) Educational Program, a learning tool to support early childhood educators to foster children's social and emotional development, with strategies that can be embedded into everyday practice. Chapter Six begins by presenting a protocol paper that has been submitted for publication describing the use of IM methodology to develop the intervention (Section 6.2). Further detail about the modules within Cheshire SEED is provided in Section 6.3.

6.2 Intervention Mapping Protocol

The IM methodology was used to develop the Cheshire SEED Educational Program. The approach and outcomes from IM steps 1 to 5 are described in a protocol paper. Step 6 of the IM methodology focuses on the development of an Evaluation Plan. This is outside the scope of the thesis, albeit is discussed in Chapter Ten. The protocol manuscript includes a synthesis of the learning from the needs assessment and feedback from the intervention design group, an overall program goal, program outcomes at the individual (educator), interpersonal (educators' peers) and organisational (ECEC service provider) levels, detailed performance objectives, change objectives, theory and evidence-based behaviour change methods, and the process to conceptualise and create the Cheshire SEED approach. This paper was submitted on the 19 December 2019 to the *International Journal of Environmental Research and Public Health* for peer review.

Manuscript Title: Integrating health and educational perspectives to promote preschoolers' social and emotional learning: Development of a multi-faceted program using an intervention mapping approach

Authors: Claire Blewitt[1], Heather Morris[1], Kylie Jackson[2], Helen Barrett[2], Heidi Bergmeier[1], Amanda O'Connor[1], Aya Mousa[1], Andrea Nolan[3], Helen Skouteris[1, 4]

[1]Monash Centre for Health Research and Implementation, Monash University, Melbourne, Australia

[2]bestchance Child Family Care, Melbourne, Australia

[3]Deakin University, Geelong, Australia

[4]Warwick Business School, Warwick University, United Kingdom

Corresponding Author: Professor Helen Skouteris, Monash Centre for Health Research and Implementation, Monash University, Level 1, 43-52 Kanooka Grove, Clayton, 3168, Victoria, Australia. Email:helen.skouteris@monash.edu

Author Contact Details:

Claire Blewitt: claire.blewitt@monash.edu

Heather Morris: heather.morris@monash.edu

Kylie Jackson: kjackson@bestchance.org.au

Helen Barrett: hbarrett@bestchance.org.au

Heidi Bergmeier: heidi.bergmeier@monash.edu

Amanda O'Connor: mandy.oconnor@monash.edu

Aya Mousa: aya.mousa@monash.edu

Andrea Nolan: anolan@deakin.edu.au

Abstract

High-quality early childhood education and care (ECEC) can strengthen the social and emotional skills that are crucial for children's ongoing development. With research highlighting an increasing prevalence of emotional and behavioural challenges in young children, there is emphasis on embedding teaching practices and pedagogies to support social and emotional skills within early learning programs. A growing body of research has examined the impact of social and emotional learning programs in ECEC however few studies describe the intervention development process, or how educators and other professionals were engaged to increase the relevance and feasibility of the program. The current paper describes the development of the Cheshire Social-Emotional Engagement and Development (SEED) Educational Program, an online learning tool to support early childhood educators to foster children's positive mental health. Cheshire SEED was designed using five steps of the Intervention Mapping methodology: (i) comprehensive needs assessment to create a logic model of the problem; (ii) creation of program outcomes and change objectives mapped against determinants of educator behaviour; (iii) co-design of theory-based methods and practical strategies; (iv) program development; and (v) adoption and implementation planning. The process and decisions at each step of the IM protocol are presented, and the strengths and limitations of the approach to develop a mental health intervention for ECEC settings are discussed.

Keywords: Intervention Mapping, Intervention Development, Social and Emotional Learning, Early Childhood Education and Care, Kindergarten, Educator-Child Interactions

Social and emotional competence in early childhood is an important predictor of ongoing health and wellbeing [1]. The cognitive and language abilities that emerge during this period support children to understand and regulate their emotion, attention, and behaviour, equipping them to form pro-social relationships and engage in learning [2-4]. For some preschoolers however, difficulties in early social-emotional development can impair behaviour and functioning across family, school and other settings [5-7], and predict long-term adverse outcomes including higher rates of mental and physical health problems, unemployment, substance abuse, and antisocial behaviour [8,9].

In addition to individual variables such as genetics, temperament, physical health and cognitive functioning, familial factors including financial disadvantage, parental mental health, low self-efficacy and stress, certain parenting styles, exposure to family violence, and insecure caregiver-child attachment histories have been associated with social-emotional maladjustment [10-21]. A global review of epidemiological research suggests that between 9.5 and 14.2% of children aged five years and under experience serious emotional and behavioural disturbance [13]. In Australia, 13.6% of children aged four to eleven years meet diagnostic criteria for a mental health disorder (encompassing anxiety disorder, major depressive disorder, attention deficit hyperactivity disorder and conduct disorder) [22]. Such findings highlight the importance of early intervention and prevention to improve short and long-term outcomes [8].

The potential to foster children's social and emotional development through early childhood education and care (ECEC) programs has experienced a surge of attention from educators, policy-makers and researchers over recent decades [2,23]. A substantial body of research indicates that high-quality ECEC can improve the social, emotional and cognitive skills that are crucial for future learning and wellbeing [24-28], especially for children experiencing economic disadvantage [29-31]. The quality of interactions between educators

and children are a vital component of service provision with regards to developmental outcomes [32-35]. However, studies suggest children attending ECEC services are not consistently exposed to the quality of interactions required for optimal development [32,36-40].

One way in which early learning programs can respond to children's social and emotional needs is through social and emotional learning (SEL) intervention. SEL describes the active process whereby children attain and apply knowledge and skills relating to self-awareness, social awareness, self-management, relationships, and responsible decision-making [41]. Programs may include explicit lesson-based skill instruction, integrating SEL into existing pedagogy and curriculum, and practices embedded into every-day interactions and the learning environment [42,43].

While a growing body of research has examined the impact of SEL programs in ECEC, few studies describe the intervention development process [44] or how educators and other professionals were engaged to increase the relevance and feasibility of programs. One possible solution to address this gap is to use Intervention Mapping (IM) to guide the development of new innovations. IM is a program planning, implementation and evaluation framework, underpinned by theoretical and evidence-based decision making, a participatory-based research approach, and a systems-science perspective that explicitly addresses individual, interpersonal, community and societal influences on behaviour and health outcomes [45]. It has been applied extensively to design complex health-related behaviour change programs. More recently, researchers have suggested IM offers a promising framework to design interventions focused on supporting young children's social and emotional development [44,46], yet to our knowledge, no studies have described the use of IM in the context of SEL interventions, and there is a paucity of literature that provides detail and transparency regarding design processes.

In the current study, we sought to adapt and translate practices from an existing evidence-based educational program, called The Cheshire School, into the early years environment. The Cheshire School is an 18-month intervention program for children aged 4 to 11 years who experienced significant social, emotional and behavioural challenges in mainstream school [47]. The resulting SEL program, the Cheshire Social-Emotional Engagement and Development Educational Program (Cheshire SEED) is a multi-faceted learning intervention for early childhood educators to build expertise and knowledge to foster children's social and emotional skills, with strategies and techniques that can be embedded into everyday practice. As such, the aim of this paper is to describe the use of IM methodology to develop a SEL intervention to support ECEC educators to strengthen children's positive mental health.

Methods

The IM framework is a six-step iterative process, where each step builds on the decisions and products produced in the preceding steps [45]. The sections below summarise how the IM process was used to develop the Cheshire SEED program, including: (i) logic model of the problem; (ii) program outcomes and objectives; (iii) program design; (iv) program production; and (v) program implementation plan. Step 6 of the protocol focuses on evaluation planning which is outside the scope of this paper and will be reported in a subsequent paper.

Research Setting

This research project was conducted in Victoria, Australia. Regulation, assessment and quality improvement for Australian ECEC services is guided by the National Quality Standard [48], with early years services rated against seven quality areas: educational

217

program and practice, children's health and safety, physical environment, staffing arrangements, relationships with children, collaborative partnerships with families and communities, and governance and leadership. Childhood curriculum and pedagogy is also informed by Belonging, Being, Becoming - The Early Years Learning Framework (EYLF) [49]. This national framework is designed to encourage informed curriculum decisions, emphasising play-based learning, communication, language, and social and emotional development. The EYLF identifies five learning outcomes for children: children have a strong sense of identity, are connected with and contribute to their world, have a strong sense of wellbeing, are confident and involved learners and effective communicators. Principles that underpin educator practice are also specified: secure, respectful and reciprocal relationships, partnerships, high expectations and equity, respect for diversity, and ongoing learning and reflective practice. Additionally, the framework highlights pedagogical practices that promote children's learning, including adopting holistic approaches, responsivity to children, intentional teaching, creating physical and social learning environments, planning and implementing learning through play, and assessing and monitoring learning to support developmental outcomes [49].

Step 1: Logic Model of the Problem

Step 1 considered the epidemiologic, behavioural and social perspectives of the community at risk for health-related problems (preschool-aged children), the intervention target population (early childhood educators), and the program setting (ECEC services). A detailed assessment of the needs and capacity of early childhood educators with regards to supporting children's social and emotional development was undertaken to inform the program logic and program goals.

Intervention Design Group

An intervention design group was convened to provide input, guidance and oversight of the development process. This group included eight participants: two educators, one with experience in early childhood settings, and the other with experience in both early childhood and primary programs, including The Cheshire School, three paediatric psychologists working within The Cheshire School, one of whom was also a play therapist, one ECEC pedagogical leader, and two researchers with expertise in developmental psychology. The group met regularly through the 18-month design period to discuss the enablers and barriers for educators in supporting children's social-emotional development, findings from a series of literature reviews and qualitative research, intervention co-design, trialling and refining the program, program implementation, and evaluation. In addition, regular input was sought from individuals who could inform intervention design and delivery, including senior ECEC managers and a speech therapist.

Literature Reviews

Pertinent literature was reviewed to understand the determinants of educator behaviour with regards to children's social and emotional skills, and the availability and benefits of existing SEL programs for preschool-aged children. SEL intervention in educational settings have been described within a response-to-intervention tiered model, with intervention intensity aligned to child need [50,51]. Tier 1 programs are offered universally to all children as a proactive and preventative approach, Tier 2 interventions target select children experiencing, social, emotional or behavioural challenges, who may not have responded to universal approaches, and Tier 3 supports are delivered to children requiring

intensive and comprehensive assistance, who may display symptoms related to mental health disorders [52].

The response-to-intervention model was used as a framework to review the availability and outcomes associated with SEL programs, and to ensure that Cheshire SEED did not replicate, but added to, existing approaches. The following reviews were conducted: (i) systematic literature review and meta-analysis examining the social, emotional and early learning outcomes associated with universal (Tier 1) curriculum-based SEL programs delivered to children aged 2 to 6 years in ECEC settings [53]; (ii) systematic literature review examining the effectiveness of universal (Tier 1) SEL programs on educator outcomes, including teaching quality and practice; (iii) systematic literature review examining the effectiveness of targeted (Tier 2) SEL programs on child outcomes [54]; and (iv) a narrative review to explore the breadth and benefits of educator-led Tier 3 SEL intervention delivered to children with mental health or developmental challenges in inclusive ECEC settings [55]. A targeted literature review (non-systematic) was used to explore the determinants of educator behaviour with regards to children's social and emotional skills.

Qualitative Interviews and Focus Groups

Semi-structured key informant interviews (n=13 participants) and three focus groups (n=17 participants) were conducted with professionals working within the ECEC sector. The key informant interviews were carried out by one author (CB). The three focus groups discussions were facilitated by two authors (HB and HS) and one researcher with a Doctorate in Psychology. Twenty educators (working in both kindergarten and long daycare rooms) from four Melbourne-based ECEC centres took part, along with five staff who held a leadership or executive management position with oversight of ECEC service provision; three researchers with expertise in early child development within ECEC settings; and two

staff from non-government agencies with knowledge or involvement in efforts to increase early social and emotional development. Questions were consistent across interviews and focus groups, and aimed to ascertain participants knowledge of children's social and emotional development in early childhood, approaches or strategies to support children's social and emotional development, enablers that support knowledge and skills, perceived barriers to SEL, and potential pathways to overcome these barriers. Interviews were audio-recorded and transcribed by one author (CB). Two authors (CB and MO'C) coded 20% of transcripts to ensure the identification of consistent themes. Any discrepancies were resolved by discussion. One author (CB) then coded the remaining transcripts. Research themes were cross-checked with the research team to ensure accurate coding of participant perspectives. Thematic analysis [56] was used to identify patterns and descriptive topics reported by participants. The findings provided insight into the strategies and techniques ECEC educators employ to encourage children's social and emotional development, and the barriers and opportunities for strengthening practice across the sector.

Step 2: Identification of Program Outcomes and Objectives

Step 2 focused on specifying detailed outcomes for the Cheshire SEED Program. Guided by the socio-ecological model [57], a behavioural outcome at the individual educator level, and environmental outcomes at the interpersonal and organisational levels were established. Drawing on information generated during Step 1, each outcome was then subdivided into performance objectives (explicit behaviours required to achieve each behavioural and environmental outcome). Matrices of change were created by cross-tabulating performance objectives with the determinants identified during Step 1 to create change objectives, that is the change needed in the determinant for educators to achieve the performance objective. A separate matrix was created for each intervention level.

Step 3: Program Design

In Step 3, the intervention was conceptualised and designed. Over three months, the intervention design group participated in three workshops (facilitated by Dialogic Learning [58] using the D.School Design Thinking Process) to generate broad ideas for program scope, themes and delivery. Reflecting the iterative nature of the IM approach, participants revisited the outcomes from Steps 1 and 2, with a focus on empathising with the target population, mapping the connections between stakeholders in the early childhood sector, confirming the problem statement and program goal, and acknowledging any assumptions. Participants were encouraged to generate potential program ideas by workshopping the tools, skills, mind-set and processes needed to achieve the program outcomes and objectives. Ideas were then grouped into themes, discussed and prioritised. The design group created a number of prototypes and tested these with small groups of educators who would ultimately be the end-user of the intervention.

Following these workshops, one author (CB) identified theory and evidence-based behaviour change methods (general techniques for influencing determinants of the target group) and practical applications (specific activities to operationalise the theory-based methods) for the determinants and change objectives produced in Step 2. Methods and applications were aligned to the principles and pedagogical practices in the EYLF. Practical applications were then embedded into the program components identified during the design workshops.

Step 4: Program Production

During this phase, detailed program content and materials for Cheshire SEED were prepared. First, three members of the intervention design group (a Paediatric Psychologist/

Play Therapist, Senior Cheshire Educator with experience in early years education, and researcher) mapped teaching practices and strategies that support young children's social and emotional skill development. This process drew upon learning from the literature synthesis and qualitative research in Step 1, and the practice and evidence-based knowledge of participants. Strategies were mapped against five challenging behaviours that can emerge in early childhood (anxious or withdrawn, oppositional, aggressive, hyperactive or impulsive, emotionally reactive) [59], in addition to universal strategies that can benefit all children, and the time of day that the strategy could be applied (e.g., arrivals, transition, child-led play, or educator-led activities). Techniques were then prioritised and the detailed structure, content and materials developed with the intervention design group.

The intervention design group proposed a pilot trial and feasibility evaluation of Cheshire SEED within two ECEC settings to assess and refine the program and delivery model. One ECEC service acted as a wait list control group; the full results of this pilot study will be reported once the pilot is completed. Educators from a kindergarten service (working with children aged three to five years) were invited to: (i) participate in a workshop that included reflection on their priorities, current strategies and overview of Cheshire SEED techniques; and (ii) access a prototype version of the online portal that provided information on children's social-emotional development, allowed educators to record their goals, and suggested evidence-based strategies focused on the learning environment and therapeutic educator-child interactions. Intervention group educators also participated in two in-person coaching sessions with experts from The Cheshire School (the Paediatric Psychologist/Play Therapist and Senior Educator). During each coaching session, the educator was observed in-session before meeting one-on-one to discuss their priorities and recommended strategies in detail. As part of the outcome evaluation, feedback was collected from educators following the completion of each component. In addition, educators were invited to complete surveys at

baseline and again at the end of the implementation period to assess their perception of the quality of their relationships with children, their self-efficacy and knowledge of strategies to support children's social-emotional skills. Educators were also interviewed to gather further insights regarding the social validity and feasibility of the program.

Step 5: Program Implementation Plan

Step 5 focused on the creation of an implementation plan to encourage adoption and maintenance of Cheshire SEED. The focus groups and interviews in Step 1, discussion with the intervention design group and other ECEC leaders informed our understanding of potential program users, and how the intervention could be delivered to and embedded within early childhood services. Step 5 utilises a similar process to Step 2. Outcomes, performance objectives and determinants for program adoption and implementation were defined based on theory and evidence. A matrix of change objectives was created by linking performance objectives to determinants, and a plan for implementation created.

Step 6: Evaluation Plan

The final step of the IM process involves the design and implementation of an evaluation plan, that is out of the scope of the current paper.

<div align="center">

Results

</div>

Step 1: Logic Model of the Problem

Literature Reviews

Determinants of Educator Behaviour

Several personal attributes appear to influence educators' ability to support children's social and emotional development. Educator practice and decision-making is influenced by

beliefs and experiences, in addition to theories studied during pre-service training and other learning opportunities that resonate with those beliefs and experiences [60]. High levels of self-efficacy are associated with positive expectations for children [61], increased use of high-quality practices in preschool rooms [62], and time spent teaching social, emotional and cognitive skills [63]. Goroshit and Hen [64] reported high levels of emotional self-efficacy predicted empathy and teaching self-efficacy, both critical for positive teaching and child learning.

A related attribute is educator knowledge. SEL interventions use instructional processes (explicit or implicit) to strengthen children's social-emotional health. Research shows greater content knowledge is related to improved pedagogical self-efficacy [65,66]. Finally, educators own social and emotional wellbeing influences their ability to support positive mental health in others. Educators with high self and social awareness understand and regulate their emotions, and recognise and effectively respond to emotions in others, thereby helping to build strong relationships and facilitate positive outcomes for children [67]. Conversely, preschool educator stress is associated with lower levels and less consistent emotional support [68], lower quality teaching practices, and lower quality communication with parents [63].

Reviews of SEL Programs

The literature reviews aimed to explore the availability of SEL programs across three tiers of intervention (universal, targeted and intensive), the benefits for children and educators, and the specific program components related to program success. The key findings from each study are summarised in Table 1. Most SEL programs were delivered at the class-wide level. Universal interventions appeared to benefit children across social, emotional, behavioural and learning domains. Research evidence for programs that target children

experiencing social, emotional or behavioural difficulties is emerging, however the studies reviewed suggest interventions predominately focus on children displaying externalising problems such as aggression or antisocial behaviour. Based on the studies captured, there are few evidence-based approaches for educators working with children with internalising challenges (e.g. anxiety and withdrawal).

Qualitative Interviews and Focus Groups

Four themes emerged from the thematic analysis of qualitative interviews and focus group discussions: (i) educator knowledge – explicit and tacit dimensions; (ii) mobilising knowledge - social and emotional learning is embedded within interactions; (iii) room for improvement - capacity and capability; and (iv) strengthening educator skill – building knowledge through practical strategies. First, early childhood educators revealed explicit and tacit dimensions to their knowledge of children's mental health. Educators referred to a broad range of competencies to describe early social and emotional development, indicators of social and emotional challenges, and risk and protective factors relating to social-emotional development, reflecting their explicit knowledge. They also drew on tacit knowledge, including their own experiences in the classroom, working with children with diverse and individual needs, observation of their peers, and interaction, discussion and reflection with colleagues and specialists.

Next, strategies to support children's social-emotional skills were embedded within interactions. The educator-child relationship was unanimously acknowledged by both educators and non-classroom based early childhood professionals as critical to children's development. Targeted strategies to support SEL were embedded within everyday experiences and interactions, however there was variation in the breadth of strategies identified across participants. In addition, the influence of the layout and organisation of the

preschool classroom was highlighted, with educators using physical resources and materials to encourage prosocial behaviour (e.g., re-directing children to preferred activities). The importance of working in partnership with caregivers was consistently highlighted.

Table 1

Key Findings from Literature Reviews

Type of SEL Program	Description of Review	Key Findings
Universal, curriculum-based SEL interventions [53]	Systematic review, meta-analysis and meta-regression of 79 experimental or quasi-experimental studies (391 effect sizes) that examined the impact of SEL intervention on children's social, emotional, behavioural and early learning outcomes	• 51 SEL programs examined. • Children who participated in SEL programs showed significant improvement in social competence ($d = .30$, $p < .001$), emotional competence ($d = .54$, p < .001), behavioural self-regulation ($d = .28$, $p < .001$), and early learning skills ($d = 0.18$, $p = .03$), and reduced behavioural and emotional challenges ($d = .19$, $p<.001$). • Older children appeared to display greater improvement than younger children, programs delivered by a researcher or specialist were more efficacious than those delivered by the educator, assessment of child outcomes based on educator, observer or researcher report indicated greater improvement than measures completed by caregivers, and children displayed greater improvement in skill-based measures, compared with educator, parent or observer rating.
Universal, curriculum-based SEL interventions	Systematic review of 16 studies (RCT, quasi-experimental, within-group designs) that examined the impact of SEL intervention on teaching quality and practice	• 10 SEL interventions examined. • SEL programs may strengthen teaching quality, particularly the provision of emotional support, responsive and nurturing educator-child interactions and effective management of the classroom environment. • Data insufficient to ascertain whether participation improved educators' knowledge, self-efficacy, or social-emotional wellbeing. • No rigorous evidence of the sustainability of outcomes over time.
Tier 2 (targeted) SEL intervention [54]	Systematic review of 19 studies (RCT, quasi-experimental, single-subject designs) that examined the impact of Tier 2 SEL intervention on children's social, emotional and behavioural outcomes	• Evidence for targeted SEL programming is emerging. • May offer a promising early intervention approach to strengthen aspects of children's social and behavioural functioning. • Impact on emotional competencies could not be established. • Programs directed to preschoolers with externalizing problems, limited approaches focused on internalising behaviour.
Tier 3 (intensive) [69]	Narrative review of 19 studies (RCT, quasi-experimental, single-subject, within-group designs) that examined the impact of Tier 3 SEL intervention on children's social, emotional and behavioural outcomes	• Interventions included instruction embedded into daily routines and activities, direct skill instruction, peer-mediated interventions, and individualized assessment-based approaches. • Interventions targeted children with neurodevelopmental disorders, and developmental, social and communication delays. • Improvement in children's social skill during or post intervention. Evidence of maintenance and generalisation inconsistent. • Lack of peer-reviewed research examining ECEC-based interventions for young children experiencing anxiety or mood disorders.

Third, participants identified an extensive range of programs and resources to support social and emotional development within preschool settings. However, the volume of programs available and increasing expectations placed upon educators meant programmatic approaches were less likely to be embedded and sustained over time. Barriers to supporting children's social-emotional skills included a lack of time, large group size, lack of educator capability, motivation, confidence and training, high staff turnover, perceived lack of recognition of the educator's role, and a lack of consistency in pedagogy and practice across services. Participants also perceived an increased proportion of children attending ECEC services with additional (both diagnosed and undiagnosed) needs, and requested greater support to nurture the diverse learning outcomes of children attending early learning programs.

Finally, educators sought programs that respond to the unique context and requirements of ECEC, aligned with the National Quality Standard and EYLF, and not requiring additional time or resources to implement. That is, resources that were accessible, easy to use and could be embedded into daily practice and routines. Up-skilling educators in practical strategies and techniques that foster SEL was suggested by several participants, who noted that tools should respond to the different ways educators build knowledge. Coaching and mentoring were highlighted as effective in building capability within ECEC classrooms, and increased opportunity to reflect, collaborate and share knowledge with team members was suggested.

Feedback from the Advisory Group

The intervention design group similarly emphasised that an add-on program (i.e. curriculum-based SEL intervention) would likely encounter significant barriers to implementation. The group stressed: (i) programs that are not embedded within the classroom

routines and aligned to the National Quality Standard and EYLF are unlikely to be sustained over time; (ii) each interaction in the room presents an opportunity to strengthen children's social and emotional development; and (iii) educators who are confident in this role can assist parents to consider and implement strategies that will encourage social and emotional skills the home environment.

Program Goal and Logic Model

The overall goal of Cheshire SEED was to improve children's mental health in ECEC settings. Specifically, it sought to strengthen the everyday interactions between educators, children and families so that early childhood educators could support and foster *all* children's social and emotional development. The intervention design group decided Cheshire SEED would focus on the behaviour of the early childhood educator (at the individual level), and two environmental factors: educators' peers (interpersonal level) and the ECEC service provider (organisational level). The needs assessment informed the development of a logic model (Figure 1), summarising the intervention levels (individual, interpersonal and organisational), key determinants, behavioural outcome (use of strategies or approaches to support children's social and emotional skills), and health outcomes for both the educator and child.

A Framework to Guide Program Design

The program logic emphasised the change in educator behaviour (adoption of strategies to strengthen children's social-emotional skills) to achieve the program goal (strengthening everyday interactions between educators, children and families). To further assist the intervention design process, a conceptual model was proposed (Figure 2) [55]. This model draws upon two frameworks that support educators to implement strategies to improve

social-emotional development: the Teaching Through Interactions Framework [70] and the Pyramid Model for Supporting Social-Emotional Competence in Infants and Young Children [71,72]. It proposes embedding the intentional language, conversational techniques and responsive practices that underpin high quality educator–child interactions within the framework of SEL strategies. As such, it aims to provide a roadmap for enhancing the quality and sustainability of the educator–child interactions critical in the social and emotional development of young children [55].

Step 2: Performance Outcomes and Objective

Based on the evidence gathered in Step 1, the design group decided that the intervention would focus on the behaviour of the early childhood educator (individual level), and two environmental factors: educators' peers (interpersonal level) and the ECEC service provider (organisational level). Performance objectives for each level of intervention are presented in Table 2. Educators' knowledge, beliefs, skill, self-efficacy, and social and emotional competence were agreed as determinants of educator behaviour at the individual level (based on the findings from Step 1). At the interpersonal level, knowledge, beliefs, and skill were identified, and resources were the primary determinant at the organisational level. Change objectives at the individual educator level are provided in Table 3.

Step 3: Program Design

Informed by the outcomes of the systematic reviews and qualitative research, conceptual model and design workshops, the intervention design group proposed a multi-faceted learning tool for early childhood educators who want to build expertise in fostering children's social and emotional skills. The following program components were discussed and prioritised during the design group workshops: a phone or tablet app of strategies, visual

guides and factsheets, instructional bite size videos, professional learning community,

educator workshops and coaching at the point of practice. Following the workshops, the lead

researcher reviewed behaviour change theories and methods suitable for the determinants and

change objectives at each intervention level. Practical applications (specific activities)

aligned with the behaviour change methods were identified (see Table 4 for strategies to

achieve change objectives at the individual educator level). These approaches were

embedded into the broad components identified by the design group.
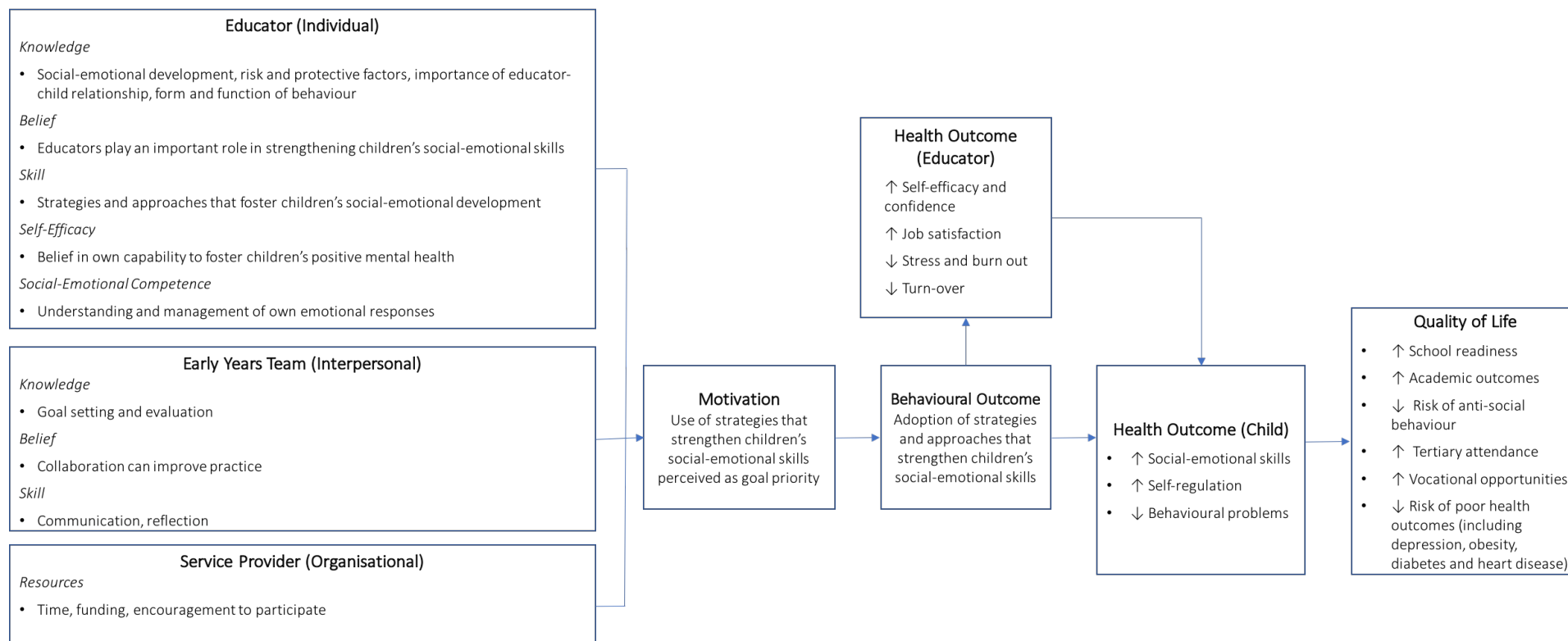
Figure 1: Logic model for Cheshire SEED Educational Program
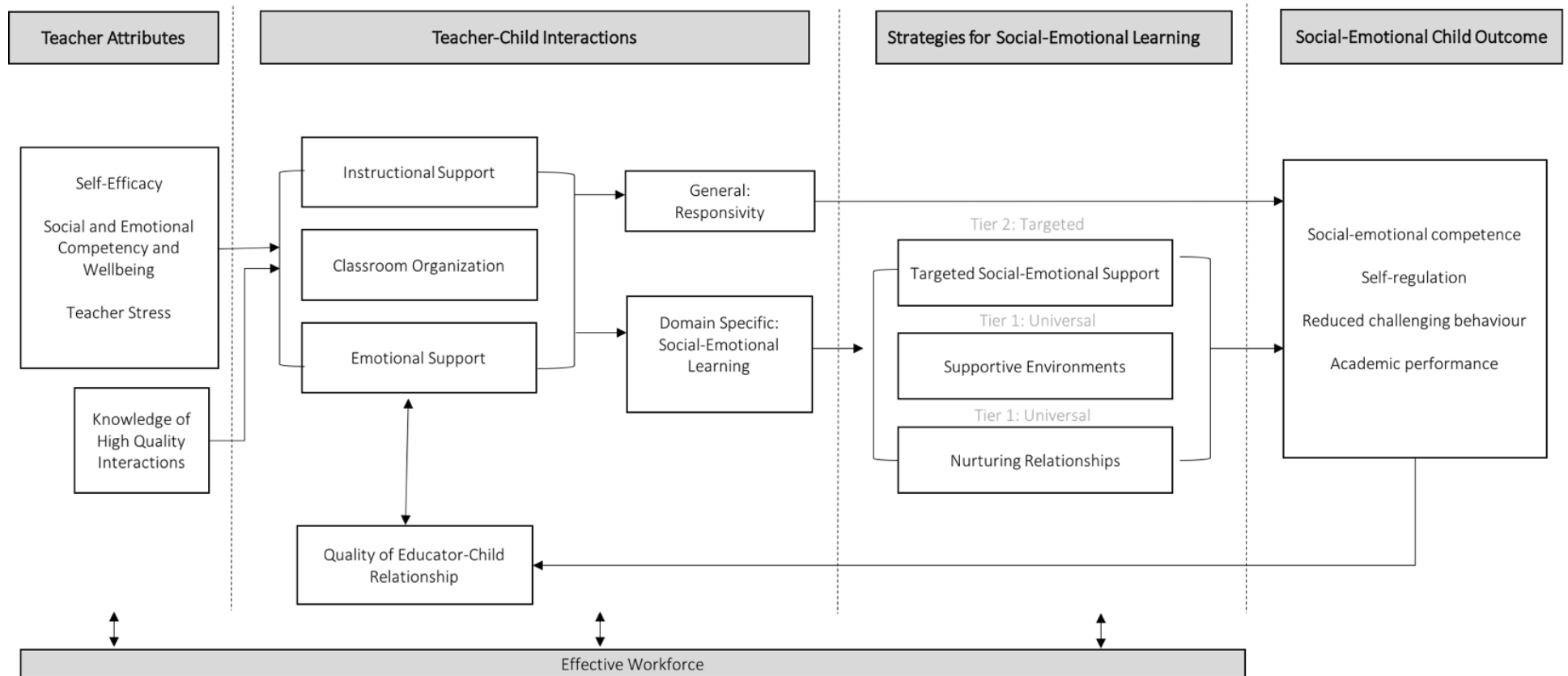
Figure 2: A Conceptual Model to Foster Social-Emotional Learning in Preschool Children by Targeting the Quality and Intentionality of Teacher-Child Interactions.

Table 2

Program Outcomes and Performance Objectives for Cheshire SEED by Socio-Ecological Level

Program Goal	Target Group	Program Outcome	Performance Objectives (PO)
To strengthen the everyday interactions between educators, children and families so that early childhood educators can support and foster *all* children's social and emotional development.	Educator (Individual)	Educators utilise strategies that target children's social and emotional skill development during their everyday interactions and practice	*Educators will:* PO1: Develop nurturing, consistent and responsive relationships with children PO2: Understand early childhood social, emotional and behavioural development PO3: Identify the social-emotional strengths, challenges and opportunities for children in their group PO4: Build knowledge of strategies, techniques and language that supports young children's social and emotional learning and positive mental health PO5: Respond effectively to opportunities to support social and emotional skill growth by applying strategies PO6: Engage with caregivers around strategies
	Peers/Early Years Team (Interpersonal)	Educators collaborate to establish goals, share knowledge and learning, and monitor progress	*Early Years Teams will:* PO7: Set goals for individual children and groups PO8: Encourage and support each other to implement strategies that target children's social and emotional skill development P09: Reflect on any changes in children's behaviour and social-emotional competencies as a result of strategies P10: Reflect on any changes in educators' own practice as a result of strategies
	ECEC Service Providers (Organisational)	Service providers encourage ECEC staff to engage in professional development	*Service Providers will:* P11: Afford time and encouragement for educators to engage in learning, reflection and discussion, and embed strategies into their practice and routines

Table 3

Matrix of Change Objectives for Educators (Individual Level)

Educator Performance Objectives (PO)	Key Determinants				
	Knowledge (K)	Belief (B)	Skill (SK)	Self-Efficacy (SE)	Social-Emotional Competency (SO)
PO1: Develop nurturing, consistent and responsive relationships with children	K1.1: Educators know how the educator-child relationship influences children's behaviour and wellbeing K1.2: Educators understand factors that influence the educator-child relationship	B1.1: Recognise the importance of positive educator-child relationships for children's mental health	SK1.1: Engage, interact and respond sensitively to young children SK1.2 Share information and experiences through interactions SK1.3: Recognise, understand and respond appropriately to social and emotional cues	SE1.1: Express confidence in ability to form positive relationships with children	SO1.1: Recognise own emotions and behaviour SO.1.2: Understand and manage own emotional responses
PO2: Understand early childhood social, emotional and behavioural development	K2.1: Educators can describe social-emotional milestones that typically emerge in early childhood K2.2: Educators know the risk and protective factors for healthy social-emotional development K2.3: Educators can identify the outcome associated with early social and emotional difficulties	B2.1: Recognise the importance of social and emotional competencies for learning, health and wellbeing	SK2.1: Integrate knowledge gained through experience, professional development, and informal learning SK2.2: Build knowledge by working with peers and other professionals	SE.1: Confidence in ability to gather, retain and apply information	SO2.1: Recognise how own experiences, background and culture can influence understanding and perceptions of child development
PO 3: Identify the social-emotional strengths, challenges and opportunities for children in their group	K3.1: Educators recognise behaviours that suggest healthy social-emotional development K3.2: Educators can describe common form (types) of challenging behaviours	B3.1: Belief that ECEC educators play an important role in observing and understanding child behaviour	SK3.1: Identify form and function of behaviours SK3.2: Collect and interpret information from different sources (e.g. observation, caregiver, other early years professionals)	SE.3.1: Belief in ability to understand and respond to children's behaviour	SO3.1: Recognise how own experiences, background and culture can influence perception child behaviour

	K3.3: Educators can describe possible functions (purpose) of behaviour				
PO5: Build knowledge of strategies, techniques and language that supports young children's social and emotional learning	K4.1: Educator knows how the early years environment, caregiver-child and child-child interactions can influence social-emotional development K4.2: Educators understand theories and principles that underpin strategies K4.3: Educators understand the purpose and rationale of strategies K4.4: Educators know how to use the strategy effectively	B4.1: Perceive ECEC educator is responsible for supporting social-emotional skill development B4.2: Recognise educator-child interactions can have therapeutic benefit B4.3: Recognise early years environment can influence children's social and emotional skill B4.4: Belief that strategies can build upon educators' current skill and knowledge	SK4.1: Integrate new knowledge (strategies) with current knowledge and practice	SE4.1: Express confidence in ability to use strategies during every day practice	
PO6: Respond effectively to opportunities to support social and emotional skill growth by applying strategies	K5.1: Educator can identify suitable strategies based on needs and challenges of child/group	B5.1: Increased recognition that every interaction is an opportunity to nurture children's social and emotional skill	SK5.1: Identify opportunities to embed strategies into daily interactions and practice SK5.2: Implement strategies	SE5.1: Belief in ability to implement strategies	SO5.1: Recognise how own experiences, background and culture can influence interactions with children
PO7: Engage with caregivers around strategies	K6.1: Educator can describe approaches that strengthen children's social-emotional skills	B6.1: Belief that educator and caregiver should work in partnership to support children's social-emotional development	SK6.1: Ability to engage caregivers in conversation about their child's development SK6.2: Ability to share and discuss strategies	SE6.1: Confidence in ability to work in partnership with caregivers	SO6.1: Recognise how own experiences, background and culture can influence interactions with caregivers and families

Table 4

Examples of Strategies to Achieve Change Objectives for Educators

Level of Intervention	Determinant of Educator Behaviour	Change Objective(s)	Method (Related Theory)	**Specific Activities in Cheshire SEED**
Educator (Individual)	Knowledge	K1.1, 1.2, 2.1, 2,2, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4, 6.1	Active Learning (SCT, SLT, TPC)	Interactive modules Goal setting, observation, and reflection Interactive case studies
		K1.1, 1.2, 3.1, 3.2, 3.3, 4.1	Consciousness Raising (TTM)	Written and video content
		K5.1	Tailoring (TTM)	Tailored SEL strategies based on user inputs
		K4.1, 4.2, 4.3, 4.4, 5.1	Discussion (ELM)	Moderated online communities of practice forums Webinar In-room coaching
	Belief	B1.1, 2.1, 3.1, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1,	Elaboration (TIP, ELM)	SEL strategies Video by coaches
		B3.1, 4.1, 4.2, 4.3, 4.4, 5.1	Argument	Video by coaches
		B4.2, 4.3, 4.4, 5.1	Direct Experience (TL)	SEL strategies In-room coaching
	Skill	SK1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.2, 4.1, 5.1, 5.2, 6.1, 6.2	Active Learning (SLM, SCT)	Interactive modules Goal setting, observation, and reflection Interactive case studies Parent handouts
		SK5.1, 5.2, 6.1, 6.2	Individualisation (TTM)	In-room coaching Communities of practice forums Webinars
		SK1.1, 1.2, 1.3, 3.1, 5.1, 5.2	Verbal Persuasion (SCT)	Video by coaches
		SK5.1	Goal Setting	Goal setting, observation, and reflection
		SK3.1, 4.1, 5.1, 5.2	Modelling (SCT)	Video exemplars Examples of language and phrases In-room coaching Case studies
		SK3.1, 3.2, 4.1, 5.1, 5.2	Participatory Problem Solving	Functional Behaviour Analysis Individualised plans

Self-Efficacy	SE1.1, 3.1, 4.1, 5.1	Guided Practice and Feedback (SCT)	In-room coaching
	SE1.1, 1.2, 3.1, 4.1, 5.1, 6.1	Discussion (ELM)	Communities of practice forums Webinars
Social-Emotional Competence	SO1.1, 1.2, 2.1, 3.1, 5.1, 6.1	Guided Practice and Feedback (SCT)	In-room coaching
	SO1.1, 1.2, 2.1, 3.1, 5.1, 6.1	Consciousness Raising (TTM)	Written and video content

Note. ELM, Elaboration Likelihood Model; SCT, Social Cognitive Theory; SLT, Social Learning Theory; TIP, Theories of Information Processing; TL, Theories of Learning; TPC, Theories of Persuasive Communication; TTM, Trans Theoretical Model.

Step 4: Program Production

Cheshire SEED was developed based on the preceding IM steps. SEED aims to build on educators' knowledge by offering tailored, practical strategies for everyday practice to supports children's social and emotional skills. The SEED Model can be utilised as a whole-room approach to encourage school readiness and positive mental health, or to plan an intervention for a particular child experiencing social, emotional or behavioural challenges. The online learning program includes five sequential modules. Module 1 describes the program concepts and evidence that underpins the strategies and techniques. In Module 2, educators reflect on the strengths and challenges for children in their room, the factors that might be influencing behaviour using a Functional Behavioural Analysis approach (to identify when, where and the likely reason a behaviour occurs) [73], and set their goals for the program. Module 2 also incorporates content on social and emotional milestones, risk and protective factors and form and function of behaviour. Based on the educator's priorities in Module 2, Cheshire SEED suggests strategies in Modules 3 and 4 that may be particularly relevant for their group. Module 3 addresses the early learning environment, with a focus on sensory processing needs (e.g., layout, furniture, structuring the day, sensory tools and toys), and Module 4 on therapeutic and positive behaviour strategies that can be delivered through educator-child interactions.

The Cheshire SEED platform presents tailored content based on educator input. Each strategy includes an explanation of the technique and how it supports children's development, a video explanation from The Cheshire School, step-by-step visual guide, examples of language and phrases, and an information sheet for caregivers. Several Module 3 strategies also include downloadable resources such as visual timetables and choice boards (graphic organiser that allows a child to show their choice), visual cards and a feelings thermometer (a visual to help children identify the intensity of their feelings). Finally, Module 5 offers tools

to assess whether the SEED strategies have benefited the children in the service. It also includes options to extend learning and share experiences with other educators using webinars and discussion boards.

Step 5: Program Implementation Plan

The Program Implementation Plan focused on mechanisms to deliver Cheshire SEED through ECEC providers and the ongoing support needed to ensure sustainability. It was decided the Lead Educator/Centre Director would facilitate implementation within their service, with support and guidance from the program provider. Each educator within a participating service creates an individualised profile to access Cheshire SEED. The next stage of this project will focus on child, educator and process outcome measures for the intervention, and evaluating the feasibility and benefits of implementation across diverse early years settings.

Discussion

The aim of this paper was to describe the application of IM methodology to design, implement and evaluate a pedagogical intervention to support positive mental health in preschoolers. A challenge for educational researchers is designing initiatives that are usable, sustainable and scalable [74]. While there has been growth in the availability of SEL programs for early years providers over recent decades [42,53,75-78], there is a paucity of literature that provides detail and transparency regarding design processes. To our knowledge, this is the first SEL program to use the IM approach, incorporating literature reviews, qualitative research with ECEC professionals, behaviour change theory, and co-design with early years and primary school educators, ECEC leaders, mental health professionals and developmental researchers. Co-design across disciplines enabled us to

address an important public health issue through the lens of early childhood, integrating health and education perspectives to break through the silos that can exist between disciplines and enhance the translation of health research to practice [79]. The application of IM to early childhood programming for social-emotional development appears to offer valuable insight to future researchers and program developers [44].

A challenge encountered during the design process was clearly articulating the opportunities for behaviour change in the Australian early childhood sector. ECEC services across Australia are diverse, with educators from varied educational backgrounds, with a range of qualifications, professional learning, and experiences. Early learning programs contrast in terms of their overall quality [80] and educators work with children and families with unique strengths and challenges [81,82]. The comprehensive nature of the needs assessment in Step 1 assisted the intervention design group to define program goals. Growing awareness of the lifelong implications of mental health in early childhood has seen a rapid increase in the availability of evidence-based interventions for ECEC providers. Four literature reviews indicated potential benefits of a tiered approach to SEL delivery [54,69,83], and highlighted the need for additional supports at the Tier 2 and 3 levels of intervention, especially for children showing signs of internalising behaviour.

The qualitative component of this work corroborated the need for practical and explicit strategies that built on educators' current knowledge and expertise, could be embedded into their daily practice, and tailored to the social, emotional and behavioural needs of the child. The intervention design group similarly suggested focusing on educators' capability to promote SEL through their everyday interactions, by utilising the language, conversational strategies and responsive practices that can support preschooler's social-emotional competencies and learning outcomes. This finding was critical for the subsequent

design of the program and underlines the importance of combining qualitative and quantitative data in this step.

The design group established both individual behavioural outcomes for educators, and environmental outcomes at the interpersonal and organisational levels (Table 2). During the qualitative research, educators emphasised they gain knowledge from their peers, and sought time and support to collaborate and share their knowledge with each other. The conceptual framework (Figure 2) highlighted the importance of workforce and systems to ensure continuity, effective training and sustainability. The applications within Module 5 seek to address these interpersonal and environmental agents, including Communities of Practice and resources to assist providers to embed the program into their ongoing reflection, planning and systems.

Following the IM process ensured Cheshire SEED was a theory and evidence-based professional learning approach. Facilitating explicit knowledge is critical for educator learning [84], however studies suggest much educator knowledge is implicit and not articulated [85]. O'Connor and colleagues [86] found early childhood educators primarily drew on implicit knowledge, through observations and practical experience to interpret parent-child relationships and children's social and emotional development. They later developed the E-PCR program using the IM protocol to provide educators with knowledge and skills to first integrate implicit and explicit knowledge, and then translate this knowledge into their practice. Our qualitative research similarly explored how educators' tacit knowledge influenced the strategies they use to strengthen children's social and emotional skills. Building upon educators' tacit knowledge by offering explicit, documented techniques could allow educators to integrate formal learning with personal experience. For example, an educator may already be using a Cheshire SEED technique in their professional practice. The SEED program offers an educator additional information about *why* that technique is

valuable for children's development by drawing on attachment theory, positive behaviour and support, play therapy and positive psychology perspectives, thereby strengthening explicit knowledge.

The Cheshire SEED intervention was also strengthened by the co-design approach. While participatory design methods are commonly reported for health-related behaviour change interventions [87], this is an emerging methodology for educational curricula and reforms [88-90]. Collaborative processes that utilise skills, ideas, and experiences across disciplines are more likely to lead to change that is sustainable and scalable [91,92]. Cheshire SEED was directly shaped by the insights that emerged from participating educators, practitioners and researchers.

There are several limitations to the intervention. While a rationale for focusing on educator behavior was provided, the caregiver and family environment are the first and foremost influence on children's social and emotional skills. Cheshire SEED incorporates information that educators can provide to caregivers, however the intervention did not include influencing caregiver behavior as an outcome [93]; this would require time and resource commitment beyond the scope of the project. In future research, it is recommended that consideration be given to incorporating the caregiver as an interpersonal level of intervention. In addition, it is vital that the future evaluation plan addresses both educator and child outcome measures. Our focus on educator behaviour seeks to ultimately improve child outcomes. Research indicates that strengthened educator-child interactions benefit children's social, emotional and cognitive functioning [94], however the success of Cheshire SEED in achieving this goal needs to be thoroughly evaluated.

Conclusion

This paper describes the development of the Cheshire SEED Educational Program using the IM methodology. IM was successfully utilised to translate an evidence-based

educational approach from an early primary school to early years setting. This was a comprehensive process that enabled a multi-disciplinary team to develop an intervention based on theory and evidence, with potential to be delivered at scale to early childhood educators. The findings suggest the IM protocol may offer a valuable roadmap for educators, educational researchers and early childhood professionals to design interventions that target educator behaviour and practice.

References

1.   Shonkoff, J.P. Phillips, D. *From neurons to neighborhoods : the science of early childhood development*; National Academy Press: Washington, D.C., 2000.

2.   Allen, L.; Kelly, B. *Transforming the workforce for children birth through age 8 : a unifying foundation*; The National Academies Press: Washington, D.C, 2015.

3.   Denham, S.A.; Brown, C. Plays Nice with Others': Social-Emotional Learning and Academic Success. *Early Education and Development* **2010**, *5*, 652-680.

4.   Denham, S.A.; Bassett, H.H.; Zinsser, K.; Wyatt, T.M. How preschoolers' social–emotional learning predicts their early school success: Developing theory-promoting, competency-based assessments. *Infant and Child Development* **2014**, *23*, 426-454.

5.   Bornstein, M.H.; Hahn, C.-S.; Haynes, O.M. Social competence, externalizing, and internalizing behavioral adjustment from early childhood through early adolescence: Developmental cascades. *Development and psychopathology* **2010**, *22*, 717-735.

6.   Bor, W.; McGee, T.R.; Fagan, A.A. Early risk factors for adolescent antisocial behaviour: An Australian longitudinal study. *Australian and New Zealand Journal of Psychiatry* **2004**, *38*, 365-372.

7.   Campbell, S.B. Maladjustment in Preschool Children: A Developmental Psychopathology Perspective. In Blackwell handbooks of developmental psychology*;* McCartney, K., Phillips, D., Eds.; Blackwell Publishing, 2006; pp 358–377.

8.   OECD. *Skills for Social Progress: the Power of Social and Emotional Skills*; Paris : OECD, 2015.

9.   Jones, D.E.; Greenberg, M.; Crowley, M. Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health* **2015**, *105*, 2283-2290.

10.   Briggs-Gowan, M.J.; Carter, A.S.; Skuban, E.M.; Horwitz, S.M. Prevalence of Social-Emotional and Behavioral Problems in a Community Sample of 1- and 2-Year-Old Children. *Journal of the American Academy of Child and Adolescent Psychiatry* **2001**, *40*, 811-819.

11.   Huaqing Qi, C.; Kaiser, A.P. Behavior Problems of Preschool Children From Low-Income Families: Review of the Literature. *Topics in Early Childhood Special Education* **2003**, *23*, 188-216.

12.   Bayer, J.K.; Ukoumunne, O.C.; Lucas, N.; Wake, M.; Scalzo, K.; Nicholson, J.M. Risk factors for childhood mental health symptoms: National Longitudinal Study of Australian Children. *Pediatrics* **2011**, *128*, e865-e879.

13.   Brauner, C.B.; Stephens, C.B. Estimating the prevalence of early childhood serious emotional/behavioral disorders: challenges and recommendations. *Public Health Reports* **2006**, 303-310.

14.   Goldfeld, S.; Kvalsvig, A.; Incledon, E.; O'Connor, M.; Mensah, F. Predictors of mental health competence in a population cohort of Australian children. *J Epidemiol Community Health* **2014**, *68*, 431-437.

15.   Lopez, A.D.; Mathers, C.D.; Ezzati, M.; Jamison, D.T.; Murray, C.J. Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. *The Lancet* **2006**, *367*, 1747-1757.

16.   O'Connor, T.G.; Heron, J.; Golding, J.; Beveridge, M.; Glover, V. Maternal antenatal anxiety and children's behavioural/emotional problems at 4 years. Report from the Avon Longitudinal Study of Parents and Children. *British Journal of Psychiatry* **2002**, *180*, 502-508.

17.   Luoma, I.; Tamminen, T.; Kaukonen, P.; Laippala, P.; Puura, K.; Salmelin, R.; Almqvist, F. Longitudinal study of maternal depressive symptoms and child well-

being. *Journal of the American Academy of Child & Adolescent Psychiatry* **2001**, *40*, 1367-1374.

18.   Kitzmann, K.M.; Gaylord, N.K.; Holt, A.R.; Kenny, E.D. Child witnesses to domestic violence: a meta-analytic review. *Journal of consulting and clinical psychology* **2003**, *71*, 339-352.

19.   Groh, A.M.; Fearon, R.P.; van IJzendoorn, M.H.; Bakermans-Kranenburg, M.J.; Roisman, G.I. Attachment in the early life course: Meta-analytic evidence for its role in socioemotional development. *Child Development Perspectives* **2017**, *11*, 70-76.

20.   Anthony, L.G.; Anthony, B.J.; Glanville, D.N.; Naiman, D.Q.; Waanders, C.; Shaffer, S. The relationships between parenting stress, parenting behaviour and preschoolers' social competence and behaviour problems in the classroom. *Infant and Child Development: An International Journal of Research and Practice* **2005**, *14*, 133-154.

21.   Repetti, R.L.; Taylor, S.E.; Seeman, T.E. Risky families: family social environments and the mental and physical health of offspring. *Psychological Bulletin* **2002**, 330-366.

22.   Lawrence, D.; Johnson, S.; Hafekost, J.; Boterhoven de Haan, K.; Sawyer, M.; Ainley, J.; Zubrick, S.R. The mental health of children and adolescents: Report on the second Australian child and adolescent survey of mental health and wellbeing. **2015**.

23.   National Scientific Council on the Developing Child. *The Science of Early Childhood Development: Closing the Gap Between What We Know and What We Do*; 2007.

24.   Camilli, G.; Vargas, S.; Ryan, S.; Barnett, W.S. Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record* **2010**, *112*, 579-620.

25. Oberklaid, F.; Baird, G.; Blair, M.; Melhuish, E.; Hall, D. Children's health and development: approaches to early identification and intervention. *Archives Of Disease In Childhood* **2013**, *98*, 1008-1011.

26. Yoshikawa, H.; Weiland, C.; Brooks-Gunn, J.; Burchinal, M.R.; Espinosa, L.M.; Gormley, W.T.; Ludwig, J.; Magnuson, K.A.; Phillips, D.; Zaslow, M.J. Investing in our future: The evidence base on preschool education. Society for Research in Child Development: 2013.

27. Barnett, W.S. Effectiveness of early educational intervention. *Science* **2011**, *333*, 975-978.

28. Gomajee, R.; El-Khoury, F.; Côté, S.; Van Der Waerden, J.; Pryor, L.; Melchior, M. Early childcare type predicts children's emotional and behavioural trajectories into middle childhood. Data from the EDEN mother–child cohort study. *J Epidemiol Community Health* **2018**, *72*, 1033-1043.

29. Duncan, G.J.; Sojourner, A.J. Can Intensive Early Childhood Intervention Programs Eliminate Income- Based Cognitive and Achievement Gaps? *Journal of Human Resources* **2013**, *48*, 945-968.

30. Loeb, S.; Fuller, B.; Kagan, S.L.; Carrol, B. Child Care in Poor Communities: Early Learning Effects of Type, Quality, and Stability. *Child Development* **2004**, *75*, 47-65.

31. Magnuson, K.A.; Meyers, M.K.; Ruhm, C.J.; Waldfogel, J. Inequality in Preschool Education and School Readiness. *American Educational Research Journal* **2004**.

32. Early, D.M.; Pan, Y.; Maxwell, K.L.; Ponder, B.B. Improving teacher-child interactions: A randomized control trial of Making the Most of Classroom Interactions and My Teaching Partner professional development models. *Early Childhood Research Quarterly* **2017**, *38*, 57-70.

33. Howes, C.; Burchinal, M.; Pianta, R.; Bryant, D.; Early, D.; Clifford, R.; Barbarin, O. Ready to Learn? Children's Pre-Academic Achievement in Pre-Kindergarten Programs. *Early Childhood Research Quarterly* **2008**, *23*, 27-50.

34. Mashburn, A.J. Quality of Social and Physical Environments in Preschools and Children's Development of Academic, Language, and Literacy Skills. *Applied Developmental Science* **2008**, *12*, 113-127.

35. Ponitz, C.C.; Rimm-Kaufman, S.E.; Grimm, K.J.; Curby, T.W. Kindergarten classroom quality, behavioral engagement, and reading achievement. *School Psychology Review* **2009**, *38*, 102-120.

36. Hamre, B.; Hatfield, B.; Pianta, R.; Jamil, F. Evidence for General and Domain-Specific Elements of Teacher-Child Interactions: Associations With Preschool Children's Development. *Child Development* **2014**, *85*, 1257-1274.

37. Justice, L.M.; Mashburn, A.J.; Hamre, B.K.; Pianta, R.C. Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly* **2008**, *23*, 51-68.

38. Hamre, B.K. Teachers' Daily Interactions With Children: An Essential Ingredient in Effective Early Childhood Programs. *Child Development Perspectives* **2014**, *8*, 223-230.

39. Pianta, R.C.; Barnett, W.S.; Burchinal, M.; Thornburg, K.R. The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest, Supplement* **2009**, *10*, 49-88.

40. Stuck, A.; Kammermeyer, G.; Roux, S. The reliability and structure of the Classroom Assessment Scoring System in German pre-schools. *European Early Childhood Education Research Journal* **2016**, *24*, 873-894.

41. Weissberg, R.P.; Durlak, J.A.; Domitrovich, C.E.; Gullotta, T.P. Social and emotional learning: Past, present, and future. In *Handbook of Social and Emotional Learning*, Durlak, J.A., Ed. The Guilford Press: New York, 2015.

42. Bierman, K.L.; Motamedi, M. SEL programs for preschool children. In *Handbook on social and emofional learning: Research and pracfice*, Durlak, J.A., Ed. The Guilford Press: New York, 2015.

43. Weissberg, R.P.; Goren, P.; Domitrovich, C.; Dusenbury, L. *CASEL guide effective social and emotional learning programs: Preschool and elementary school edition.* ; CASEL: Chicago, IL, 2013.

44. O'Connor, A.; Blewitt, C.; Nolan, A.; Skouteris, H. Using Intervention Mapping for child development and wellbeing programs in early childhood education and care settings. *Evaluation and program planning* **2018**, *68*, 57-63.

45. Bartholomew Eldrigde, L.K.; Markham, C.M.; Ruiter, R.A.C.; Fernàndez, M.E.; Kok, G.; Parcel, G.S. *Planning health promotion programs: An Intervention Mapping approach*, 4th ed.; Wiley: Hoboken, NJ, 2016.

46. O'Connor, A.; Skouteris, H.; Nolan, A.; Hooley, M.; Cann, W.; Williams-Smith, J. Applying Intervention Mapping to develop an early childhood educators' intervention promoting parent–child relationships. *Early Child Development and Care* **2019**, *189*, 1033-1050.

47. bestchance Child Family Care. The Cheshire School. Availabe online: https://www.bestchance.org.au/cheshire-school/ (accessed on 4 November 2019).

48. Australian Children's Education and Care Quality Authority. National Quality Standard. 2012.

49.   Australian Government Department of Education, Employment and Workplace Relations. Belonging, Being and Becoming: the Early Years Learning Framework for Australia. Commonwealth of Australia: Canberra, 2009.

50.   Shepley, C.; Grisham-Brown, J. Multi-tiered systems of support for preschool-aged children: A review and meta-analysis. *Early Childhood Research Quarterly* **2019**, *47*, 296-308.

51.   Greenberg, M.T.; Domitrovich, C.E.; Weissberg, R.P.; Durlak, J.A. Social and emotional learning as a public health approach to education. *The future of children* **2017**, 13-32.

52.   Macklem, G.L. Evidence-Based Tier 1, Tier 2, and Tier 3 Mental Health Interventions in Schools. In *Evidence-Based School Mental Health Services*, Springer: New York, 2011; pp. 19-37.

53.   Blewitt, C.; Fuller-Tyszkiewicz, M.; Nolan, A.; Bergmeier, H.; Vicary, D.; Huang, T.; McCabe, P.; McKay, T.; Skouteris, H. Social and Emotional Learning Associated With Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open* **2018**, *1*, e185727-e185727.

54.   Blewitt, C.; O'Connor, A.; Morris, H.; May, T.; Mousa, A.; Bergmeier, H.; Nolan, A.; Jackson, K.; Barrett, H.; Skouteris, H. A Systematic Review of Targeted Social and Emotional Learning Interventions in Early Childhood Education and Care Settings. *Early Child Development and Care* **2019.**

55.   Blewitt, C.; Morris, H.; Nolan, A.; Jackson, K.; Barrett, H.; Skouteris, H. Strengthening the quality of educator-child interactions in early childhood education and care settings: a conceptual model to improve mental health outcomes for preschoolers. *Early Child Development and Care* **2018**, 1-14.

56. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qualitative Research in Psychology* **2006**, *3*, 77-101.

57. Bronfenbrenner, U. *The ecology of human development*; Harvard University Press: 1979.

58. Dialogic Learning. Availabe online: https://dialogiclearning.com/ (accessed on 4 November 2019).

59. Egger, H.L.; Angold, A. Common Emotional and Behavioral Disorders in Preschool Children: Presentation, Nosology, and Epidemiology. *Journal of Child Psychology and Psychiatry* **2006**, *47*, 313-337.

60. Nolan, A.; Raban, B. Reflection on one's practice: research about theories espoused by practitioners-the grand and the personal. *Routledge international handbook of philosophies and theories of early childhood education and care* **2016**, 246-256.

61. Tournaki, N.; Podell, D.M. The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and Teacher Education* **2005**, *21*, 299-314.

62. McMullen, M.B. Characteristics of teachers who talk the DAP talk and walk the DAP walk. *Journal of Research in Childhood Education* **1999**, *13*, 216-230.

63. Fantuzzo, J.; Perlman, S.; Sproul, F.; Minney, A.; Perry, M.A.; Li, F. Making visible teacher reports of their teaching experiences: The early childhood teacher experiences scale. *Psychology in the Schools* **2012**, *49*, 194-205.

64. Goroshit, M.; Hen, M. Does Emotional Self-efficacy Predict Teachers' Self-efficacy and Empathy? *Journal of Education and Training Studies* **2014**, *2*, 26-32.

65. Gerde, H.K.; Pierce, S.J.; Lee, K.; Van Egeren, L.A. Early Childhood Educators' Self-Efficacy in Science, Math, and Literacy Instruction and Science Practice in the Classroom. *Early Education and Development* **2018**, *29*, 70-90.

66.   Vartuli, S. How early childhood teacher beliefs vary across grade level. *Early Childhood Research Quarterly* **1999**, *14*, 489-514.

67.   Jennings, P.A.; Greenberg, M.T. The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research* **2009**, *79*, 491-525.

68.   Zinsser, K.M.; Bailey, C.S.; Curby, T.W.; Denham, S.A.; Bassett, H.H. Exploring the predictable classroom: Preschool teacher stress, emotional supportiveness, and students' social-emotional behavior in private and Head Start classrooms. *NHSA Dialog* **2013**, *16*, 90-108.

69.   Blewitt, C.; O'Connor, A.; May, T.; Morris, H.; Mousa, A.; Bergmeier, H.; Jackson, K.; Barrett, H.; Skouteris, H. Strengthening the Social and Emotional Skills of Pre-schoolers with Mental Health and Developmental Challenges in Inclusive Early Childhood Education and Care Settings: A Narrative Review of Educator-Led Interventions. *Early Child Development and Care* **2019**.

70.   Hamre, B.K.; Pianta, R.C. Learning opportunities in preschool and early elementary classrooms. **2007**.

71.   Fox, L.; Dunlap, G.; Hemmeter, M.L.; Joseph, G.E.; Strain, P.S. The Teaching Pyramid: A Model for Supporting Social Competence and Preventing Challenging Behavior in Young Children. *Young Children* **2003**, *58*, 48-52.

72.   Hemmeter, M.L.; Ostrosky, M.; Fox, L. Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review* **2006**, *35*, 583-601.

73.   Watson, T.S.; Skinner, C.H. Functional behavioral assessment: Principles, procedures, and future directions. *School Psychology Review* **2001**, *30*, 156-172.

74.   Fishman, B.J.; Krajcik, J. What does it mean to create sustainable science curriculum innovations? A commentary. *Science Education* **2003**, *87*, 564-573.

75.   McCabe, P.C.; Altamura, M. Empirically Valid Strategies to Improve Social and Emotional Competence of Preschool Children. *Psychology in the Schools* **2011**, *48*, 513-540.

76.   McClelland, M.M.; Tominey, S.L.; Schmitt, S.A.; Duncan, R. SEL Interventions in Early Childhood. **2017**, *27*, 33-47.

77.   Schindler, H.S.; Kholoptseva, J.; Oh, S.S.; Shonkoff, J.P.; Yoshikawa, H.; Duncan, G.J.; Magnuson, K.A. Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology* **2015**, *53*, 243-263.

78.   Werner, C.D.; Linting, M.; Vermeer, H.J.; Ijzendoorn, M.H. Do intervention programs in child care promote the quality of caregiver-child interactions? A meta-analysis of randomized controlled trials. *Prevention Science* **2016**, *17*, 259-273.

79.   Cartmel, J.; Macfarlane, K.; Nolan, A. Looking to the future: Producing transdisciplinary professionals for leadership in early childhood settings. *Early years* **2013**, *33*, 398-412.

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

81.   Sumsion, J.; Barnes, S.; Cheeseman, S.; Harrison, L.; Kennedy, A.; Stonehouse, A. Insider perspectives on developing belonging, being & becoming: The early years learning framework for Australia. *Australasian Journal of Early Childhood* **2009**, *34*, 4-13.

82.   Tayler, C. Changing policy, changing culture: Steps toward early learning quality improvement in Australia. *International Journal of Early Childhood* **2011**, *43*, 211-225.

83.   Blewitt, C.; Fuller-Tyszkiewicz, M.; Nolan, A.; Bergmeier, H.; Vicary, D.; Huang, T.; McCabe, P.; McKay, T.; Skouteris, H. Social and Emotional Learning Associated With Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open* **2018**, *1*, e185727-e185727.

84.   Beijaard, D.; Korthagen, F.; Verloop, N. Understanding how teachers learn as a prerequisite for promoting teacher learning. Taylor & Francis: 2007.

85.   Loughran, J.; Mitchell, I.; Mitchell, J. Attempting to document teachers' professional knowledge. *International Journal of Qualitative Studies in Education* **2003**, *16*, 853-873.

86.   O'Connor, A.; Nolan, A.; Bergmeier, H.; Williams-Smith, J.; Skouteris, H. Early childhood educators' perceptions of parent-child relationships: A qualitative study. *Australasian Journal of Early Childhood* **2018**, 4-15.

87.   Majid, U.; Kim, C.; Cako, A.; Gagliardi, A.R. Engaging stakeholders in the co-development of programs or interventions using Intervention Mapping: A scoping review. *PloS one* **2018**, *13*, e0209826.

88.   Penuel, W.R.; Allen, A.-R.; Coburn, C.E.; Farrell, C. Conceptualizing research–practice partnerships as joint work at boundaries. *Journal of Education for Students Placed at Risk (JESPAR)* **2015**, *20*, 182-197.

89.   Bryk, A.S.; Gomez, L.M.; Grunow, A.; LeMahieu, P.G. *Learning to improve: How America's schools can get better at getting better*; Harvard Education Press: 2015.

90. Coburn, C.E.; Penuel, W.R. Research–practice partnerships in education: Outcomes, dynamics, and open questions. *Educational Researcher* **2016**, *45*, 48-54.

91. Könings, K.D.; Seidel, T.; van Merriënboer, J.J. Participatory design of learning environments: integrating perspectives of students, teachers, and designers. *Instructional Science* **2014**, *42*, 1-9.

92. Penuel, W.R.; Fishman, B.J.; Haugan Cheng, B.; Sabelli, N. Organizing research and development at the intersection of learning, implementation, and design. *Educational researcher* **2011**, *40*, 331-337.

93. O'Connor, A.; Nolan, A.; Bergmeier, H.; Hooley, M.; Olsson, C.; Cann, W.; Williams-Smith, J.; Skouteris, H. Early childhood education and care educators supporting parent-child relationships: a systematic literature review. *Early years* **2017**, *37*, 400-422.

94. Downer, J.; Sabol, T.J.; Hamre, B. Teacher-child interactions in the classroom: Toward a theory of withinand cross-domain links to children's developmental outcomes. *Early Education and Development* **2010**, *21*, 6999-6723.

6.3 The Cheshire SEED Educational Program

As described in Section 6.2, the Cheshire SEED Educational Program includes a series of online modules providing tailored information and strategies to support educators to foster children's social and emotional skills. The program has been delivered to Victorian kindergartens through the Victorian Government's School Readiness Funding Initiative. Creation of the content and materials in Cheshire SEED (IM Step 4) resulted from the collaboration, expertise, skills, and time of members of the intervention design group and others. A brief summary of my role in the development phase is provided below, in addition to a summary of the content within each module and example materials.

6.3.1 PhD Student's Role in the Production of the Cheshire SEED Program

Development of the content and materials in Cheshire SEED relied on the skills and expertise of staff from both bestchance and Monash University. As described in Section 6.2, strategies were identified, mapped, and discussed during workshops with teaching and psychology staff from The Cheshire School. I coordinated this mapping process and was responsible for preparing first drafts of program content, based on the expertise shared by Cheshire staff during and after the workshops, learning from the needs assessment, in particular the reviews of SEL programs and qualitative research with educators, and relevant literature and research evidence.

I created an initial prototype version of the program using Wix, a freely available platform to design and develop websites. This was used in pre-testing as outlined in Chapter Seven and informed the design and functionality of the current version of Cheshire SEED. The creation of the portal was led by a Research Fellow and Software Engineer from Monash University (Dr Grace Xie).

All written materials were reviewed, edited and revised as needed by the School Psychologist/Play Therapist at The Cheshire School who also had extensive experience in adult training and professional development. This staff member drafted additional content, particularly relating to sensory processing, empathic reflections, and limit setting, and also strengthened other sections where needed. Content and materials were then reviewed and edited as needed by the Supervising Psychologist/ Senior Manager at bestchance. At this point, members of the intervention design group and a small group of teachers and educational advisors from bestchance tested the functionality and usability of the portal (please note, this was separate to the trial described in Chapter Eight). All feedback was collated and improvements to the program made as required. I also completed the following, with input and guidance from the Cheshire team and intervention design group: photographs, filming and editing videos, step-by-step guides, parent handouts, and functionality of the checklists and tailored plans (described in Section 6.3.2). The downloadable resources in Module 3 (e.g., choice boards, visual timetables, cue cards) were prepared by a Speech Pathologist and Psychologist from bestchance's Early Childhood Intervention team.

6.3.2 Cheshire SEED Modules and Lessons

The Cheshire SEED Program consists of a series of modules, each containing lessons that are designed to be worked through sequentially. Cheshire SEED can be accessed via desktop, tablet and smart phone, and utilised to focus on expanding general knowledge for the benefit of all children in the room, or to plan an individualised, supportive intervention for a particular child with challenging behaviour. It recognises the unique skill and expertise that educators bring to their role, offering practical techniques that can be embedded into daily practices to maximise the impact of everyday interactions.

Accessing Cheshire SEED

Each educator/individual has their own login to access the program. All information entered into the portal is saved and available when the user next logs in. Educators are asked to work through the modules sequentially, moving between modules and lessons using a navigation bar. The tool also provides a 'status bar' so educators are aware how far through the program they are at any point. The home screen is shown in Figure 6.1. It is suggested educators allow 30 minutes to work through Module 1, and one to two hours for the other modules, with additional time needed to apply the strategies and review learning. Behaviour change theories that informed the content and learning materials are summarised in Section 6.2 of this chapter. Below we provide brief examples of how the Cheshire SEED modules and lessons were informed by these theoretical perspectives.

Module 1

The first module (Program Foundations) provides an introduction to the Cheshire SEED Program, its foundations at The Cheshire School, the key concepts that underpin the strategies, and advice on how to work through the modules. Each strategy in SEED includes a short video by either the School Psychologist/Play Therapist or Principal/Senior Educator from The Cheshire School (described as the Cheshire coaches). In Module 1, the Cheshire coaches introduce themselves and their experience in supporting young children's social and emotional development. Each module begins with an overview and learning outcomes that define the intended learning for the module (Figure 6.2).

Module 2

The design of Module 2 (My Priorities) was informed by the Trans Theoretical Model (TTM), and aimed to increase educators' awareness of information and ideas that may support behaviour change (Prochaska et al., 2002). The TTM Model suggests individuals move through stages of change, and their receptivity to information is dependent on the stage of change they are in. It was assumed educators will have some intention to engage in the targeted activity (i.e., to use strategies during their interactions), and the module therefore provides information to reiterate the importance of supporting children's social and emotional development. Module 2 begins with lessons focusing on early social and emotional skills, the form (types) of challenging behaviours educators might observe, a brief overview of the functions of behaviour, and risk and protective factors for healthy social-emotional development.

Modules 3 and 4 include strategies that educators can use within their classroom environment and everyday interactions. To encourage educators to use the strategies, Module 2 provides personalised and tailored information through two checklists. The first asks educators about their physical space, and the furniture, materials and resources in their room (Figure 6.3). In the second, educators define their goals for the program, any challenging behaviours they have observed in their room, when the behaviour is occurring, their reflections on the possible function(s) (reason) for the behaviour, and strategies they have already tried. Based on the information provided, a individualised plan is suggested that links to Module 3 (My Environment) and Module 4 (My Strategies). An example of the checklists and tailored plans are shown in Figures 6.3 and 6.4.

Module 3

The design and content within Modules 3 and 4 draw on both Social Cognitive Theory (SCT) and theories of learning. SCT posits that behaviour is influenced by outcome expectations, self-efficacy, behavioural capability, and observed behaviour of others and the environment. Observing others modelling or discussing the desired behaviour can encourage behaviour change (Bartholomew Eldredge et al., 2016). Modules 3 and 4, therefore, focus on building capability and awareness through explanations, examples, videos, and case studies, with experienced and relatable role models (i.e., teachers, play therapist).

Research shows educators form assumptions about how young children grow and learn, and what effective learning and teaching looks like from theories studied during pre-service training, and professional development and other learning opportunities, that resonate with their own experience, thinking and understanding (Nolan & Raban, 2015). As such, the program encourages users to set their own priorities and goals. This aims to motivate educators to engage in learning, and integrate the new information and knowledge with their existing skill and understanding.

Educators are directed through Module 3 (My Environment) before moving to the interactional strategies in Module 4. This is intentional and based on the premise that strategies in Module 4 are more likely to be beneficial for children if the routines, space, furniture, toys and tools are set up to support success. Module 3 therefore focuses on ways to structure the preschool room environment for maximum social and emotional learning, and to benefit children experiencing specific behavioural or emotional challenges. It pays particular attention to sensory processing needs. Strategies relate to the physical environment (Calming Corner, Active Space, Sensory Furniture, Flexible Play and Learning Spaces), Routine and Cues (Visual Timetables,

Smooth Transitions) and Communication and Relationships (Feelings Thermometer, Visual Cards, Sensory Toys and Tools, Expressive Toys, Positive Reward System). Each strategy in Module 3 has its own page, including a description of why the strategy is recommended and how it can benefit children, when to use it, tips for applying the strategy effectively, examples, downloadable resources, and a video explanation from the Cheshire Coaches. An example Module 3 strategy is shown in Figure 6.5

Module 4

Module 4 (My Strategies) focuses on building educators' knowledge in techniques that foster children's self-esteem, resilience and self-regulation, and positive educator-child relationships. It suggests a model that educates can use when trying the techniques (Figure 6.6). Twenty-five unique strategies are included in the module (Figure 6.7), tailored to the types of challenging behaviour educators often observe: aggression, anxiety, oppositional behaviours, hyperactivity or impulsivity and emotional reactivity, in addition to universal strategies that benefit all children. Each strategy includes information about why and when the strategy would be used, a video from the Cheshire coaches, step-by-step guide, examples of language and phrases where relevant, and additional resources. Many strategies also include a downloadable information sheet for caregivers (Figure 6.8). The module also includes two case studies (Figure 6.9), with educators asked to reflect on how they would respond to a specific scenario describing a child displaying challenging behaviour. The program then shows how the Cheshire team would respond, with links to strategies in Modules 3 and 4.

Figure 6.1. Cheshire SEED Home Screen.

Figure 6.2. Learning Outcomes in Module 1.

2.4 Tailor My Plan for the Room

To help us identify the most relevant strategies for your setting, please tell us a little more about your room. We would love to hear about what you're already doing in your rooms.

Your Environment

1. Do you have a calming corner? (This is a quiet space in your room where children can go to calm down. It might include a tent, partition, cushions, blanket or sensory toys.)
Yes

2. Do children use the calming corner to calm down?
Yes

3. Do you have an active space? (This is a dedicated area where children can safely release energy. It might include equipment to help children do this such as a mini-trapoline, mat or foam equipment.)
No

4. Do you have a range of different play and learning spaces throughout your room?
Yes

5. Do you have a range of sensory furniture options within your room (for e.g., sensory cushions, wobble chairs, bean bags or therapy swing)?
No

6. Do you have a range of sensory toys and tools available (for e.g. textured and stretchy toys, fidget toys or weighted toys)?
No

7. What type of expressive toys do you have available in the room? (These are toys that encourage children to express themselves. Examples include family toys, house furniture, scary toys such as sharks or snakes, dress-ups, masks, and toys that encourage creativity)
Dolls and doll houses, dress-ups, and animal toys

8. Do you use a visual timetable?
Yes

9. If you do use a visual timetable, do you refer to it with your group everyday?
No or N/A

10. Do you use any of the following? Please select all that apply.
- Cues before transitions (e.g. musical transitions)

100%

Your Room Environment

Based on what you told us about your room environment, the following strategies might be especially relevant:

My Environment

The Active Space	Sensory Furniture
Sensory Toys and Tools	Expressive Toys
Feelings Thermometer	Visual Cards
Positive Reward System	

Be sure to have a look through the other strategies in Module 3. You might already be using some (or most) of these techniques in your room, however this module will offer tips to maximise the benefit of these strategies with individual children as well as the broader group.

Figure 6.3. Creating a Tailored Plan for the Room Environment.

265

2.5 Tailor My Plan for Children

Question 1

Think about the strengths and challenges of the children in your group, as well as anything you would like to learn more about. Briefly describe your goals for this program (e.g. you might be interested in strategies that benefit all children, and strategies to support a child who has been showing aggressive behaviours during play time).

Describe your goals

To help children develop their social and emotional skills that allow them to play and interact with their peers and the early learning program

Question 2:

Based on your response to **Question 1**, please describe your priorities by completing the fields below. We suggest you identify between one and three priorities. For e.g., priority 1 might be universal strategies for all children in your room, and priority 2 might be strategies for a specific child who is behaving aggressively.

Max

1. Please provide a name for this priority (e.g. Priority #1)
Max

2. Please describe the behaviours observed
Becomes aggressive during play, can take materials and toys from other children, sometimes hits and kicks

3. Please select the category that most closely matches the behaviour
Aggressive

4. Please select the time of day the behaviour is usually observed
During child-led play

5. What do you think is the reason (function) of the behaviour?
Possibly attention from the other children

What strategies have you tried? Please let us know if these were successful or unsuccessful.
Role-played how to join into play, discussed that kicking will hurt the other person, calming space when needed

What is your goal?
For this child to enjoy play and interactions with his peers

100%

Based on what you told us about the strengths and challenges of children in your group, the following strategies might be especially relevant:

Max

During child-led play

Aggressive Behaviours

Planning for Success	Empathic Reflections
Limits with Empathy	Can Do
The Special Helper	No Taboo Feelings

+ CREATE ANOTHER PRIORITY

Figure 6.4. Creating a Tailored Plan for Children in the Room.

266

Sensory Toys and Tools

Sensory Toys and Tools

In addition to encouraging creative play and learning, the selection of toys in your room can support children's sensory needs and encourage expression and understanding of feelings and emotions.

Description

Some children find it difficult to process sensory information such as touch, taste or sound. For these children, sensory toys can be both fun and helpful, providing visual and tactile input that assists in calming the sensory system, allowing children to manage anxiety, self-regulate and concentrate. There are many options available for different sensory preferences, including; hand fidget toys; stress balls; textured, stretchy, squishy and spikey toys; chew toys and necklaces; weighted animals; and noise reducing earphones.

When to Use

Use with children who find it difficult to manage sensory information in the preschool room. Children may find activities, transitions or sensations over-stimulating (appearing irritable, angry or overwhelmed, refusing to participate or attempting to move away from the activity). Conversely, some children may find such sensory input under-stimulating, appearing quiet and lacking energy, or alternatively, attempting to self-regulate by seeking greater stimulation by engaging in highly physical play, making loud noises or other ways of creating bigger, more stimulating sensory input. Some children find it difficult to integrate sensory information (e.g. taking in information that they need to listen to and see at the same time). Sensory tools and toys can offer stimulation in a way that minimises distraction and helps children to concentrate and focus on the task at hand.

Tips

> - Children will benefit from sensory toys and tools at different times throughout the day.
> - Recognise when a child is likely to need sensory input (e.g. mat time, group time, transition) and ensure the toy or tool is provided before the activity begins.

Watch This Video to Learn More About Sensory Toys and Tools at the Cheshire School

Learn More About Sensory Toys and Tools at the Cheshire School

Examples

Selection of Sensory Toys

Please let us know what you think

Was this helpful?

Figure 6.5. Example Strategy in Module 3.

Figure 6.6. The Model that Underpins Module 4 Strategies.

Cheshire SEED

4.2 The SEED Rubrics

1. Program Foundation
Learn about the SEED program, its fou...

2. My Priorities
Identify the strengths and challenges f...

2.0 Overview and Learning Outcomes

2.1 Social and Emotional
Development from Birth to Five

2.2 Form and Function of Behaviour

2.3 Factors that Influence Children's
Development and Behaviour

2.4 Tailor My Plan for the Room

2.5 Tailor My Plan for Children

2.6 Have Your Say
100%

3. My Environment
Learn about ways to structure your roo...

4. My Strategies
Build your knowledge in therapeutic an...

4.0 Overview and Learning Outcomes

4.1 The Three R's

4.2 The SEED Rubrics

4.2 The SEED Rubrics

The SEED Rubrics offer 16 strategies that educators can use throughout the day. In Module 2, you identified your priorities based on the strengths and challenges for children in your group. We have suggested strategies for you in My Plan. Click on the links below to learn more about the strategies that are most relevant for your setting.

Strategies are sorted by time of day (arrivals, transitions, child-led play, educator-led activities) and type of behaviour (universal strategies, anxious, aggression, oppositional, hyperactive/impulsive and emotionally reactive).

Arrivals

All Children
| The Learning Walk | Warm Welcome |

Anxious Behaviours
| The Learning Walk | Warm Welcome |
| Good Start to the Day | Good Goodbye |

Aggressive Behaviours
| The Learning Walk | Warm Welcome |
| Good Start to the Day | |

Oppositional Behaviours
| The Learning Walk | Warm Welcome |
| Good Start to the Day | |

Hyperactive/Impulsive Behaviours
| The Learning Walk | Warm Welcome |
| Good Start to the Day | |

Emotionally Reactive
| The Learning Walk | Warm Welcome |
| Good Start to the Day | Good Goodbye |

Transitions

All Children
| Soothing Sessions | Can Do |

Anxious Behaviours
| Soothing Sessions | Planning for Success |

Aggressive Behaviours
| Soothing Sessions | Planning for Success |
| Can Do | |

Oppositional Behaviours
| Soothing Sessions | Planning for Success |
| Fixed Choices | Can Do |

Hyperactive/Impulsive Behaviours
| Soothing Sessions | Planning for Success |
| Fixed Choices | Can Do |

Emotionally Reactive
| Soothing Sessions | Planning for Success |
| Can Do | |

Child-led play

All Children
| Empathic Reflections | Limits with Empathy |
| Can Do | |

Anxious Behaviours
| Planning for Success | Empathic Reflections |
| Limits with Empathy | |

Aggressive Behaviours
Planning for Success	Empathic Reflections
Limits with Empathy	Can Do
The Special Helper	No Taboo Feelings

Oppositional Behaviours
Planning for Success	Fixed Choices
Empathic Reflections	Limits with Empathy
Can Do	The Special Helper
No Taboo Feelings	

Hyperactive/Impulsive Behaviours
Planning for Success	Fixed Choices
Empathic Reflections	Limits with Empathy
Can Do	

Emotionally Reactive
| Planning for Success | Empathic Reflections |
| Limits with Empathy | Can Do |

Educator-led Activities

All Children
Empathic Reflections	Limits with Empathy
Can Do	Think on Your Feet
Happy Dolphins	No Taboo Feelings

Anxious Behaviours
Planning for Success	Empathic Reflections
Limits with Empathy	Helping Children Persist
Think on Your Feet	Happy Dolphins
Quick Success	

Aggressive Behaviours
Planning for Success	Empathic Reflections
Limits with Empathy	Helping Children Persist
Can Do	Think on Your Feet
Happy Dolphins	Quick Success
The Special Helper	No Taboo Feelings

Oppositional Behaviours
Planning for Success	Fixed Choices
Empathic Reflections	Limits with Empathy
Helping Children Persist	Can Do
Think on Your Feet	Happy Dolphins
Quick Success	The Special Helper
No Taboo Feelings	

Hyperactive/Impulsive Behaviours
Planning for Success	Fixed Choices
Empathic Reflections	Limits with Empathy
Helping Children Persist	Can Do
Think on Your Feet	Happy Dolphins
Quick Success	

Emotionally Reactive
Planning for Success	Empathic Reflections
Limits with Empathy	Helping Children Persist
Can Do	Think on Your Feet
Happy Dolphins	Quick Success

Figure 6.7. Strategies in Module 4.

4.4 Case Study #2

Scenario

Rosie is in your 3-year old group. She is finding it difficult to follow requests and instructions, and regularly loses her temper when asked to transition from an activity, or to do something she doesn't want to do. Rosie will often refuse, becoming upset, frustrated and sometimes aggressive towards educators and furniture. She seems to go from 0 to 10 very quickly. This behaviour makes transitions stressful, and can scare some children in her group.

How would you respond to this scenario?

Your response

SUBMIT

How Would the Cheshire Team Respond?

Our Overall Plan

- The focus for this child would be twofold: helping them feel safe and connected with staff (building relationships), and helping the child get a quick experience of success (building their confidence in their ability to do the non-preferred tasks). This can be achieved by providing very short, achievable goals, followed by a reward of a preferred task.

- We would also use specific language with the child and their family, around being safe, safe behaviour, making good choices, opting in, and bouncing back.

- Eventually the child will understand this language, which helps them understand the consequences of their choices.

- Finally, we have (as always!) a plan for when the child becomes elevated. We seek to understand the earliest signs of elevation, and provide a visual aid of choices for safe spaces to go for calming down. In this way, we hope to 'get in early' and help the child learn self-control by encouraging them to choose a safe, calming space before they start becoming aggressive with furniture and educators.

Step-by-Step

1. Help the child feel safe from the moment they arrive by offering a _Warm Welcome_.

2. Help the child to settle in (possibly using _Good Start to the Day_) and monitor their emotional state. If they are already unsettled, use a _Visual Card_ immediately and encourage them to choose a safe space or calming activity (e.g. the _Calming Corner_).

3. Many children will benefit from _sensory toys_ (e.g. squishy or weighted toys) to help them to self-soothe. Ensure the child has access to these as needed.

4. Go through the day's routine with the child using a _Visual Timetable_. You may need to repeat this throughout the day.

5. Set the child up for success. If they can only manage one minute of a non-preferred activity, clearly state your expectation that they complete one minute, and what the reward will be after completion. For example, one minute of non-preferred activity followed by five minutes of a preferred activity. It is critical that you continue to encourage and persist with this expectation, in a calm and empathic tone. This demonstrates that you understand the child's challenge, and are not judging them. See _Empathic Reflections_ for more on this.

6. If the child completes the activity, give them lots of (low key) praise and encouragement. For example, 'well done, you kept going, now you can do five minutes of outside play'. _Planning for Success_ and _Quick Success_ might be helpful here.

7. If the child becomes elevated and is likely headed towards aggression, encourage them to choose a safe space to go to. You might use a _Visual Card_ or _Visual Timetable_ (e.g. a laminated A4 sheet with pictures of 2-4 options) to offer children options where they are away from other children (for safety), such as a _Calming Corner_ or _Active Space_.

8. Again, a calm and empathic tone is important here. When the child is calmer, you can repeat the message that when they do 'X' then they get to do 'Y'. Do not engage in discussion other than to repeat this message, and perhaps the occasional reminder of the things that the child can do to feel better or calm down. Engaging in responses to any angry remarks will only give negative attention and ensure that the behaviour is repeated, especially if the child's currency is attention.

9. If they do not end up succeeding, you can assure them that 'tomorrow is another day, you can try again'. If they eventually do the activity, again give lots of positive encouragement.

10. Over time, as the child manages better, increase the expectation for time 'on task', decrease the time spent on the reward task.

Figure 6.8. Case Study in Module 4.

270

Limits with Empathy: Setting Behavioural Limits while Protecting Children's Self-Esteem

The Cheshire SEED Educational Program supports early childhood educators as they nurture children's social and emotional skills in the preschool environment. The program includes tailored and practical strategies that educators can use throughout the day to support children's self-esteem, resilience and self-regulation. Below we provide some information on one of these strategies, 'Limits with Empathy'.

STRATEGY SNAPSHOT

- There are common strategies used by educators and caregivers when a child is upset. These include problem solving ("why don't you come back and try it again"), questioning ("tell me what is wrong?"), praise ("I think you can do it!"), or responding to the reason the child is upset ("that looks like it is very hard").

- When a child is upset, these (often well-meaning) techniques can distract or prevent the child from tuning into themselves, calming down and focusing on what needs to occur. In some instances, this might make the child even angrier.

- For limit setting to be therapeutic, it is important for the educator to stay calm and in control of their own emotions. This provides a role model for children.

- When the initial response to the child is empathic (e.g. "I can tell that you are feeling very angry"), the child is supported to label their emotions and feelings, building emotional intelligence. This also increases the likelihood that the child will talk with you honestly and comply with the limit because they feel understood.

- Next, setting a limit that is impersonal (e.g. "one thing we cannot do is…") protects children's self-esteem and avoids feelings of shame. The wording is important because it implies (correctly) that we are all in this together – we all have limits and boundaries that we must adhere to, even when we don't want to.

- Finally, offering the child a choice (e.g. "we can throw the ball outside, or play with the puzzles inside") helps to redirect the child's focus from resistance/acting out to thinking about their preferred choice. Offering choices in this way minimises power struggles by giving some control to the child.

> You want to eat that now, but first lunch then treats. You can choose to keep it in your lunchbox or with me. Which do you choose?

> You're feeling really angry. But one thing we can't do is kick. You can choose to stay here with me, or go outside. Which do you choose?

> Max, you're really sad you can't play with that. But I'm not for hitting. You can choose to hit the pillow, or you can choose to play outside. What do you choose?

STEP-BY-STEP

Here are the steps educators use in Limits with Empathy.

1. Start with empathy	2. Set a limit that is short, calm and impersonal	3. Offering an alternative/choice can help the child to get 'unstuck'
Tune into the wish or feeling to help the child label what they are feeling. This process builds emotional intelligence.	This helps the child to build self-control without shame.	The language of choice helps the child to connect their behaviour to the outcomes.

Figure 6.9. Example of Information Sheet for Caregivers.

6.4 Chapter References

Bartholomew Eldredge, L. K., Markham, C. M., Ruiter, R. A. C., Fernandez, M. E., Kok, G., & Parcel, G. S. (2016). *Planning health promotion programs: An Intervention Mapping approach* (4th ed.). San Francisco, CA: Jossey-Bass.

Nolan, A., & Raban, B. (2015). *Theories into practice: understanding and rethinking our work with young children and the EYLF*: Teaching Solutions.

Prochaska, J. O., Redding. C, A, & Evers, K. (1997), The transtheoretical model of change. In K. Glanz, E. M, Lewis & B. K. Rimer (Eds), *Health behewior and health education: Theory, research, and practice* (pp. 60-84), San Erancisco: Jossey-Bass.

CHAPTER SEVEN

Pre-Testing the Cheshire SEED Educational Program with Early Childhood Educators

7.1 Introduction

An important task in Step 4 of the IM protocol is pre-testing and pilot testing the intervention with intended participants prior to implementation (Bartholomew Eldredge et al., 2016). This is vital to determine whether the design process has led to the creation of appealing, understandable materials, and whether the program can be implemented as intended. Pre-testing refers to trialling specific messages and other characteristics of the program with stakeholders prior to producing the final materials. Reflecting the iterative program planning approach, the intervention is refined based on the feedback gathered through this process.

A recent scoping review of 61 studies that explored how IM had been applied to design health care innovations found only 55.7% included pre- or pilot testing prior to implementation (Majid, Kim, Cako, & Gagliardi, 2018). Further, many studies did not appear to engage stakeholders; 28.3% did not mention engagement in any of the IM steps and of those that did, less than half (48.8%) described *how* they were engaged. The authors suggested programs may be suboptimal as they were not adequately informed by the needs of end-users.

The previous chapters of this thesis described how the intended users of the Cheshire SEED Educational Program (i.e., ECEC professionals) were involved in the intervention planning process, including qualitative research to explore their perceptions of the enablers and barriers to supporting children's social and emotional development, developing program goals and objectives, design and review of program components, creation and tailoring of program materials for the intended audiences, and implementation planning.

273

Bartholomew Eldredge et al. (2016) emphasise the importance of receiving and integrating new feedback by testing the program with implementers beyond those involved in the design process. Chapters Seven and Eight of this thesis describe how early childhood educators were engaged in IM Step 4 to trial and refine program content and format. The current chapter outlines how a preliminary version of the program was pre-tested with early childhood educators to explore its relevance, the suitability of the strategies offered within the program, and the delivery formats. As shown in Figure 7.1, the feedback collected by educators informed the final version of the program, which was evaluated through a feasibility study outlined in Chapter 8.
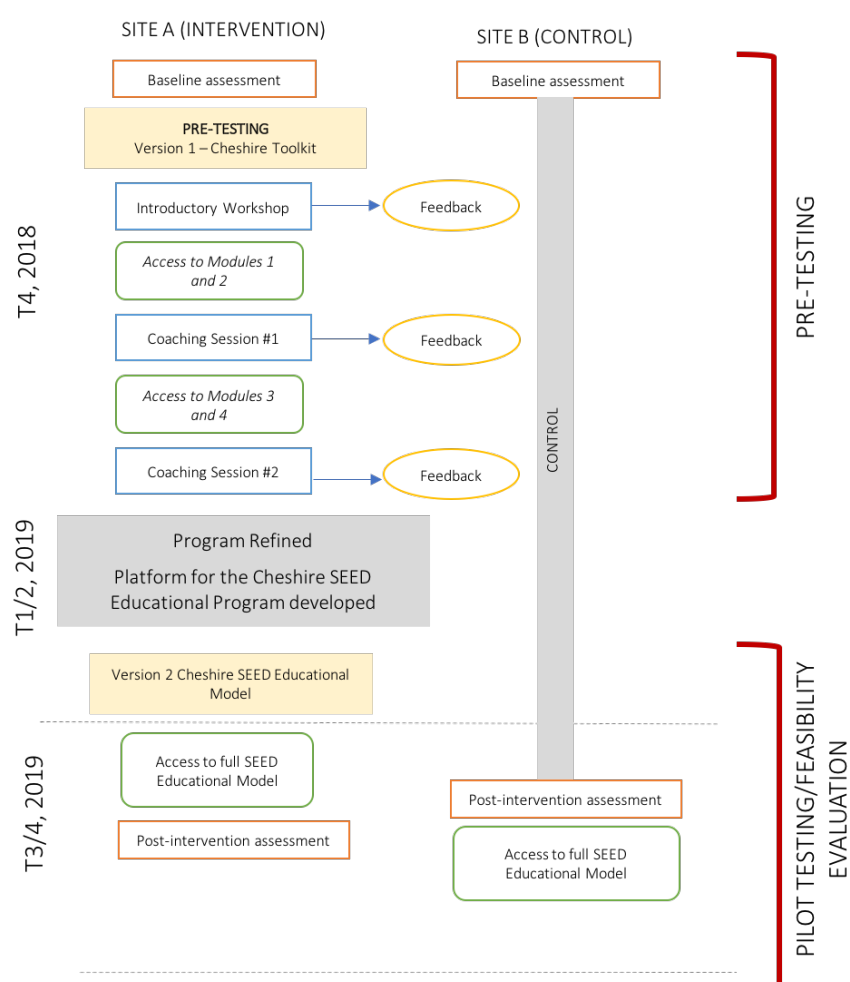

Figure 7.1. Pre-Testing (described in Chapter Seven) and Pilot Testing (described in Chapter Eight) of the Cheshire SEED Program.

7.2 Methods

During the pre-testing phase, early childhood educators participated in an introductory workshop and two consultation sessions and were given access to a preliminary version of the Cheshire SEED program, providing feedback after each activity.

Introductory Workshop

A group including early childhood educators (from kindergarten and long day care services) and pedagogical advisors recruited from across bestchance ($n = 11$) participated in a 3.5-hour workshop that was prepared by the School Psychologist/Play Therapist and Senior Teacher from The Cheshire School. The session was facilitated by the Senior Teacher, who had experience working in a kindergarten setting with preschool-aged children. During the workshop, participants were introduced to the concept of the Cheshire SEED Educational Program. They were asked to reflect individually and then with their peers on the personal opportunities and challenges in their role, and the strengths and challenges for children within their groups. The session introduced strategies from the Cheshire SEED intervention, including universal techniques for a 'typical day', strategies for working with children with challenging behaviour, and two case studies selected by participants: supporting a child who is aggressive during play and a child who is having difficulty engaging in a group activity.

Consultation Sessions

Following the Introductory Workshop, five kindergarten educators from one service (this group is described further in Chapter Eight) were given access to a preliminary version of Cheshire SEED through a password-protected website. The preliminary version included four modules, however only Modules 1 (Program Foundations) and 2 (My Priorities) could be accessed prior to the consultation sessions. The list of modules and lessons in the

preliminary version are provided in Appendix D. The kindergarten educators were invited to complete Modules 1 and 2, including an Educator Reflection where they could add their goals for the program and identify between 1 and 3 learning priorities with regards to children's social, emotional, or behavioural skills. Educators entered the following for each priority: description of the behaviour, when they observe the behaviour, perceived reason (function) of the behaviour, what strategies they had tried, and their goal for the child(ren). Examples were provided to assist educators to complete this form (Appendix D).

The kindergarten educators then participated in two consultation sessions, one with each of the School Psychologist/Play Therapist and Senior Teacher (referred to as the Cheshire coaches). The data that educators had provided with regards to their priority areas were reviewed by the Cheshire coaches prior to the session. The aim of the consultation was to assist educators to identify and implement the strategies most suitable for their setting. During the first session, the coaches observed all educators in the room for 1 to 2 hours. Educators then took part in an individual 45-minute consultation with one coach. Following the one-on-one session, the coach spent 1 to 2 hours in the room working with educators to explain and explore strategies in practice.

Following the first consultation session, educators were given access to a preliminary version of Module 3 (My Environment) and Module 4 (My Strategies). While educators were encouraged to review all content, they were also sent, via email, a list of the five strategies that the coaches believed were particularly relevant for their service based on observations and discussion during the first consultation session. The second consultation occurred within four weeks and involved an individual 45-minute discussion. In several instances, coaches brought prepared materials to the second session (e.g., timetables, language examples). The coaches recorded notes and reflections following each session.

7.3 Measures

Educators were asked to provide feedback immediately following the Introductory Workshop using a short anonymous form. Five questions were provided on a five-point Likert scale to explore educators' overall perceptions of the workshop. Questions included 'Overall, was the workshop helpful for you?', 'Have you left today with new or additional knowledge?', 'Was the information relevant for your role?', 'Did you find the speakers engaging?' and 'Was the information clear and concise?'. Responses included 1 (definitely does not apply), 2 (does not really apply), 3 (neutral, not sure), 4 (somewhat applies) and 5 (definitely applies). Educators were also invited to add written responses to the following two questions: 'What did you find most helpful about today's workshop?' and 'What could we improve for next time?'.

The kindergarten educators also provided feedback following both consultation sessions using an anonymous feedback form. The first (completed after session 1) included four items answered on a 5-point Likert scale including 1 (definitely does not apply), 2 (does not really apply), 3 (neutral, not sure), 4 (somewhat applies) and 5 (definitely applies). Questions included 'Overall, was today's session helpful for you?', 'Did you discuss approaches or strategies that you have not tried before?', 'Did you find the one-on-one format helpful?' and 'Did you find the in-room coaching valuable?'. The form allowed educators to explain their rating in text, and to describe what they found most helpful about the session, and what could be improved. The feedback form completed after session 2 included two questions answered on the 5-point Likert scale: 'Overall was the session helpful for you?' and 'Do you feel you have taken anything from today's session that you can try with your group?' (both followed by space to explain in text). Educators were again asked what they found most helpful and what could be improved.

7.4 Results

Introductory Workshop

Feedback was collected from 11 workshop participants. On average, participants reported the workshop was somewhat helpful (M = 4.10, SD = 0.83, range = 2 - 5), that they gained new knowledge (M = 4.09, SD = 0.94, range = 2 - 5), and the content was relevant to their role (M = 4.45, SD = 0.52, range = 4 - 5). Further, they found the speakers engaging (M = 4.55, SD = 0 .93, range = 2 - 5) and the information clear and concise (M = 4.64, SD = 0 .67, range = 3 - 5). Participants reported the workshop was beneficial for introducing new strategies (n = 8), discussing strategies with colleagues (n = 1) and learning more about The Cheshire School (n = 2). With regards to improvements, they suggested the time allocated for the workshop did not allow detailed exploration of the strategies (n = 3), or strategies that were suitable for the individual needs within their setting (n = 3). Two participants also noted they were hoping for more discussion on how strategies that emerged from a school setting could be effectively embedded in an early learning environment.

Consultation Sessions

Kindergarten educators reported the first consultation session was helpful (M = 4.25, SD = 0.96, range = 3 - 5), and they somewhat agreed that they discussed strategies or approaches they had not tried before (M = 4.00, SD = 1.41, range = 2 - 5), however the broad ranges indicated mixed experiences. Most found the one-on-one session helpful (M = 4.50, SD = 0.58, range = 4 - 5), albeit reported less value from the in-room coaching (M = 2.67, SD = 0.58, range = 2 - 3). This was reflected in the qualitative feedback. Four of the five kindergarten educators noted that there was minimal 'coaching' but recognised the importance of starting with observation, for example:

"*It was mostly observing today, [the coaches] needed to understand our setting*" [E1].

While participants' comments indicated they found the consultation session valuable, several also reported they were looking for more strategies, and one highlighted the importance of aligning the strategies to the Early Years Learning and Development Framework (EYLF):

"*Having more knowledge about kindergarten framework and regulations to know if these strategies are transferable to early years*" [E2].

Educators reported the second consultation session was more helpful than the first (M = 4.60, SD = 0.55, range = 4 - 5), with most feeling strongly that they had new information or knowledge that they could use with their group (M = 4.80, SD = 0.45, range = 4 - 5). While one participant again raised concerns regarding the alignment to the EYLF, most described the one-on-one as particularly helpful, and identified several strategies that they would implement because of the program, for example:

"*Giving choice, calming activity after each transition, empathy with limits*" [E1]

"*I really liked the empathic conversation information*" [E2]

"*I do like the idea of arrival routines…so there is less distraction*" [E3]

"*Transforming from negativity to curiosity….I loved finding out about new strategies to help children with any issues. I will be trying these for sure now and in the future*" [E4]

7.5 Conclusion

This Chapter outlines the process to pre-test the concepts and preliminary content of the Cheshire SEED Educational Program with early childhood educators. Feedback on the relevance, suitability and delivery of the preliminary program was collected during a workshop and consultation sessions. Notwithstanding the time commitment (e.g., preparation and delivery of sessions, building a prototype website), this process was extremely valuable. It highlighted aspects of the program that resonated with educators, such as the strengths-based perspectives and focus on strategies that could be embedded into their everyday

practices. Importantly, it emphasised what was needed, such as a broader range of strategies, downloadable resources, and tailored, individualised information. It also enabled greater understanding of the time and resources needed to offer in-person professional learning services in addition to the online platform. Table 7.1 summarises the changes made to the Cheshire SEED Educational Program following this pre-testing; these changes are discussed further in Chapter 8 as is the pilot feasibility evaluation.

Table 7.1

Changes Made to the Cheshire SEED Educational Program as a Result of Pre-Testing.

Strategies for additional behaviours: hyperactive, impulsive and emotionally reactive
Checklists and user forms to create a tailored plan for each educator
Downloadable parent handouts
Additional information for certain strategies (e.g., empathic reflections, limit setting, and learned helplessness)
Videos added for every strategy
Downloadable resources for educators (e.g., social-emotional milestones, risk and protective factors)
Downloadable resources for the room (e.g., timetables, choice boards, visual cue cards, feelings thermometer)
Information and video on sensory processing
Additional examples of language and phrases educators can use with children
Interactive case studies
Clearer alignment to the Early Years Learning Framework

7.6 Chapter References

Bartholomew Eldredge, L. K., Markham, C. M., Ruiter, R. A. C., Fernandez, M. E., Kok, G.,

    & Parcel, G. S. (2016). *Planning health promotion programs: An Intervention*

    Mapping approach (4th ed.). San Francisco, CA: Jossey-Bass.

Majid, U., Kim, C., Cako, A., & Gagliardi, A. R. (2018). Engaging stakeholders in the co-

    development of programs or interventions using Intervention Mapping: A scoping

    review. *PloS one*, *13*(12), e0209826.

CHAPTER EIGHT

Feasibility of Implementing the Cheshire SEED Educational Program in a Kindergarten Setting

8.1 Introduction

The Cheshire SEED Educational Program was finalised following the pre-testing outlined in Chapter Seven. Next, a feasibility evaluation of implementing the final program was undertaken. This also offered opportunity to review the suitability of measures that will be used to evaluate the program in Step 6 (Bartholomew Eldredge et al., 2016). The study presented in the current chapter examined the following four feasibility objectives (Orsmond & Cohn, 2015):

(i)   completion of outcome measures that examined educators' relationship with children, self-efficacy, beliefs related to fostering social-emotional skills within the early learning environment, and quality of educator-child interactions;

(ii)   acceptability and suitability of the intervention;

(iii)   evaluation of educator responses to the intervention; and

(iv)   educators' experiences when applying the intervention strategies during their interactions with children.

8.2 Methods

8.2.1 Study Design

This study employed a wait-list controlled design. Ethics approval to conduct the study was granted by Monash University Human Research Ethics Committee (ID: 13617) and the Victorian Government Department of Education and Training (ID: 2018_003807).

8.2.2 Recruitment of Kindergarten Services

Two kindergarten services operated by bestchance that offered three and four-year old

kindergarten programs to children aged three to six years were chosen to participate in the

feasibility evaluation. Both were located within the same local catchment area in South-East

Melbourne, Victoria, Australia, and had been assessed as 'Meeting the National Quality

Standard' in their most recent assessment by the Department of Education and Training

(carried out in December 2018 and August 2018 respectively). One site was allocated

randomly to receive the intervention (Site A), and the other acted as a wait-list control group,

receiving the intervention at the end of the study (Site B); Site A was registered to accept 99

children, and Site B 66 children.

8.2.3 Participants

All educators at both sites were invited to participate in the pilot study. The lead

researcher (PhD candidate Claire Blewitt, CB) visited services to explain the research project

and provide an Explanatory Statement and Consent Form. The demographic data for

participants in the intervention and control groups are presented in Table 8.1.

Table 8.1

Demographic Characteristics of Participants

	Intervention Site (n=5)	Control Site (n=6)
Age		
25-29	0	1
30-34	0	1
35-39	2	1
40-44	1	1
45-49	1	1
50-54	1	1
Position		
Kindergarten Teacher	2	2
Diploma Educator	2	2

Certificate III Educator	1	1
Activity Group Leader Lead Educator	0	1
Employment		
Full Time	0	1
Part Time	5	5
Years in Current Position		
0-5 years	4	6
6-10 years	1	0
Years in Sector		
0-5 years	0	3
6-10 years	1	1
11-15 years	1	1
16-20 years	3	1
Highest Qualification		
Bachelor Degree	2	3
Diploma	2	3
Certificate III	1	0

8.2.4 Intervention Description and Procedures

The development and description of the Cheshire SEED Educational Program is outlined in Chapter Six. The program aimed to support professional learning and improved teaching practices through: (i) strengths-based perspectives; (ii) reflection and goal setting; (iii) tailored and practical strategies that addressed the early learning environment and teacher-child interactions; and (iv) opportunities for continued learning. The intervention group teachers participated in the pre-testing outlined in Chapter Seven. To examine the feasibility of implementing the intervention, each educator in the intervention group was provided an individualised login to access the final version of the Cheshire SEED Educational Program. CB visited the service to provide a short demonstration of the online platform. No other assistance was provided during the study period.

8.2.5 Data Collection Time Points

In addition to the current feasibility study, the Intervention Group educators took part in the pre-testing process outlined in Chapter Seven. As such, baseline data were collected from the Intervention and Control groups prior to the pre-testing phase (October 2018). Due to two staff (33%) from the control group going on extended family leave, post-intervention data from the control group were collected in July 2019, while post-intervention survey data from the intervention site were collected in November - December 2019.

8.2.6 Measures

Demographic Information

At baseline, educators reported demographic information including age, role, employment type, years in current role, years of experience in the ECEC sector, and qualifications.

Educator-Child Relationship Quality

The Student-Teacher Relationship Survey (STRS) – Short Form (Pianta, 2001) includes 15 items to assess teachers' closeness and conflict with an individual child in their room. Studies have reported strong internal consistency (Hamre & Pianta, 2001; Pianta, Steinberg, & Rollins, 1995). Given it was not feasible to ask educators to complete the STRS for every child in this pilot study, an assessment of educators' overall perception of their relationships with children was examined using a modified version of the STRS as described by Whitaker, Dearth-Wesley, & Gooze (2015). Modifications were limited to changing the word 'child' to 'children' and using plural verbs. The survey asks educators to rate on a five-point Likert scale from 1 (definitely does not apply), 2 (not really), 3 (neutral, not sure), 4 (applies somewhat) and 5 (definitely applies) the degree to which the item relates to their relationships with children. The items are grouped into two subscales, conflict (e.g., "The

children easily become angry at me", "Dealing with the children drains my energy") and closeness (e.g., "The children value their relationship with me", "If upset, children will seek comfort from me"), however only the total scale score was used in this study. The items of the conflict scale were reverse coded, with a total possible scale score of 15 – 75. Higher scores indicate higher levels of closeness and lower levels of conflict. Cronbach's alpha could not be calculated due to the sample size in this study, however Whitaker et al. (2015) reported Cronbach's alpha of the modified conflict and closeness scales were .73 and .72 respectively. This paper-based survey was completed at baseline and post-intervention.

Teacher Self-Efficacy

An abbreviated 15-item version of the Teacher Self-Efficacy scale (Bandura, 1997) was used to assess teacher's sense of self-efficacy in their teaching role. Items were selected from the 21 items used by the National Institute of Child Health and Human Development Early Child Care Research Network's (NICHD ECCRN, 2006) longitudinal study of child care quality. The larger questionnaire included five dimensions, while the 15-item version used in this study specifically examined educators' instructional self-efficacy, efficacy towards creating a positive climate, and disciplinary self-efficacy. Minor modifications were made to ensure the survey was suitable for the kindergarten setting (e.g., 'school' was modified to 'kindergarten' where appropriate, and questions that were not applicable for a teacher working in an early learning setting were removed). Five items examined efficacy to create a positive climate (e.g., "How much can you do to make children enjoy coming to kinder?", "How much can you do to help other teachers with their teaching skills?"), seven items related to instructional self-efficacy (e.g., "How much can you do to promote learning and development when there is a lack of support from the home?", "How much can you do to motivate children who show low interest in room or group activities?"), and three items

related to disciplinary self-efficacy (e.g., "How much can you do to manage challenging behaviour in the room?", "How much can you do to prevent challenging behaviour in the room?"). Each item was scored on a 9-point Likert scale from 1 (nothing), 3 (very little), 5 (some influence), 7 (quite a bit) to 9 (a great deal). Educator responses to each subscale were summed, with possible score of 5 - 45 for positive climate, 7 - 63 for instructional self-efficacy, and 3 - 27 for disciplinary self-efficacy. Due to the small sample size, internal consistency could not be determined, however previous studies have reported adequate internal Cronbach values (e.g., Decker-Woodrow, 2018; Jeon, Buettnre, & Grant, 2018; Guo, Piasta, Justice, & Kaderavek, 2010; Low, Keith, & Jensen, 2015; NICHD ECCRN, 2006). This paper-based survey was completed by educators at baseline and post-intervention.

Educators' Beliefs with Regards to Supporting Children's Social and Emotional Skills

A short survey was developed by the PhD student for this pilot study to examine educators' beliefs with regards to supporting children's social and emotional development. Respondents rated agreement with four statements on a 7-point Likert scale ranging from 1 (strongly disagree), 4 (neither agree nor disagree) to 7 (strongly agree). Items included the following: "Educators play an important role in supporting children's social and emotional development", "Educators can strengthen children's social, emotional and behavioural skills through their everyday interactions", "I have the strategies to support all children's social and emotional development", and "I have the strategies to support the social and emotional development of children with social emotional or behavioural challenges". Responses to items were summed, with a total score between 4 – 28. Educators were asked to supplement each response with a recent example. This paper-based survey was completed at baseline and post-intervention.

Positive and Negative Educator-Child Interactions

Direct observations were used to examine positive and negative educator-child interactions. Nine items from the Teacher Coder Impressions Inventory (Webster-Stratton, Reid, & Stoolmiller, 2008) were selected to examine the feasibility of observing teacher style and teacher-child interactions in the classroom. The original measure included 71 questions classified into five summary scores: Harsh/Critical style, Inconsistent/Permissive style, Warm/Affectionate style, Social/Emotional Teaching and Effective Discipline, with the following standardised alpha coefficients reported: Harsh/Critical, $\alpha = .98$, Inconsistent/Permissive, $\alpha = .93$, Warm/Affectionate, $\alpha = .90$, Social-Emotional Teaching $\alpha = .84$, ICC = .62; Effective Discipline $\alpha = .58$, ICC = .61. (Webster-Stratton et al., 2008). The nine items included three items from the Warm/Affectionate scale ("Teacher paid attention when the child talked", "Verbally affectionate to child" and "Physically affectionate"), three items from the Social/Emotional Teaching scale ("Teacher taught prosocial behaviour", "Encouraged feelings language", and "Provided emotional stimulation"), and three items from the Harsh/Critical scale ("Threatened punishment", "Criticised", "Showed anger") (Webster-Stratton et al., 2008).

Informed by Barker (2015), who adapted the TCI item to a frequency count to observe teacher-child interactions following a SEL intervention, the 9 items in this study were also recorded using a frequency count. Observations were conducted by CB and another Psychology Doctoral student and recorded on a paper coding sheet. Educators were aware they were being observed and parents of children attending the room were notified before the research was conducted. Each educator was observed during two, 30-minute observation windows. Prior to the observations, the two data collectors discussed the items using a description sheet (Appendix D). They then simultaneously and independently recorded frequency counts for two educators. Inter-rater agreement was >80% across all 9 items during both observation windows. Educators were observed during unstructured play time when

children were free to move between activities in the room. In addition to frequency counts, data collectors noted verbatim examples of interactions where possible.

Qualitative Feedback

Semi-structured interviews via phone sought educator feedback on the Cheshire SEED Educational Program post taking part in the intervention, including their overall impressions of the intervention and participation in the feasibility study, when and how they used the platform, how they used strategies, barriers to use, and future development. Interviews were conducted at post-intervention.

8.2.7 Feasibility Evaluation

Feedback from the qualitative interviews, in addition to survey and observational data, informed the feasibility evaluation that assessed the following indicators (Orsmond & Cohn, 2015):

- Completion of outcome measures: Educators' and observers' ability to complete the measures at baseline and post-intervention, the amount of data collected, and the appropriateness of the measures to assess educator-child relationships, educator self-efficacy, educator beliefs, and quality of educator-child interactions.

- Acceptability and suitability of the intervention: Educator retention and engagement, and the benefits and burden of participating in the intervention.

- Preliminary evaluation of educator responses to the intervention: Relating to educator-child relationships, educator self-efficacy, educator beliefs, and quality of educator-child interactions, based on quantitative data and qualitative feedback.

- Experiences of using Cheshire strategies within their rooms: Educator confidence and engagement in using program resources.

8.2.8 Data Analysis Plan

Change in scores between baseline and post-intervention on the STRS, Teacher-Self-Efficacy Scale and educator beliefs were examined using the Wilcoxen Signed Rank Test, for intervention and control groups separately. The small sample size in this study prevented the determination of normal distribution of the variables and as such, a non-parametric test was selected. Also owing to the small sample size and unequal time between baseline and post-intervention assessments for the intervention and control groups (discussed further below), techniques such as a mixed between-within subjects' analysis of variance were not suitable. Insignificant results in a study of this size may reflect insufficient power. As such, the alpha level was adjusted to $p \leq .10$ (Stevens, 1996).

8.3 Results

8.3.1 Completion of Outcome Measures

All baseline surveys were completed with minimal missing data, and most educators provided comments in addition to the Likert scales. Four out of five educators at the intervention site returned their post-intervention survey. It is anticipated the final survey will be returned once the kindergarten returns in 2020.

Difficulties were encountered collecting the observational data and qualitative data from the intervention group at post-intervention. The intervention service went through a period of change in mid-late 2019, including the departure of the Director/lead educator (who continued to be part of the study). The service did not have a lead educator for the remainder of the study period. Due to time pressures, it was not possible to complete in-room observations at post-intervention, and key informant interviews could only be scheduled with two educators (both kindergarten teachers and room leaders). The remaining three team

members provided written feedback to the questions that had been prepared for the key informant interviews.

Given post-intervention observational data were not collected at the intervention site, the observational data are not reported in the current study. Additionally, observers experienced several challenges using the observational measure. First, while observers attempted to be as unobtrusive as possible, educators appeared aware they were being observed and may have modified their behaviour. Second, there was a limited window to observe educators (two 30 minute sessions), and the measure relied on hearing and accurately coding educator language, which could be difficult in a busy room.

8.3.2 Acceptability and Suitability of the Intervention

All educators remained engaged with the program during the pre-testing and feasibility phases of the study, reported they found the intervention beneficial, and would recommend it to other educators. As one lead educator noted:

> "*I loved the concept of it, it's a really good tool…a lot of the things I suppose I already knew and was doing, but the bit that I really loved is the part around feelings and empathy, because that was never role modelled to people of my generation growing up ….so I've found that particularly good to help me with my practice.*" [E1]

Educators also highlighted the program was easy to use and understand, as one respondent stated:

> "*I think it's very user friendly, I think it explains very well for people that don't have as much experience as me, so that they will be able to understand it and use it. That was the best part about it….if someone is feeling they need some extra strategies, I think it*

is a really easy way to access and get those strategies, it's a little less stressful because

you can sit back and read it in your own time, you're not having to sit down and make

an appointment with someone, so to be able to access it at any time was a huge benefit

for me." [E2]

With regards to barriers, participants unanimously highlighted time:

> *"Time. Time to actually access it. I looked at it all in my own time. And then time to*
>
> *talk to co-educators about it. Time is the biggest enemy, it all comes back to time."*
>
> *[E1]*
>
> *"Everyone's caught up and we are all time poor.....I've got more interest of it in a*
>
> *teacher role, and my co-workers look to me to tell them kind of what to do rather than*
>
> *independently go and look for themselves…. it's not that they are not interested, but*
>
> *there's other things that need to be done before that." [E2]*

One participant also highlighted the layers of support that could assist implementation:

> *"Having the option of a training, a face to face that can complement it. People want to*
>
> *purchase it online can. But some might want their whole team to participate in a day*
>
> *PD about this." [E1]*

8.3.3 Preliminary Evaluation of Educator Responses to the Intervention

As shown in Table 8.2, the intervention group displayed significant improvement in disciplinary self-efficacy (confidence to deal with challenging behaviours) between baseline and post-intervention ($p = .10$). Beliefs relating to supporting children's social and emotional development showed a borderline significant improvement ($p = .109$), and instructional efficacy and efficacy to create a positive climate improved over the intervention period,

however these did not reach statistical significance. The quality of teacher-children relationship showed a slight decline however this difference was not significant. Changes between baseline and post-intervention for the control group did not reach significance on any measure.

Table 8.2

Teacher Outcomes: Baseline-Post Intervention Differences

	SITE A (INTERVENTION) n=4				SITE B (CONTROL) n=5			
	Baseline Median	Post Median	Z-Score	p value	Baseline Median	Post Median	Z-score	p value
Student Teacher Relationship	65.0	61.0	-1.289	.197	67.0	68.0	-.756	.450
Teacher Self-Efficacy								
Positive Climate	41.5	43.0	-.447	.655	40.0	43.0	-1.289	.197
Instructional	49.0	53.0	-1.414	.157	58.0	57.0	-1.095	.273
Disciplinary	22.0	23.0	-1.630	.100*	23.0	24.0	-0.816	.414
Strategies	21.5	24.0	-1.604	.109[+]	26.0	26.0	-.447	.655

8.3.4 Experiences of Using Cheshire strategies within their Rooms

All educators provided examples of how they had used strategies within their rooms. For example:

" I have been using more of the empathic responding [in my practice]. I don't think I'm great at it yet... I do like to be able to re-read the content and improve how I do it....I want to keep going back to revisit that." [E1]

"We had a permanent quiet area in the room with sensory items on it. That area was helpful for the children who needed to calm down. At start time, everyone comes and sits on the mat and I let them know how the day is going to be (the routine). This is a helpful strategy that we got from Cheshire." [E3]

"I definitely will continue to use some of the strategies from the SEED Program." [E4]

Two educators were responsible for mentoring others within their team. Both highlighted how Cheshire SEED assisted them in their leadership role:

> *"I really liked the PDF handouts, I really liked the synthesis, if you are working with someone and you want to go back to them, it's simple, it's not me having to try to re-explain it, the steps are there to follow."* [E1]

> *"I feel like supporting these challenging children is my strong point, but it was helpful for me to explain to other members of my team, that's where I find it is the most beneficial… so it helped me explain through discussions with my team when we were meeting together."* [E2]

8.4 Discussion

The aim of this study was to evaluate the feasibility of implementing the Cheshire SEED Educational Program in an ECEC setting to support educators to foster children's social and emotional development through their everyday interactions. Implementation feasibility was assessed by examining participation, completion of outcome measures, acceptability and suitability, and the responses and experiences of educators using the intervention in the ECEC setting. Based on the findings of this evaluation, implementation of the Cheshire SEED Program appears to be feasible across early learning programs for children aged three to five years. The study relied on a small sample in one early learning setting, limiting the generalisability to other settings. Nonetheless, the improvement in teacher-self efficacy and beliefs, and qualitative feedback provided by participants suggests further exploration of program outcomes for both educators and children across diverse

ECEC settings is warranted. The following considerations for ongoing development, implementation, and evaluation are put forth.

Overall, delivery of Cheshire SEED through an online portal appeared feasible. Educators accessed the program on different devices (phone, tablet and desktop) and reported it was easy to use, understand and navigate. Lead educators described how Cheshire SEED had helped them to mentor and coach their co-educators. Considering time was identified consistently as a barrier to program use, additional downloadable materials (e.g., strategy summaries) that could be used in team meetings and planning may be beneficial. Additionally, encouraging ECEC leaders to ensure enough time is available for educators to work through the modules and implement changes in their room is vital. Without this commitment, it is likely educators will either resort to using the program in their own time, or not access it at all.

Several challenges arose with respect to data collection. The study period ran for over one year. While this time was required to build the online platform, it is a significant commitment to place on educators. A limited evaluation window in future assessments may improve post-intervention data collection processes. Further, while global assessments of educator-child relationship were suitable for this preliminary study, more nuanced data are needed by examining educators' relationship with each child in the class. Additionally, observational assessments offer robust data in early learning settings. Careful evaluation of the available measures and methods to collect observations is recommended for future evaluations. Video observations of interactions within the room may offer an effective and unobtrusive observation approach (Hamre et al., 2012). The small sample size precluded statistical control for covariates, and it was not possible to ascertain whether the improvement in teacher outcomes was related to the intervention or extraneous factors.

Further exploration of consultation and coaching models to support implementation of the program is needed. Overall, participants reported the consultation with professionals experienced in working with children with social, emotional and behavioural challenges was valuable during the pre-testing phase. Research highlights instructional coaching and systematic performance feedback as a particularly promising approach in early childhood settings. Efforts to support teachers' implementation of evidence-based practices should address a practice or set of practices, be delivered in collaboration with the teacher, grounded in the teachers practice, and linked to desired outcomes (Fox, Hemmeter, Snyder, Binder and Clarke 2011). This does, however, place considerable cost and resourcing demands on the service provider (bestchance Child Family Care in this instance). One approach that warrants further investigation is tiered levels of implementation support. Recognising that services are working with cohorts of children experiencing different levels of risk and vulnerability, this may allow services to access the less intensive online portal or seek additional assistance through professional development and/or consultations where appropriate. This should be co-designed with educators (e.g., using workshops, focus groups and interviews) and pilot tested to examine its relevance, scalability and sustainability.

Recognising the methodological limitations of this small pilot study, the findings with regards to teachers' self-efficacy are promising. Self-efficacy is related to high quality instruction in preschool settings (Guo, Piasta, Justice, & Kaderavek, 2010; Justice et al., 2008). A recent study of 1,129 preschool teachers found disciplinary self-efficacy predicted job-related emotional exhaustion. Teachers who were more confident about their abilities to discipline children reported lower emotional exhaustion in their role. Lower levels of disciplinary efficacy were also reported to be correlated with higher levels of challenging behaviour, which may contribute to teacher exhaustion. Furthermore, general teaching efficacy was associated positively with lower levels of stress and job-related emotional

exhaustion (Jeon, Buettner, & Grant, 2018). Sustained improvement in teacher self-efficacy through a professional learning platform could have meaningful implications on teaching practices and subsequent child outcomes. Future evaluations with larger samples across diverse settings and multiple service operators are needed to determine whether the findings uncovered are robust.

8.5 Reflections of the PhD Student

During the study period, the participating services experienced changes in staffing arrangements, workload pressures, and the day-to-day challenges of supporting children and families with diverse and sometimes complex needs. The challenges and opportunities faced appeared to reflect those that were raised in our qualitative study with educators who worked in kindergarten and long day care rooms operated by a range of ECEC providers (Chapter 4). Throughout the pre-testing and feasibility evaluation, educators appeared comfortable to provide honest reflections, both in terms of what they valued in the program, what they found less helpful, their questions about the transferability of strategies that originated in a school setting and alignment to the play-based Early Years Learning Framework curriculum (Australian Government Department of Education, Employment and Workplace Relations, 2009). While further evaluation in non-bestchance settings is clearly required, it is likely that the two participating services were broadly representative of the diverse Victorian ECEC sector.

8.6 Conclusion

In summary, the Cheshire SEED Educational Program appears feasible to deliver in early years settings to educators working with children aged three to five years. Educators engaged positively with the program, reporting they gained new knowledge and skills to

strengthen children's social and emotional development through their daily practice and

interactions.

8.7 Chapter References

Australian Government Department of Education, Employment and Workplace Relations.
(2009). *Belonging, Being and Becoming: the Early Years Learning Framework for
Australia.* Canberra: Commonwealth of Australia.
http://www.deewr.gov.au/Earlychildhood/Policy_Agenda/Quality/Documents/Final%20
EYLF%20F ramework%20Report%20-%20WEB.pdf

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W.H. Freeman.

Barker, E. (2015). *Promoting Positive Teacher-Child Interactions Through Implementation
of a Social Emotional Learning Curriculum with Performance Feedback* (Unpublished
doctoral dissertation). University of Massachusetts, Amherst, United States of America.

Bartholomew Eldredge, L. K. B., Markham, C. M., Ruiter, R. A., Fernández, M. E., Kok, G.,
& Parcel, G. S. (2016). *Planning health promotion programs: an intervention mapping
approach*. John Wiley & Sons.

Decker-Woodrow, L. (2018). The relationship between internal teacher profiles and the
quality of teacher-child interactions in prekindergarten. *Journal of Research in
Childhood Education*, *32*(1), 32-51.

Fox, L., Hemmeter, M. L., Snyder, P., Binder, D. P., & Clarke, S. (2011). Coaching early
childhood special educators to implement a comprehensive model for promoting young
children's social competence. *Topics in early childhood special education*, *31*(3), 178-
192.

Guo, Y., Piasta, S. B., Justice, L. M., & Kaderavek, J. N. (2010). Relations among preschool
teachers' self-efficacy, classroom quality, and children's language and literacy
gains. *Teaching and Teacher education*, *26*(4), 1094-1103.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of
children's school outcomes through eighth grade. Child Development, 72(2), 625−638.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., ... & Scott-Little, C. (2012). A course on effective teacher-child interactions: Effects on teacher beliefs, knowledge, and observed practice. *American Educational Research Journal*, *49*(1), 88-123.

Jeon, L., Buettner, C. K., & Grant, A. A. (2018). Early childhood teachers' psychological well-being: Exploring potential predictors of depression, stress, and emotional exhaustion. *Early education and development*, *29*(1), 53-69.

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early childhood research quarterly*, *23*(1), 51-68.

Low, J. A., Keith, T. Z., & Jensen, M. (2015). What predicts method effects in child behavior ratings. *Journal of Psychoeducational Assessment*, *33*(2), 177-187.

National Institute of Child Health and Human Development Early Child Care Research Network (NICHD-ECCRN). (2006) Phase III Data Collection Instruments. Retrieved from https://www.icpsr.umich.edu/icpsrweb/DSDR/studies/21942/versions/V6/datadocumenta tion#

Orsmond, G. I., & Cohn, E. S. (2015). The distinctive features of a feasibility study: Objectives and guiding questions. *OTJR: Occupation, Participation and Health*, *35*(3), 169-177.

Pianta, R. C. (2001). Student–teacher relationships scale: Professional manual. Odessa, FL: Psychological Assessment Resources.

Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and psychopathology*, *7*(2), 295-312.

Stevens, J. (1996). *Applied multivariate statistics for the social sciences* (3rd et.). Mahwah, NJ: Lawrence Erlbaum.

Webster-Stratton, C., Jamila Reid, M., & Stoolmiller, M. (2008). Preventing conduct problems and improving school readiness: evaluation of the incredible years teacher and child training programs in high-risk schools. *Journal of child psychology and psychiatry*, *49*(5), 471-488.

Whitaker, R. C., Dearth-Wesley, T., & Gooze, R. A. (2015). Workplace stress and the quality of teacher–children relationships in Head Start. *Early Childhood Research Quarterly*, *30*, 57-69.

CHAPTER NINE

Mental Health in Early Childhood Education and Care: A Public Health Approach

The previous chapters of this thesis described how IM was utilised to develop and trial an intervention to support educators to foster children's social and emotional development in the ECEC environment. The insights that emerged from each step of the IM design process may offer relevant learning for the broader research and practice context. Informed by the findings reported in previous chapters, Chapter Nine discusses SEL as a public health approach in early learning settings. This paper has been prepared with co-authors and will be submitted for peer review in January to the Australian and New Zealand Journal of Public Health.

9.1 Introduction

Mental health is the leading cause of health-related disability in children and youth globally, and a critical public health issue (Erskine et al., 2015; Kieling et al., 2011). It is estimated 16.5% of Australian boys and 10.6% of Australian girls aged 4 to 11 years will experience a mental health disorder (Lawrence et al., 2015), with epidemiological research finding symptoms are increasingly emerging in early childhood (Atladottir et al., 2015; Bayer et al., 2011; Carter et al., 2010; Egger & Angold, 2006; Merikangas, Nakamura, & Kessler, 2009) and persisting throughout childhood (Bufferd, Dougherty, Carlson, Rose, & Klein, 2012; Dougherty et al., 2015).

Educational settings can play an important role in fostering social-emotional skills that can prevent chronic health problems including depression, obesity, and substance abuse (Center on the Developing Child, 2016; Organisation for Economic Co-operation and Development, 2015). In the last two decades, there has been a surge of interest in SEL

programs that promote children's social-emotional development through explicit skill instruction, child-centred learning approaches, and integration within pedagogy (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011).

More recently, SEL has been positioned within a public health framework, recognising teaching for social and emotional skill growth can have long-lasting impact on children's health and wellbeing, and prevent mental health disorders. Universal programming, tiered layers of support based on children's needs, and integration across classrooms, schools, families and communities may offer public health benefit (Greenberg, Domitrovich, Weissberg, & Durlak, 2017). Research evidence suggests SEL programming in ECEC can similarly have a meaningful impact on children's mental health in the formative years before formal schooling (Bierman & Motamedi, 2015; Blewitt et al., 2018; Schindler et al., 2015). However, SEL research and practice in ECEC has predominately focused on the classroom level, with less emphasis on systemic approaches that encourage individual, interpersonal, organisational and community factors to promote children's social-emotional functioning and potentially prevent outcomes of mental illness.

This paper applies a public health lens to SEL intervention in early childhood. It examines the meaning and dimensions of a "public health model" and explores the features of and evidence-base for public health approaches in educational settings as well as the unique opportunities and challenges to embed public health principles in the early years learning environment.

9.2 Defining a Public Health Approach

Public health is defined as the art and science of preventing disease, prolonging life and promoting health through the organised efforts of society (Acheson, 1988; Marks, Hunter, & Alderslade, 2011). Public health approaches address health conditions or social

problems using evidence-based, multidisciplinary and population-based strategies (Nagle &
Usry, 2016; Scott, Lonne & Higgins, 2016), supported by assessment, policy development,
and service provision (Institute of Medicine, 1988). Underpinned by ecological systems
theory, public health initiatives respond to individual proximal factors, family and
community distal factors, and socio-political factors such as public policy and economics that
can influence health outcomes (Stiffman et al., 2009). The key principles of public health
approaches include the following:

(i)   Focus on population level health, addressing the whole population regardless of the
        variation in risk status for individuals (Rose, 1985), and offering integrated and
        multilevel strategies targeted to diverse groups based on their risk for the health/social
        problem (Sanders, Burke, Prinz & Morawska, 2017).

(ii)   Specific protective and risk factors to address health/social problems that can relate to
        the individual at risk, the cause of the disease or condition, or the physical or social
        environment (Scott et al., 2016).

(iii)   Focus on reducing the incidence and prevalence of health/social problems by offering
        interventions prior to the onset of the problem, including universal interventions to
        improve overall health outcomes of a population, and early interventions for a target
        population who are displaying signs or symptoms of the problem (Institute of
        Medicine, 1994).

(iv)   Tiered systems to offer a continuum of intervention responses across three levels:
        universal, targeted and indicated; the universal prevention strategies are population-
        wide measures applied before the onset of the health/social problem, targeted
        prevention strategies focus on groups in the population who are at greater risk of
        exposure to the factors associated with the health/social problem, and indicated
        strategies are aimed at minimising the effects of and reducing the likelihood of re-

exposure in groups of the population who have been exposed to the health/social

problem (Scott et al., 2016).

(v)   Progressive universalism recognising the need to target inequities from the outset

when designing universal health care systems. To achieve greater equity of outcomes,

a continuum of support is required according to the needs of the individuals and the

community (Hogg, Kennedy, Gray & Hanley, 2012; Jamison et al., 2013).

9.3 Public Health in the Educational Setting

It is valuable to briefly consider how public health principles have been embedded

into programs that seek to address health disparities for children. Epidemic problems

including obesity, suicide, bullying, food insecurity, poverty, family violence, illiteracy, and

restricted academic attainment (Burstein, Agostino, & Greenfield, 2019; Kosti &

Panagiotakos, 2006) cause significant trauma in the lives of children, their families and

communities. These wicked problems demand multi-layered, multi-tiered and long-term

public health approaches that focus on both prevention and treatment (Head & Alford, 2015).

Educational settings offer an ideal location for preventative and early intervention

public health initiatives. However, many interventions for complex problems focus on the

individual child using top-down researcher-driven approaches that can be associated with

poor outcomes (Wessells, 2015). Lee and colleagues (2015) examined the effects of school-

based anti-bullying programs and found the most effective interventions addressed school

policy, parents, peers and individual emotional regulation. Similarly, a public health approach

to incorporate physical activity in schools was suggested by Fedewa et al., 2013. Their

review identified that physical activity predicts a host of positive health outcomes. More

specifically a 3-tiered system was found to be a promising option for children's health.

Another recent study focused on the promotion of physical activity within the elementary school system in the United States (Dauenhauer, Keating, & Lambdin, 2016), suggesting many physical activity interventions have applied a 'one size fits all' approach, which may explain the small effect sizes often reported. Using a tiered approach, all children participated in physical activity (Tier 1) with a subgroup of children participating in additional monitoring and goal setting (Tier 2), and another an after-school program with parental involvement (Tier 3). Results suggested this public health model led to improvement in daily movement, cardiovascular fitness and body composition.

Many physical activity interventions in schools, however, have not taken this lead, rather focusing on individual factors (Naylor et al., 2015) without addressing the wider levels of influence that can affect change such as curriculum and policy. This in itself is not without extensive support as multiple evidence-based programs exist (Hills, Dengel, & Lurans, 2015) as well as comprehensive guidelines.

School-based programs have also embedded public health principles to address mental health problems. For example, an evaluation of a tiered suicide prevention framework in schools across multiple countries reported reduced suicide attempts and severe suicidal ideation in teenagers (Hoven, Wasserman, Wasserman, & Mandell, 2009). Additionally, a school-based depression and anxiety program, also using this approach, found universal components able to sustain positive effect for depression and anxiety at 12 months with small effect sizes reported (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017).

While several public health frameworks exist, two have emerged as important for school-based intervention: Response-to-Intervention (RTI) (Fuchs & Fuchs, 2006) and the Health Promoting Schools Framework (Parsons, Stears, & Thomas, 1996). The latter has roots dating back to the Ottawa Charter (WHO, 1986) and the most evidence of implementation (Langford et al., 2014). This model suggests three critical components for

public health impact: i) changes in formal health curriculum; ii) ethos and environment of the school; and iii) engagement with families and communities. A recent Cochrane review found some evidence for the application of this framework, although quality and methodological issues prevented broader claims of efficacy (Langford et al., 2014). This framework differs from other models in its emphasis on connection to family and communities. While this is a critical component of the ecological framework that underpins public health approaches, it is also the most resource intensive.

RTI is a popular tiered-model in educational settings that includes universal programs delivered to all children, selective programs (Tier 2) offered to approximately 20% of the school population, and intensive supports (Tier 3) for those needing dedicated services with health professionals or special educators (approximately 5% of the population; Franklin, Kim, Ryan, Kelly, & Montgomery, 2012). Originally designed as an academic assessment and support program in schools, the approach has been expanded to include programs for physical activity, bullying, and mental health (Franklin et al., 2012). One of the factors that contributes to the success of RTI is the holistic school approach that necessitates collaboration between teachers and senior staff, as well as engagement by students. Parents and the community are less involved and may be invited to participate in Tier 2 or 3 programs.

As the use of RTI in schools has continued in the United States, a shift towards a multi-tiered system of support (MTSS) has occurred with greater emphasis on general education and service provision, and less on assessment (Burns, Jimerson, VanDerHayden, & Deno, 2016). Although the efficacy of RTI and MTSS is unclear, the potential of these programs to achieve outcomes is significant (Castillo et al., 2018).

9.4 Public Health Approach to Social and Emotional Learning

SEL practitioners and researchers suggest the principles that underpin the school-based public health frameworks and health-related programs outlined above are especially pertinent to fostering children's social and emotional development. Evaluations of SEL programs suggest positive effects on pro-social behaviour, academic performance and reduced conduct and internalising problems (Durlak et al., 2011) with benefits that are sustained over time (Taylor, Oberle, Durlak, & Weissberg, 2017). To date, however, most SEL approaches target proximal influences through teacher-child and children's peer relationships using classroom-based programs (Oberle, Domitrovich, Meyers & Weissberg, 2016). There is also limited evidence of effective integration into ongoing practice, and the provision of infrastructure and resourcing to enable system-wide implementation of practices (Spoth et al., 2013).

Recognising this challenge, SEL literature increasingly highlights the importance of shifting from a class-wide focus to a systemic school-wide approach (Jones & Bouffard, 2012; Meyers et al., 2015; Weissberg, Durlak, Domitrovich, & Gullotta, 2015), putting emphasis on the following issues: (i) comprehensive and coordinated SEL strategies offered at multiple ecological levels (i.e.: classroom, school, family, and community) (Jones & Bouffard, 2012; Meyers et al., 2015); (ii) competence-promoting and prevention activities through universal, selective and indicated intervention; and (iii) educational systems, policies and funding models to enable educators to develop the structures and supports needed to effectively implement evidence-based SEL programming (Mart, Weissberg, & Kendziora, 2015; Weissberg et al., 2015).

The challenge of integrating system-wide SEL programming is even more pronounced in early childhood settings. While promising results are emerging for the effectiveness of SEL for young children, few intervention studies address the ongoing

implementation or sustainability of practices over time, and most programs focus on the child and classroom levels only, with limited exploration of other layers of intervention.

One framework for early years services that has moved towards a more systemic approach is the Pyramid Model (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Hemmeter, Ostrosky, & Fox, 2006). This approach offers evidence-informed strategies at universal (nurturing and responsive relationships and high-quality supportive environments), targeted and intensive levels, while explicitly recognising the workforce systems needed to ensure continuity, effective training and sustainability. An efficacy trial that examined the impact of a professional development intervention that trained and coached preschool teachers to use the model in the United States found participating teachers showed significantly greater improvement in teaching practices compared to control peers, while children improved social skills and reduced challenging behaviours (Hemmeter, Snyder, Fox, & Algina, 2016).

Based on our research, it seems that there is great value in exploring models that promote integration and sustainability of SEL in ECEC. It is also vital to consider the features, challenges and opportunities in this context. Early years settings provide unique challenges in terms of policy, pedagogy and practice, management structure and staff. For example, while early years policies globally have made significant progress in recognising the important role that preschool teachers play in supporting children's positive mental health, research studies reveal that high-quality practice varies across educational settings and many children are not consistently exposed to the quality of interactions required for optimal development (Early et al., 2007; Hamre, Hatfield, Pianta, & Jamil, 2014; Justice, Mashburn, Hamre, & Pianta, 2008; LoCasale-Crouch et al., 2007; Pianta, Barnett, Burchinal, & Thornburg, 2009; Stuck, Kammermeyer, & Roux, 2016; Tayler, Ishimine, Cloney, Cleveland, & Thorpe, 2013).

Other challenges relating to the early years workforce include incommensurate pay

Cuming, Sumison, & Wong, 2015), high levels of work-related stress (McGinty, Justice, &

Rimm-Kaufman, 2008; The Social Research Centre, 2014), lack of professional status and

public recognition of their professionalism, high rates of turn-over, and limited career

development opportunities (Cuming et al., 2015). These factors influence educators' ability

to embed high-quality and sustained SEL supports within their day-to-day practice.

9.5 Adopting a Public Health Model to SEL in Early Childhood Education and Care

A conceptual model that positions SEL at the centre of a public health approach is

proposed in Figure 9.1. It aims to encourage discussion on the benefits and challenges of

utilising public health principles, such as focusing on population-level health, an ecological

perspective, tiered systems of support, and addressing risk and protective factors, to promote

young children's mental health and wellbeing. It recognises the influence that national and

state educational systems and policy have on the ability of ECEC providers to resource and

support high-quality programming in early years classrooms. Educators are unlikely to have

the resources or time to embed SEL within their practice without organisational commitment,

including service-wide policies and practices that encourage SEL, training and professional

development, support for ongoing evaluation and improvement, promotion of communities'

activities and connection to community partnerships.

As a result, this organisational support will enable educators to partner with

caregivers and other health professionals to: (i) foster *all* children's social-emotional

functioning through high-quality interactions, role-modelling, explicit SEL instruction and

opportunities for practice; (ii) identify children in need of more intensive support; (iii) work

in partnership with allied health and special education professionals to embed tier 2 and 3

programs and supports within the classroom; (iv) reflect on and respond to changes in

children's behaviour and social-emotional competencies; and (v) work with families to encourage skill generalisation beyond the ECEC setting.

Summing up, exposure to nurturing, consistent and responsive teacher-child relationships, and access to deliberate and consistent SEL opportunities may negate detrimental outcomes associated with risk factors including economic disadvantage and adversity, improve social-emotional competence and school readiness, reduce behaviour problems, and potentially increase the likelihood of positive health outcomes across the life course. The conceptual framework proposed in this study aims to contribute to the discussion regarding the promotion of young children's mental health, through tiered layers of SEL intervention, partnerships between teachers, families and allied health professionals, and investment and resources at the organisational and policy levels.
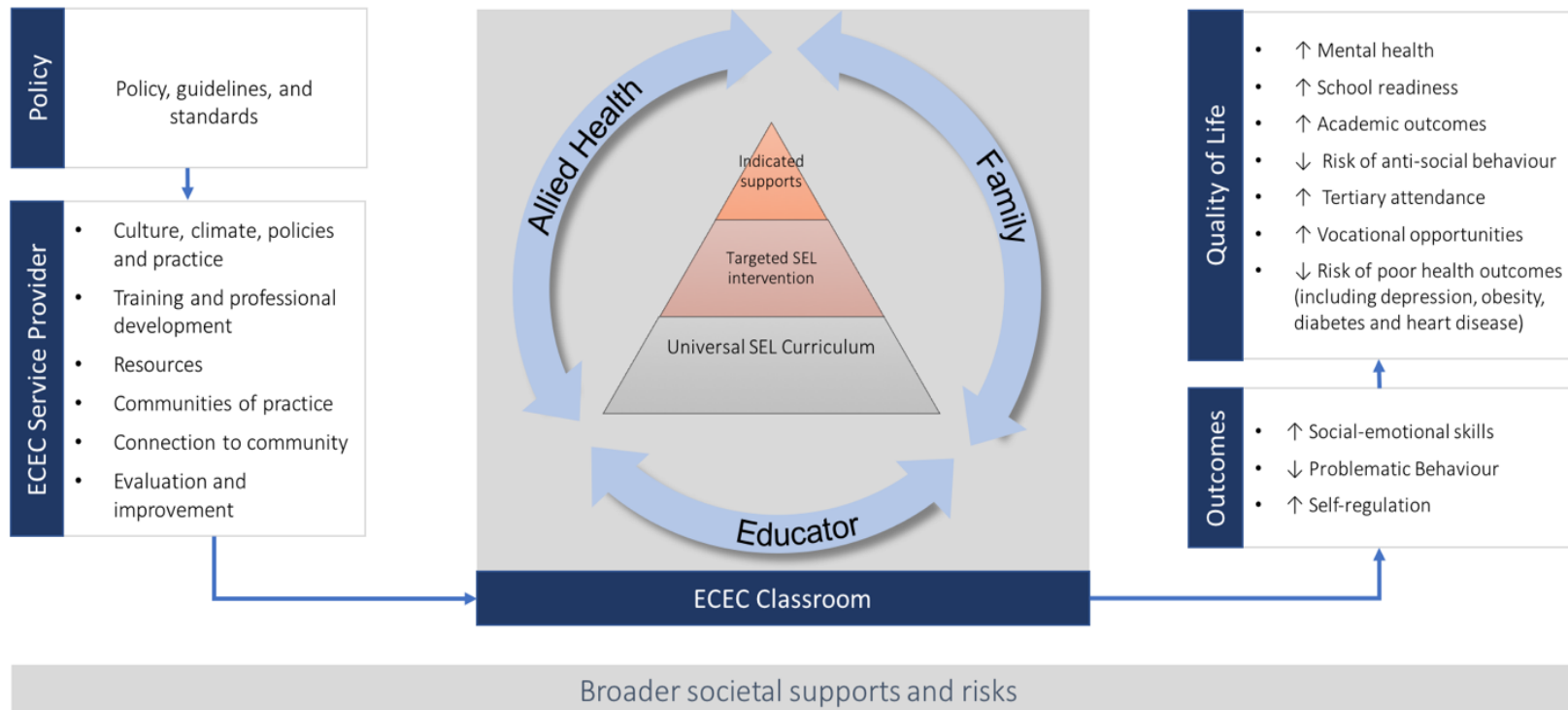
Figure 9.1: A Public Health Approach to Promoting Early Childhood Mental Health

9.6 Chapter References

Acheson, D. (1988). *Public health in England. The report of the committee of inquiry into the future development of the public health function*. London: HMSO.

Atladottir, H., Gyllenberg, D., Langridge, A., Sandin, S., Hansen, S., Leonard, H., . . . Parner, E. (2015). The increasing prevalence of reported diagnoses of childhood psychiatric disorders: a descriptive multinational comparison. *European Child & Adolescent Psychiatry, 24*(2), 173-183.

Bayer, J. K., Ukoumunne, O. C., Lucas, N., Wake, M., Scalzo, K., & Nicholson, J. M. (2011). Risk factors for childhood mental health symptoms: National Longitudinal Study of Australian Children. *Pediatrics, 128*(4), e865-e879.

Bierman, K. L., & Motamedi, M. (2015). SEL programs for preschool children. In C. E. D. J. A. Durlak, R. P. Weissberg, & T. P. Gullotta (Ed.), *Handbook on social and emofional learning: Research and pracfice*. New York: The Guilford Press.

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., . . . Skouteris, H. (2018). Social and Emotional Learning Associated With Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. . *JAMA Network Open, 1*(8), e185727-e185727.

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., Rose, S., & Klein, D. N. (2012). Psychiatric Disorders in Preschoolers: Continuity From Ages 3 to 6. *American Journal of Psychiatry, 169*(11), 1157-1164.

Burns, M. K., Jimerson, S. R., VanDerHeyden, A. M., & Deno, S. L. (2016). Toward a unified response-to-intervention model: Multi-tiered systems of support. In *Handbook of response to intervention* (pp. 719-732). Springer, Boston, MA.

Burstein B, Agostino H, Greenfield B. Suicidal Attempts and Ideation Among Children and Adolescents in US Emergency Departments, 2007-2015. *JAMA Pediatr.* Published online April 08, 2019173(6):598–600.

Carter, A. S., Wagmiller, R. J., Gray, S. A. O., McCarthy, K. J., Horwitz, S. M., & Briggs-Gowan, M. J. (2010). Prevalence of DSM-IV Disorder in a Representative, Healthy Birth Cohort at School Entry: Sociodemographic Risks and Social Adaptation. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(7), 686-698.

Castillo, J. M., Wolgemuth, J. R., Ginns, D. S., Latimer, J., Scheel, N., McKenna, M., ... & Jenkins, A. (2018). Protocol for the systematic review of research on professional learning to promote implementation of a multitiered system of support in education. *BMJ open*, *8*(11), e024057.

Center on the Developing Child. (2016). *From Best Practices to Breakthrough Impacts: A Science-Based Approach to Building a More Promising Future for Young Children and Families.* Cambridge, MA: Harvard University, Center on the Developing Child. Retrieved from https://developingchild.harvard.edu/resources/from-best-practices-to-breakthrough-impacts/

Cumming, T., Sumsion, J., & Wong, S. (2015). Rethinking early childhood workforce sustainability in the context of Australia's early childhood education and care reforms. *International Journal of Child Care and Education Policy*, *9*(1), 2.

Dauenhauer, B., Keating, X., & Lambdin, D. (2016). Effects of a three-tiered intervention model on physical activity and fitness levels of elementary school children. *The Journal of Primary Prevention*, *37*(4), 313-327.

Dougherty, L. R., Leppert, K. A., Merwin, S. M., Smith, V. C., Bufferd, S. J., & Kushner, M. R. (2015). Advances and directions in preschool mental health research. *Child Development Perspectives, 9*(1), 14-19.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*(1), 405-432.

Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D., ... & Henry, G. T. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child development*, *78*(2), 558-580.

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: presentation, nosology, and epidemiology. *Journal of Child Psychology & Psychiatry, 47*(3/4), 313-337.

Erskine, H. E., Moffitt, T. E., Copeland, W. E., Costello, E. J., Ferrari, A. J., Patton, G., . . . Scott, J. G. (2015). A heavy burden on young minds: the global burden of mental and substance use disorders in children and youth. *Psychological Medicine, 45*(7), 1551-1563.

Fedewa, A. L., Candelaria, A., Erwin, H. E., & Clark, T. P. (2013). Incorporating physical activity into the schools using a 3-tiered approach. *Journal of School Health*, *83*(4), 290-297.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The Teaching Pyramid: A Model for Supporting Social Competence and Preventing Challenging Behavior in Young Children. *Young Children*, *58*(4), 48-52.

Franklin, C. G., Kim, J. S., Ryan, T. N., Kelly, M. S., & Montgomery, K. L. (2012). Teacher involvement in school mental health interventions: A systematic review. *Children and Youth Services Review*, *34*(5), 973-982.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it?. *Reading Research Quarterly*, *41*(1), 93-99.

Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *The Future of Children*, *27*(1), 13-32.

Hamre, B., Hatfield, B., Pianta, R., & Jamil, F. (2014). Evidence for general and domain-specific elements of teacher–child interactions: Associations with preschool children's development. *Child development*, *85*(3), 1257-1274.

Head, B. W., & Alford, J. (2015). Wicked problems: Implications for public policy and management. *Administration & society*, *47*(6), 711-739.

Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review*, *35*(4), 583-601.

Hemmeter, M. L., Snyder, P. A., Fox, L., & Algina, J. (2016). Evaluating the implementation of the Pyramid Model for promoting social-emotional competence in early childhood classrooms. *Topics in Early Childhood Special Education*, *36*(3), 133-146.

Hills, A. P., Dengel, D. R., & Lubans, D. R. (2015). Supporting public health priorities: recommendations for physical education and physical activity promotion in schools. *Progress in Cardiovascular Diseases*, *57*(4), 368-374.

Hogg, R., Kennedy, C., Gray, C. & Hanley, J. (2012). Supporting the case for 'progressive universalism' in health visiting: Scottish mothers and health visitors' perspectives on targeting and rationing health visiting services, with a focus on the Lothian Child Concern Model. *Journal of clinical nursing*, *22*(1-2), 240-250.

Hoven, C. W., Wasserman, D., Wasserman, C., & Mandell, D. J. (2009). Awareness in nine countries: a public health approach to suicide prevention. *Legal medicine*, *11*, S13-S17.Model. *Journal of Clinical Nursing, 22,* 240 – 250.

Institute of Medicine (1988). *The Future of Public Health.* Washington, DC: National

    Academies Press; 1988.

Institute of Medicine (1994). *Reducing Risks for Mental Disorders: Frontiers for Preventive*

    Intervention Research. Washington, DC: The National Academies Press.

Jamison, D.T., Summers, L.H., Arrow, G.A.K.J., Berkley, S., Binagwaho, A., Bustreo, F.,

    …Yamey, G. (2013). Global Health 2035: a world converging within a generation. *The*

    Lancet, 382, 1898 – 1955.

Jones, S. M., & Bouffard, S. M. (2012). Social and Emotional Learning in Schools: From

    Programs to Strategies and commentaries. *Social Policy Report*, *26*(4), 1-33.

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language

    and literacy instruction in preschool classrooms serving at-risk pupils. *Early childhood*

    research quarterly, *23*(1), 51-68.

Lawrence, D., Johnson, S., Hafekost, J., Boterhoven de Haan, K., Sawyer, M., Ainley, J., &

    Zubrick, S. R. (2015). *The Mental Health of Children and Adolescents: Report on the*

    Second Australian Child and Adolescent Survey of Mental Health and Wellbeing.

    Canberra, ACT: Australian Government Department of Health.

Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., . . .

    Rahman, A. (2011). Child and adolescent mental health worldwide: Evidence for

    action. *The Lancet, 378*(9801), 1515-1525.

Kosti, R. I., & Panagiotakos, D. B. (2006). The epidemic of obesity in children and

    adolescents in the world. *Central European Journal of Public Health*, *14*(4), 151-159.

Langford, R., Bonell, C. P., Jones, H. E., Pouliou, T., Murphy, S. M., Waters, E., ... &

    Campbell, R. (2014). The WHO Health Promoting School framework for improving

    the health and well-being of students and their academic achievement. *Cochrane*

    Database of Systematic Reviews, *4.*

Lee, S., Kim, C. J., & Kim, D. H. (2015). A meta-analysis of the effect of school-based anti-bullying programs. *Journal of child health care*, *19*(2), 136-153.

LoCasale-Crouch, J., Konold, T., Pianta, R., Howes, C., Burchinal, M., Bryant, D., ... & Barbarin, O. (2007). Observed classroom quality profiles in state-funded pre-kindergarten programs and associations with teacher, program, and classroom characteristics. *Early Childhood Research Quarterly*, *22*(1), 3-17.

Marks, L., Hunter, D. J., & Alderslade, R. (2011). Strengthening public health capacity and services in Europe: A concept paper. Geneva: World Health Organization.

Mart, A. K., Weissberg, R. P., & Kendziora, K. (2015). Systemic support for social and emotional learning in school districts. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 482–499). New York: Guilford.

Merikangas, K. R., Nakamura, E. F., & Kessler, R. C. (2009). Epidemiology of mental disorders in children and adolescents. *Dialogues in Clinical Neuroscience, 11*(1), 7-20.

Meyers, A. B., Tobin, R. M., Huber, B. J., Conway, D. E., & Shelvin, K. H. (2015). Interdisciplinary collaboration supporting social-emotional learning in rural school systems. *Journal of Educational and Psychological Consultation*, *25*(2-3), 109-128.

McGinty, A. S., Justice, L., & Rimm-Kaufman, S. E. (2008). Sense of school community for preschool teachers serving at-risk children. *Early Education and Development*, *19*(2), 361-384.

Nagle, G.A. & Usry, L.R., (2016). Using public health strategies to shape early childhood policy. *American Journal of Orthopsychiatry, 86,* 171 – 178.

Naylor, P. J., Nettlefold, L., Race, D., Hoy, C., Ashe, M. C., Higgins, J. W., & McKay, H. A. (2015). Implementation of school based physical activity interventions: a systematic review. *Preventive Medicine*, *72*, 95-115.

Oberle, E., Domitrovich, C. E., Meyers, D. C., & Weissberg, R. P. (2016). Establishing systemic social and emotional learning approaches in schools: A framework for schoolwide implementation. *Cambridge Journal of Education*, *46*(3), 277-297.

Organisation for Economic Co-operation and Development (OECD). (2015). *Skills for Social Progress: The Power of Social and Emotional Skills*. Paris: OECD Publishing.

Parsons, C., Stears, D., & Thomas, C. (1996). The health promoting school in Europe: conceptualising and evaluating the change. *Health Education Journal*, *55*(3), 311-321.

Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, *10*(2), 49-88.

Rose G. (1985). Sick individuals and sick populations. *International Journal of Epidemiology 14*, 32–8.

Sanders, M.R., Burke, K., Prinz, R.J. & Morawska, A. (2017). Achieving population-level change through a system-contextual approach to supporting competent parenting. *Clinical Child Family Psychology Review, 20,* 36 – 44.

Schindler, H. S., Kholoptseva, J., Oh, S. S., Shonkoff, J. P., Yoshikawa, H., Duncan, G. J., & Magnuson, K. A. (2015). Maximizing the potential of early childhood education to prevent externalizing behavior problems: A meta-analysis. *Journal of School Psychology, 53*(3), 243-263.

Scott, D., Lonne, B. & Higgins, D. (2016). Public health models for preventing child

    maltreatment: applications from the field of injury prevention. *Trauma, Violence &*

    Abuse. 17(4) 408 – 419.

Social Research Centre. (2014). *2013 National Early Childhood Education and Care*

    Workforce Census Report. Canberra: Department of Education.

Spoth, R., Rohrbach, L. A., Greenberg, M., Leaf, P., Brown, C. H., Fagan, A., ... Hawkins, J.

    D. (2013). Addressing core challenges for the next generation of Type 2 translation

    research and systems: translation science to population impact (TSci Impact)

    framework. *Prevention Science, 14*, 319–351.

Stiffman, A.R., Stelk, W., Horwitz, S.M., Evans. M.E., Outlaw, F.H. & Atkins, M. (2009). A

    public health approach to children's mental health services: Possible solutions to

    current service inadequacies. *Administration and Policy in Mental Health and Mental*

    Health Services Research 37, 120 – 124.

Stuck, A., Kammermeyer, G., & Roux, S. (2016). The reliability and structure of the

    Classroom Assessment Scoring System in German pre-schools. *European Early*

    Childhood Education Research Journal, *24*(6), 873-894.

Tayler, C., Ishimine, K., Cloney, D., Cleveland, G., & Thorpe, K. (2013). The quality of

    early childhood education and care services in Australia. *Australasian Journal of Early*

    Childhood, *38*(2), 13-21.

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting Positive

    Youth Development Through School-Based Social and Emotional Learning

    Interventions: A Meta-Analysis of Follow-Up Effects. *Child Development, 88*(4), 1156-

    1171.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (2015). Social and

emotional learning: Past, present, and future. In J. A. Durlak (Ed.), *Handbook of*

Social and Emotional Learning. New York: The Guilford Press.

Werner-Seidler, A., Perry, Y., Calear, A. L., Newby, J. M., & Christensen, H. (2017).

School-based depression and anxiety prevention programs for young people: A

systematic review and meta-analysis. *Clinical Psychology Review*, *51*, 30-47.

Wessells, M. G. (2015). Bottom-up approaches to strengthening child protection systems:

Placing children, families, and communities at the center. *Child Abuse & Neglect*, *43*,

8-21.

World Health Organization (WHO). Ottowa Charter for Health Promotion. Copenhagen:

Regional Office for Europe, 1986.

CHAPTER TEN

General Discussion, Limitation and Recommendations

10.1 General Discussion

The overall aim of this thesis was to co-design, implement, and evaluate an intervention to support educators to foster social and emotional development and health in preschoolers. The preceding chapters describe in detail the process of developing the Cheshire Social-Emotional Engagement and Development (SEED) Educational Program using the Intervention Mapping (IM) protocol. To our knowledge, this is the first program to use the IM methodology to develop a social and emotional learning (SEL) intervention for an early learning setting.

Each step of the IM methodology provided data and evidence that informed intervention development. A comprehensive review of the literature indicated positive outcomes associated with both explicit and implicit SEL approaches for children and educators, including the benefits of educator-led Tier 2 and 3 interventions. Several gaps in programming also emerged, particularly the paucity of evidence-based supports targeting the broad range of social, emotional and behavioural difficulties that can present in early childhood. Qualitative research with educators and other early years professionals, and collaboration with the intervention design group further highlighted the capacity, enablers and barriers for educators in encouraging children's social and emotional learning. Findings indicated building on educators' skill and implicit knowledge with evidence-based, practical strategies that could be embedded into daily interactions could result in meaningful improvement in practice. A conceptual model proposed embedding children's SEL strategies within the three domains of responsive interactions that occur within early learning environments (i.e., emotional, organisational, and instructional).

Feedback and ideas collected through collaborative workshops with education and health professionals were combined with behaviour change theory to create a professional learning platform that sought to address the behavioural and environmental determinants of educator practice, and the barriers to fostering SEL in the preschool environment (i.e., time, capacity, capability, and networks). Program concepts and materials were pre-tested with stakeholders prior to a feasibility study that examined the opportunities and challenges of implementing the intervention in real world settings.

The lessons learned through this process may be relevant for educators, researchers and policy-makers seeking to design programs to support child development outcomes. There are known complexities to research within educational and social care settings (Van den Akker, Gravemeijer, McKenney, & Nieveen, 2006). It can be difficult to recruit due to the time involved, compounded by limited organisational support, research experience and infrastructure. Professionals often have not been trained in research methodology and differences may exist in understanding of what constitutes best practice, with preference for implicit knowledge, 'practice wisdom' or intuition (Mezey et al., 2015). To bridge the evidence-practice gap in early childhood, there is need for design, implementation and evaluation approaches that move beyond the question of "what works" to "what works for who and why, and in what contexts?" (Shonkoff & Fisher, 2013).

IM provided a roadmap to combine theory and evidence with the knowledge and experience held by educators and health practitioners; it enabled a systematic approach to design, evaluate and translate what is known about 'what works', while recognising and responding to the inherent philosophy and characteristics of early childhood settings. The Cheshire SEED approach is founded on a broad definition of evidence-based practice. It incorporates 'practice-based evidence', that is, the characteristics, values, priorities and desired outcomes of stakeholders and service providers (Centre for Community Child Health,

2011). By co-designing interventions, researchers can ensure they are responding to the needs of participants, combine theoretical and empirical evidence with the expertise of practitioners, and encourage collaboration and innovation across disciplines. This approach is more likely to lead to interventions that are relevant to real-world settings, with greater buy-in and potential to up-scale within current systems (Matuk, Gerard, Lim-Breitbart, & Linn, 2016).

10.2 Limitations and Recommendations

The conceptual model presented in Chapter Nine suggests layers of support are needed to enable educators to effectively embed and deliver SEL intervention that responds to the needs of all children in the room. From a co-design perspective, this model highlights the importance of engaging beyond the professionals who care and teach children within the ECEC service, to parents, families, caregivers, other support services, organisations, and government departments who influence children's health and well-being. While Cheshire SEED included parent handouts, these were informed by the perspective of the educator. Extending the co-design, through focus groups, interviews and workshops, to include caregivers and other partners may strengthen the relevance and benefits of the program. For example, the Cheshire SEED program may assist educators to recognise indicators of social, emotional, or behavioural problems in both children and other family members. The program may therefore benefit from content addressing sensitive discussions with caregivers, referral pathways and connection to support services. Applying a social determinants approach to mental health and wellbeing across the lifespan may assist identification of crucial collaborators.

The feasibility study presented in Chapter Eight highlighted the benefits and challenges of research in the ECEC environment. The data and insights provided by

educators, Cheshire coaches and observers were invaluable in the subsequent design and delivery of the intervention. However, while meaningful data were collected from both intervention and control groups following the trial, educator workload and availability, and broader situational factors within the services impacted our ability to collect the amount of data anticipated. It is vital that future evaluations of the program offer supports to enable and encourage educator participation in research processes. Educators' role is primarily scheduled in session working with children, and there tends to be limited time available outside session hours for additional activities. Ensuring enough time is allocated for professional development components and participation in data collection, in addition to data collection methods that respond to educator preference (e.g., phone interviews and online surveys, rather than paper-based surveys and focus groups) may reduce the burden for participants.

Due to time constraints, Step 6 of the IM methodology was not conducted as part of this thesis. Evaluation planning is informed by the decisions in the preceding steps and is critical to analysing the effects of the intervention, change in health and quality of life problems, behaviour, environment and their determinants (Bartholomew Eldredge et al., 2016). The Cheshire SEED program targeted educator practice to improve both educator outcomes (self-efficacy and confidence, job satisfaction, and stress), and children's social and emotional health (social and emotional skills, self-regulation, and behavioural problems), anticipating this will lead to improved quality of life indicators such as school readiness, academic outcomes, and mental and physical health. However, to date, we have not explored whether the program benefits children or their learning. Carefully planned evaluation across diverse settings and populations is vital to examine whether the anticipated outcomes have been realised.

The IM approach concludes at the evaluation planning stage. It is likely future evaluations of Cheshire SEED could yield insights that lead to further modifications and

improvements to the program. Design-Based Research (DBR) methodologies may offer valuable insight with regards to ongoing innovation. DBR focuses on developing, testing and refining pedagogical theory and aligning research more closely to instructional practice (Hoadley, 2004). While primarily conducted in educational settings, it is aligned to several characteristics of the IM methodology; it focuses on the design and testing of an intervention, uses a mixed-methods approach that can be modified as the research progresses, is based on a collaborative partnership between educator and researchers, and uses multiple iterations (Anderson & Shattuck, 2012). It may offer one approach to evaluate and improve the Cheshire SEED intervention while recognising and exploring the complexity and diversity of interactions that occur within the early learning environment (Bradley & Reinking, 2011).

In addition to the suggestions outlined above, the following recommendations relate to the ongoing development, delivery and evaluation of the Cheshire SEED Educational Program:

- Comprehensive implementation planning in partnership with early childhood educators, ECEC service providers, and other early years professionals.

- Collaboration with a broad range of partners, including a variety of ECEC service providers and caregivers, to evaluate the effectiveness of the model for both children and teachers across diverse settings, and whether any benefits persist over time.

- Examination and co-design of the support systems needed to encourage and embed behaviour change through the professional learning platform. This may include coaching models, performance-based feedback and consultation.

- Continued co-design of program components, including strategies for supporting children with specific behavioural or mental health needs, and referrals and connections to support and health, especially when an emerging mental illness in either child or family is suspected.

10.3 Conclusion

The interactions that occur in early learning programs can strengthen the social, emotional and early learning competencies that underpin children's lifelong health and wellbeing. Educators bring diverse and valued experience, knowledge and skill to their role. The Cheshire SEED Educational program attempted to build on educators' existing expertise to suggest tailored strategies that could be embedded into daily practices and routines to offer therapeutic benefit for children's social and emotional skill development. The program responded to the needs identified by ECEC professionals and gaps in the research literature, with an intervention founded in theory and evidence-based behaviour change techniques. This PhD thesis has made a novel contribution to the emerging body of SEL research in early childhood. The collaborative, social ecological perspectives that underpin the IM methodology led to the creation of a program that was relevant and usable, and, although the data reported are preliminary in nature, appeared to be associated with improved educator outcomes. The findings provide support for continued efforts to integrate multi-disciplinary approaches to address important public health issues, such as mental health, in early childhood settings.

10.4 Chapter References

Anderson, T., & Shattuck, J. (2012). Design-based research: A decade of progress in education research?. *Educational Researcher*, *41*(1), 16-25.

Bradley, B. A., & Reinking, D. (2011). Enhancing research and practice in early childhood through formative and design experiments. *Early Child Development and Care*, *181*(3), 305-319.

Centre for Community Health. (2011). Evidence-based practice and practice-based evidence: What does it all mean? (Policy Brief 21). Retrieved from https://ww2.rch.org.au/emplibrary/ecconnections/Policy_Brief_21_-_Evidence_based_practice_final_web.pdf

Hoadley CM (2004) 'Methodological Alignment in Design-Based Research'. *Educational Psychologist, 39*(4), 203–212.

Matuk, C., Gerard, L., Lim-Breitbart, J., & Linn, M. (2016). Gathering Requirements for Teacher Tools: Strategies for Empowering Teachers Through Co-Design. *Journal of Science Teacher Education*, *27*(1), 79–110.

Mezey, G., Robinson, F., Campbell, R., Gillard, S., Macdonald, G., Meyer, D., … White, S. (2015). Challenges to undertaking randomised trials with looked after children in social care settings. *Trials*, *16*(1), 206.

Shonkoff, J. P., & Fisher, P. A. (2013). Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Development and psychopathology*, *25*(4), 1635-1653.

van den Akker, J., Gravemeijer, K., McKenney, S., & Nieveen, N. (2006). Introducing educational design research. In J. van den Akker, K. Gravemeijer, S. McKenney & N. Nieveen (Eds.), *Educational design research* (pp. 3-7). London: Routledge.

APPENDIX A

Supporting Files for Chapter Three

Supporting files for the following paper:

Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., ... & Skouteris, H. (2018). Social and Emotional Learning Associated with Universal Curriculum-Based Interventions in Early Childhood Education and Care Centers: A Systematic Review and Meta-analysis. *JAMA Network Open*, *1*(8), e185727-e185727.

Supplementary Online Content

eFigure1. Example Search Strategy

eTable 1. Descriptive Summary of 81 Studies Examining Universal Social and Emotional Learning Programs in Preschool Settings

eTable 2. Social and Emotional Learning Program Descriptions

eTable 3. Summary of Constructs within each Domain of Social-Emotional Development and Measures Used

This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure1. Example Search Strategy

Databases: PsychInfo, Medline Complete, ERIC

Limiters: Peer-reviewed, published between January 1990 and December 2017

No limits on language were applied. Studies that were not available in English were translated via Google Translate where format allowed (e.g. pdf file). Papers saved in a file format that could not be translated to English in Google Translate were excluded (e.g. pic file)

Intervention* OR program* OR curricul*

AND

"early learning centre" OR "early learning center" OR preschool* OR "pre school" OR "pre-school" OR childcare OR "child?care" OR kinder* OR "pre?kindergarten" OR "pre-K" OR "pre K" OR "day care" OR daycare OR "Head Start" OR "HeadStart"

AND

"social development" OR "emotion* development" OR "social learning" OR "emotion* learning" OR "social emotional learning" OR "social-emotional learning" OR "social and emotional learning" OR "SEL" OR "social skills" OR "emotional skills" OR "self-esteem" OR empathy OR "emotional intelligence" OR "conflict resolution" OR "problem?solving" OR resilien* OR aggress* OR anxi* OR prevent* OR externali* OR internali* OR withdraw*

---

eTable 1: Descriptive Summary of 81 Studies Examining Universal Social and Emotional Learning Programs in Preschool Settings

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Allen (2009)[c]	Creating a New Generation of Peacemakers (Peacemakers Program)	161	IG 5.0 (0.1) CG 4.8 (0.5)	IG 47.5 CG 50.0	U.S., IG 74.3% White, CG 86.7% White	-	IG showed significant improvement in skills taught in program compared to CG.
Amesty (2009)	Second Step (Spanish Translation)	280	3.0-5.0	IG 49.0 CG 51.0	Venezuela	Low	Significant improvement in social knowledge (ability to identify feelings, describe non-verbal signals and generate solutions to social problems, coded as emotional competency) in IG compared to controls.
Anliak (2010)	I Can Problem Solve	83	5.0-6.0	51.8	Turkey	-	IG increased prosocial behaviour and decreased introverted behaviours compared to CG. The groups did not differ on aggression.
Anticich (2013)[c]	Fun Friends	488 *Study included intervention, active comparison (You Can Do It!) and control group*	5.4 (0.7)	55.5	Australia, majority White	Mid	Children in IG showed improved behaviour and emotional strengths at post-test compared to control and active control groups. Both IG and active control group displayed less behavioural inhibition than CG at post-test, the IG showed greater improvement than the active control group. The IG and active control group showed significantly greater reduction in behavioural difficulties at post compared to CG.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Aram (2008)	The Safe Kindergarten	92	IG 5.4 (0.3) CG 5.5 (0.2)	IG 43.5 CG 47.8	Israel, White	Upper-Mid	IG showed greater improvement in communication skills (longer dialogue, emotionally and cognitively expressive, more clearly describe feelings and difficulties in a situation of being hurt) and social skills (number of conscious references to the story characters' inner worlds, number of solutions that the children generated for conflictual social situations) compared to CG. Groups did not differ on empathetic responding, information recalled or percentage of effective solutions generated in a structured assessment of social information processing.
Arda (2012)[c]	PATHS	95	6.0	IG 51.9 CG 48.9	Turkey	-	Children who participated in the program showed significantly greater improvement than comparison peers in aggressive/disruptive behaviours, concentration/attention and social-emotional competence, based on teacher report. No significant difference in children's receptive emotional vocabulary.
Ashdown (2011)	You Can Do It! Early Childhood Education Program	100 *Prep children only = 42*	5.0	45.5	Australia, mixed	Low	Teachers reported significantly improved social-emotional wellbeing, social-emotional competence and social skills in IG compared to CG. Intervention did not appear to decrease problem behaviours or increase reading level.
Barnett (2008)	Tools of the Mind	210	3.0-4.0	47.1	U.S., 92.6% Latino	Low	Intervention predicted significant reduction in problem behaviours (internalising and externalising). Results indicative of improved vocabulary development (PPVT-III), however effects were small and did not reach significance in multi-level models or after adjustments for multiple comparisons. No difference between intervention and control recorded for math skill, reading decoding, early literacy, expressive vocabulary.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Bassett (2008)	ABCs of Feelings	70 Study included intervention, wait list control and active control group	3.6 - 5.5	41.4	U.S., Mixed	Low	Program led to significant increase in IG children's emotional knowledge compared to CG.
Benitez (2011)	Aprender a Convivir	147	4.0	IG 50.0 CG 42.0	Spain	-	IG made significantly greater improvement than CG in social cooperation, social interaction, social independence, externalising, internalising, emotional reactivity, anxious-depressive, somatic complaints, shyness, attention problems and aggress behaviour. All measures completed by teacher.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Bierman (2008)	Head Start REDI (Research-based, Developmentally Informed) Program, including PATHS	356	4.6 (0.3)	54	U.S., Mixed	Low	Participating children improved in the following skill-based measures compared to controls: vocabulary, emergent literacy skills, emotional recognition, aggressive and inept responses, and competent responses. Print awareness and emotion identification reached borderline significance. There was no difference in grammatical understanding.

In terms of child behaviour, a significant intervention effect was observed for teacher-rated aggression, observed task orientation and parent-report of language/communication. A trend towards significance was found for teacher-rated social competence, parent-rated aggression, attention problems, and reading activities, and observer-rated social competence. No differences for parent-rated social competence, observer-rated aggression or teacher-rated learning engagement or attention problems. |
| Boyle (2008) | I Can Problem Solve | 226

Study compared one-year instruction, two-year instruction and control group | Kindergarten and G1 | IG 55.0 CG 58.0 | U.S., 85% Hispanic | Low | IG children who participated over two years exhibited more prosocial and less relational aggressive behaviour than both CG and children who participated for one year. On a measure of overt aggression, children with two years in program improved significantly more than controls. Using a different measure (HBRS), both instruction groups showed greater improvement in prosocial behaviour than the CG, with no difference between intervention groups. There was no significant difference between groups on aggression/impulsivity and passivity on this measure. |

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Brigman (1999)	Ready to Learn	145	4.0-5.0	50.0	U.S., 95% Black	-	Participating children showed significant gains in social skills and attending behaviour compared to controls. IG scored significantly higher on story structure (a subtest of listening comprehension) but not on overall score of listening comprehension.
Brigman (2003)	Ready to Learn	260	5.7	50.0	U.S., predominately White	Mid	IG scored significantly higher in listening comprehension (story structure) and behaviour compared to CG.
Carpenter (2002)	Curriculum on the Management and Promotion of Appropriate Social Skills (COMPASS)	80	4.1	46.3	U.S., 91.3% Caucasian	Low	Study did not report significant improvement in aggression or social skills post intervention.
Conner (2011)	Making Choices (adapted)	67	3.0-4.0	IG 54.8 CG 41.7	U.S., 77.9% African American	Low	Significant improvement across all measures: academic competence, social competence, peer acceptance and relationships, school performance, relationship with caregivers and aggressive hostile behaviour.
Deacon (2012)[c]	Social-Emotional Competence Development Intervention	48	5.0-6.0	54.2	South Africa, 58.3% Afrikaans, 41.7% English	-	Comparison of means at post-test indicated significant improvement in social competence and decrease in internalising behaviour. No significant effect for externalising behaviours found.
Denham (1996)	Social Emotional Intervention	130	4.1 (0.4)	-	U.S., 76% ethnic minorities	Mixed	After accounting for pre-test score and confounding variables, intervention predicted increase in social competence, productiveness, peer skills and decrease in negative affect. No significant difference between IG and CG on observed measure of positive affect.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Dereli (2009)	Social Skills Training Program for Children (The Incredible Years)	55	6.0	-	Turkey	-	Post-test scores showed significant improvement for participating children in social problem-solving and understanding of feelings.
Dereli-Iman (2014)[c]	Values Education Programme	66	5.8	-	Turkey	-	Based on pre-post difference in IG (pre-post difference in CG not significant). Significant improvement in social skills, psychosocial behaviour and problem solving.
Dobrin (2013)	Preventative Program	49	6.1(0.3)	46.9	Romania	-	Based on parent and teacher assessment at post-test, IG significantly improved social and emotional competencies.
Domitrovich (2007)	Preschool PATHS	246	IG 4.2(0.5) CG 4.4(0.5)	IG 55.0 CG 48.0	U.S., Mixed	Low	At post-test, IG showed greater improvement than CG in emotion vocabulary, knowledge of emotion expression and affective perspective taking, and less anger attribution bias. Based on teacher-report, participating children scored higher on social skills (cooperation, emotional awareness, interpersonal skills), displayed less internalising, and were less likely to be withdrawn or lacking friends compared to controls. There was no difference between groups on externalising behaviour. According to parent report, IG were more socially and emotionally competent than children in control classrooms. There were no significant group differences on parents' ratings of externalising or internalising behaviour.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Dubas (1998)	Resilient Children Making Choices (Al''s Pals: Kids Making Healthy Choices)	240	4.6	47.3	U.S., 76% African American	Described as at-risk	IG made significant improvement in behaviour compared to CG.
Fishbein (2016)	PATHS	327	Kindergar ten aged	-	U.S., predominately African American	Low	Children who took part in the program made significantly greater improvement than children in the control group on measures of aggression and internalising behaviour, social competence (emotional regulation and prosocial behaviour), impulsivity and inattention, and teacher-student relationship (conflict and closeness), peer relations and academic skills.
Flook (2015)	Kindness Curriculum	68	4.7 (0.3)	50.0	U.S., Mixed	Mixed	Significant gains in emotional regulation, sharing and delay of gratification in IG compared to CG. Children in intervention group increased prosocial behaviour, however this did not remain significant after accounting for age and gender.
Garrison (2017)	Self-Compassion and Mindfulness Training	69	4.5 (0.6)	44	U.S., 88.7% Hispanic	Low	Participating children showed significantly lower levels of emotion reactivity, withdrawal, attentional problems, aggression, sleep problems and other problems than control group children. Somatic complaints were lower in IG than GC, reaching marginal significance. A trend towards improved anxiety and depression outcomes in IG identified. There was no significant difference between groups on emotional regulation (trend towards lower lability and negativity in IG compared to CG identified).

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Gavazzi (2011)	Emotional State Talk Intervention	100	4.3(0.8)	50	Italy	Mid	IG children significantly increased emotion comprehension and inner state language comprehension compared to controls. No difference between groups in terms of lingual comprehension.
Giménez-Dasí (2015)	Educational intervention program to improve emotion knowledge, emotion regulation, and social competence	57	2.2	47.4	Spain., 74% Spanish	Mid	After adjusting for cognitive development, program participation predicted increased emotional comprehension. No difference between groups for emotion regulation, social competence, anxiety/withdrawal or anger/aggression.
Gunter (2012)	Strong Start Pre-K	84 *Study included intervention, intervention plus booster lessons and control group*	Preschool-aged	50.0	U.S., Mixed	-	Lower levels internalising behaviour in IG compared to CG (IG showed greatest reduction initially, group who received booster lessons post-intervention showed greatest reduction over time) and less conflict in teacher-child relationship. Groups did not differ on emotional regulation, teacher-child closeness or dependency.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Hall (2008)	Stop and Think	63 *Study used a sequential cohort design. The posttest for Cohort 1 (C1) and pretest for Cohort 2 (C2) were administered on the same day so C2 could be used as a non-equivalent CG for C1.*	IG 5.9 (0.5) CG 6.2 (.5)	IG 65.5 CG 44.1	U.S., 89.7% White, CG 100% White	-	Children who participated in program showed greater improvement in social skills and academic competence, and lower levels of problem behaviours between pre and post-test. Comparison of post-test scores with pre-test scores collected at the same time for Cohort 2 indicated changes were unlikely to be caused by maturation.
Hamre (2012)[c]	My Teaching Partner (including PATHS)	980 *Teachers assigned to one of three conditions PATHS-High, PATHS-Low and control group*	PATHS-High 4.4(0.3) PATHS-Low 4.4(0.3) GC 4.4(0.3)	PATHS-High 53.0 PATHS-Low 50.0 CG 51.0	U.S., Mixed	Low	Children who took part in PATHS intervention showed greater improvement in social competence, after controlling for pre-test score and wide range of child, teacher and classroom covariates. The groups did not differ at post on teacher-reported measure of social problems.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Han (2005)	Pre-k RECAP (Reaching Educators, Children and Parents)	149	4.4 (0.3)	56.0	U.S., 89% African American	Low	According to teacher report, IG children made significantly greater improvement in behaviour problems (internalising and externalising), emotional reactivity, withdrawal and attention problems than the CG. Main effect of group was non-significant for anxious/depressed, somatic complaints and aggressive behaviour subscales. Teacher-reported social skills (cooperation, assertion) were also significantly improved in the intervention group compared to comparison children, however the groups did not differ on self-control. Parent report of children's total problems or social skills did not show significant improvement in IG compared to controls.
Hughes (2015)	Promoting Alternative Thinking Strategies (PATHS)	57 *Study included intervention, an adapted version of the intervention and control group*	3.0-4.0	50.8	U.K.	Low	Children who took part in the full PATHS program improved significantly in receptive emotion vocabulary compared to controls and compared to the group of children who received an adapted version of the program. There was no difference between groups on affective perspective taking. Based on teacher report, children who took part in full PATHS improved behaviour, emotional symptoms, conduct problems, hyperactivity and prosocial scores between assessments (other groups did not show improvement). There was no statistically significant difference between groups on a measure of peer problems. No significant interactions were found for the following outcomes based on parent report: emotional symptoms, conduct problems, hyperactivity, peer problems, or prosocial skills.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Izard (2004)[c]	Emotions Based Prevention Program	116	3.8	45.0	U.S., Mixed	Low	After accounting for pre-test score and other covariates (age, gender, verbal ability), the intervention led to increase in overall emotion knowledge (emotion labelling, emotion recognition, receptive emotion vocabulary reached borderline significance) and negative emotion expression. There was no difference between groups on teacher reported social and academic competence.
Izard (2008) (Study 1)	Emotions Based Prevention Program	191	3.9 (0.6)	47.6	U.S., Mixed	Low	In a model that included several covariates, IG predicted decreased aggressive behaviour, anxious/depressed behaviour, lability/negative emotionality and negative emotion expression, and independent observer record of negative behaviour and emotions. Did not find evidence for increased emotion knowledge (however did reach statistical significance for children who were at least 4 years at pre-test), or positive or adaptive behaviour.
Jack (2009)	Second Step	102	5.5 (0.5)	56	U.S., Mixed	Majority did not receive free lunch	IG significantly decreased perpetrator behaviours compared to CG. These are indicators of aggressive behaviour in school environments.
Jakob (2005)	Second Step	56	5.0	44.6	U.S., all Caucasian	-	Children who participated in the intervention showed greater improvement at post-test in prosocial behaviour, greater decrease in aggressive behaviour and problem behaviours, and better impulse control compared to CG. There was no statistically significant difference between IG and CG on measures of attention or teacher-reported prosocial behaviour based on the Teacher Behaviour Rating Form.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Justicia-Arráez (2015)	Aprender a Convivir	313	3.0	51.7	Spain	Mid	Significant gains in IG children's social competence (cooperation, interaction and social independence) and conduct problems (internalising and externalising) compared to CG peers, based on teacher report.
King (2001)	Stop and Think (adapted)	112	6.2	50.9	U.S., 78% Caucasian	Mixed	IG demonstrated significantly lower problem and hyperactive behaviours than CG. No significant difference between IG and CG on social skills (assertion, cooperation, self-control) or learning behaviours.
Koglin (2011)	Behavioural Training for Preschool	90	5.4	47.4	Germany, Mixed	Mixed	Children who participated in the intervention showed less hyperactivity, less problems with peers, improved emotional regulation and academic skills compared to controls. No effects identified for aggressive behaviour or emotional problems. Both groups saw increase in prosocial behaviour, with no statistically significant difference between the two groups.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Landry (2014)	Responsive Early Childhood Curriculum plus explicit social-emotional classroom activities	542 *Study included RECC, RECC plus explicit social-emotional classroom activities and control group*	2.9 (0.6)	51.0	U.S., 78% African American	Low	Average of the two IGs significantly higher than CG for expressive, receptive and situation emotions understanding, with no difference between the intervention groups. No group differences found for vocabulary, early literacy, complex language or math knowledge. Average closeness in the teacher-child relationship was greater in intervention groups than control group, and average conflict was lower in intervention groups compared to controls. There was greater decline in anxiety in the RECC plus explicit SEL compared to other groups. Intervention groups showed more change over time in social competence, the group without explicit SEL showed significant difference between pre and post test, for the group with explicit SEL, a significant difference was only observed between pre and mid assessment points. No differences between group on measures of anxiety and withdrawal.
Larmar (2006)	The Early Impact Program	455	IG 4.4(0.5) CG 4.3 (0.5)	IG 50.5 CG 38.5	Australia	-	Based on teacher report, IG significantly outperformed CG at post-test on conduct problems, hyperactivity, peer relationships and prosocial behaviours, there were no differences between groups at pre-test. The groups did not significantly differ on anxiety at post-test (though did at follow up). Parent report did not identify significant differences between groups at post-test for conduct problems, hyperactivity, emotion problems, peer problems or prosocial behaviour.
Lewis (2012)	Fun FRIENDS	110	5.11	-	U.S.	-	Anxiety symptoms increased from pre to post for children in the intervention school whereas they decreased for children in the control school.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Lonigan (2015)	PATHS	855 *Participants assigned to one of three conditions. Explicit: PATHS and classroom and behaviour management skills, Implicit: classroom behaviour and management skills only and control*	4.5 (0.4)	53.0	U.S., Mixed	Mixed	Positive impacts for both intervention groups on language, phonological awareness, math, and socioemotional outcomes, but there were no added benefits to academic or socioemotional outcomes (including anger and aggression and anxiety) for the children receiving explicit SEL instruction.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Lösel (2006)	Parent and Child Training Program Package, based on I Can Problem Solve	168 *Study evaluated the effectiveness of a child social skills training program, parenting training, and a combination of both. Data reported relates to kindergarten intervention.*	4.0-5.0	55.2	Germany	Mixed	Significant improvement in total problems and emotional problems for IG compared to CG. No significant difference between groups on measure of social problems or hyperactivity/inattention.
Lynch (2004) (1996-97 Michigan Controlled Study)	Al's Pals: Kids Making Healthy Choices	399	IG 4.4 CG 4.3	IG 50.0 CG 48.5	U.S., Mixed	Low	Significant improvement in IG on the Child Behaviour Rating Scale, and social independence and problem behaviour subscales of the Child Behaviour Rating Scale, compared to CG.
McKinney (1998)	Taking Part	29	4.1 (0.6)	58.6	U.S., 100% African American	-	Significant difference between IG and CG on teacher-rated problem behaviour. No difference for parent rated social skills, problem behaviours or teacher rated social skills.
Mishara (2006)	Zippy's Friends	418 *Kindergarten classes only*	IG 6.2 (0.4) CG 6.1 (0.4)	46.7	Canada Research conducted in Lithuanian kindergartens	-	Greater improvement in IG compared to CG on measures of assertion, self-control, cooperation and empathy, externalising, hyperactivity and coping strategies. No differences between groups on internalising.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Moisan (2014)	Promoting Social Competence in Classrooms	182 *Universal program, assessment focused on children with elevated aggression. Study included PSC, PSC plus dyadic peer intervention and control group*	Kindergarten	31.0	Canada, 97% Canadian	Mid	Children in experimental conditions showed better social problem-solving skills compared to children in the control group. A marginal increase also reported for cooperation in the two experimental conditions. Overall, the impact of the PSC DPI condition was not superior to the PSC only condition.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Morris (2014)[c, e]	Head Start CARES Demonstration Project (including PATHS, Tools of the Mind-Play and Incredible Years Teacher Training. Incredible Years Teacher Training not considered curriculum-based SEL in this review)	2,114	4.4	48.8	U.S., Mixed	Low	*PATHS:* Children in IG were better able to identify emotional expressions of faces, emotions in pictures and in short scenarios, and were better able to generate competent responses to peer-provocation scenarios compared to CG peers. Teachers reported increased positive social behaviours in IG compared to controls. Based on teachers' reports and interviewers' assessments, no difference between groups on behaviour problems and executive function skills, with exception of teacher's report of children's learning behaviours which was greater in IG compared to CG. *TOOLS:* No difference between groups on behaviour regulation, executive functioning skills or learning behaviours. IG children were better able to identify emotions correctly compared to CG. Children did not however show more competent social problem-solving solutions, or higher social behaviours based on teacher report.
O'Connor (2014)	INSIGHTS	435 *Intervention delivered in Kindergarten and G1*	5.4 (0.6)	48	U.S., 75% Black, non Hispanic	Low	IG displayed greater growth in math and reading ability, improved attention and greater decreases in behaviour problems over time, compared to CG children.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Opre (2013)[c]	Rational Emotive Education Program Social Emotional Learning Facilitator Kit (SELF Kit)	223 *Study (#1) included intervention, active control and control groups, facilitated by teachers with and without REE expertise*	4.0-6.0	52.0	Romania	-	Children in IG with a teacher with REE expertise demonstrated greater improvement in social, emotional and behavioural skills compared to non-systematic REE intervention groups, regardless of expertise.
Ornaghi (2017)	Conversational Approach	95	2.5 (0.3)	43.2	Italy	Mid	After controlling for age and general language ability, IG children performed better on measures of emotion knowledge and emotional state talk, and demonstrated more prosocial behaviour than CG peers. The intervention did not have a significant effect on levels of aggression.
Ornaghi (2015)	Conversational Approach	75	5.1 (0.6)	45.3	Italy	Mid	Greater improvement in objective assessment of prosocial orientation and emotion comprehension in IG compared to comparison children. There was no difference between groups on false belief understanding.
Ostrov (2015)	Early Childhood Friendship Project - Revised	141	3.8 (0.6)	47.5	U.S., Mixed	Mid	Intervention reduced relational bullying in the IG compared to CG, and reduced relational and physical victimisation for girls in the IG relative to the CG.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Pahl (2010)	The Fun FRIENDS Program	263	4.6	47.9	Australia	Mixed	Teacher report indicated lower behavioural inhibition and higher social competence in IG compared to CG at post-test. No significant differences in behaviour inhibition, social competence or anxiety were identified via parent report at post-test
Peterman (2008)	Project Primer	95 *Children in preschool classes only*	5.0	49.2	Germany	Mixed	IG children displayed lower burden of social-emotional problems compared to control group children. The intervention did not lead to significant differences between IG and CG on measures of social competence, emotional competence and aggressive behaviour.
Pickens (2009) [c]	The Peace Education Foundation Socio-Emotional Development Program	296	4.0 (0.7)	51.0	U.S., Mixed	-	Based on teacher report, participating children showed greater social cooperation, social interaction, social independence, and lower levels of externalising and internalising behaviours compared to controls.
Poehlmann-Tynan (2016)	Kindness Curriculum (Adapted)	29	3.9 (0.5)	49.0	U.S., 72% Non-White	Low	Participating children significantly improved integrated self-regulation compared to controls. Significant differences not reported for empathetic responding, representations of empathy, or representations of compassion.
Randall (2011)	First Friends	87	5.4	41.4	Canada	Low	IG demonstrated significantly stronger observed socio-emotional and social cognitive abilities, more prosocial behaviours, and less negative behaviours compared to a control group. Parent and teacher reports did not reveal significant changes

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Reid (2007)	The Incredible Years Child Training Curricula	340 *Delivered as a universal program see Webster-Stratton et al., 2008. This paper focused on children with moderate – high risk behaviour. Study included intervention, intervention and home component and control groups*	5.6	40.9	U.S., Mixed	Low	Significant difference between IG and CG on teacher reported externalising measured by Social Competence and Behaviour Evaluation – Preschool Edition. No differences between children who took part in classroom based version of program and CG on measures of negative behaviour, externalising and internalising based on CBCL, prosocial behaviour, emotional regulation or social competency.
Rodker (2013)	Zippy's Friend	127	5.0	41.6	U.S., Mixed	-	Teachers reported greater social skills in IG compared to CG. No differences recorded for parent-rated social skills, parent or teacher rated problem behaviours, theory of mind or affect recognition
Saltali (2010)	Emotional Education Program, based on PATHS	64	6.0	-	Turkey	-	In a post-test comparison, participating children demonstrated greater emotion understanding, emotion identification and emotion expression compared to control group children.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Sandy (2000)	Peaceful Kids Conflict Resolution Program	248 *Participants assigned to one of three conditions: staff and child training; staff, child and parent training; and CG. Sample size is based on number of participants included in analyses*	2.5-6.0	54.0	U.S., Mixed	Low	Children who took part in staff, child and parent training showed greater improvement in response to conflict situations, improved assertiveness, self-control and reduced internalising compared to children in control or staff and child training conditions. Children in staff, child and parent training showed greater cooperation than children in staff and child training, and reduced internalising compared to staff and child training.
Schell (2015)[b]	Lubo from Outer Space	221	IG 5.2 (0.5) CG 5.2 (0.4)	IG 54.8 CG 49.5	Germany	Mixed	Greater improvement in social problem solving in IG compared to control, in a mixed model adjusting for confounding variables (gender, age, disease/ disability, baseline). Group differences on measures of externalising, problem behaviours, internalising, prosocial behaviour were not significant after adjusting for confounding variables.
Schmitt (2014)[c]	The Positive Action Program	135	Preschool -aged	46.0	U.S.	-	Compared to CG, IG children displayed significantly improved outcomes across the total scale score and all subscale scores in in assessment of the 11 different domains addressed by the program.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Schmitt (2017)	The Positive Action Program	75	4.3 (0.6)	47.0	U.S., Mixed	Low	Findings showed positive direction on children's social problem solving and parent-rated social-emotional competence although this did not reach statistical significance. Teachers reported IG children decreased in social-emotional skills. There was no difference between groups on aggressive problem solving.
Serna (2000)[b]	Self-Determination Program	84	4.5	44.0	U.S., 71.4% Hispanic	Low	Children who took part in the program demonstrated significantly greater improvements in problem behaviour, inattention/overactivity, adaptive behaviour and social interaction than comparison children based on teacher report. No difference observed on maladaptive behaviour, aggression, oppositional/defiant, overall functioning and critical events. Parent report showed statistically significant improvement in social skills for intervention group children compared to controls, with no differences between groups on problem behaviours or communication.
Serna (2003)[b]	Self-Determination Program	111	4.1	50.0	U.S., 82% Hispanic	Low	IG showed greater change in problem behaviours and ADHD symptoms compared to CG. No differences between groups for adaptive behaviour, social interaction, maladaptive behaviour, aggression, or critical events.
Seyhan (2017)[c]	PATHS Preschool Program	565	4.0-6.0 years	47.0	Turkey	Mid	No significant differences between groups were found at pre-test. At post-test, children who participated in the program showed greater social-emotional skills, interpersonal relationship skills and emotional regulation, more positive teacher-student relationship and greater dependency in the teacher-student relationship. There were no differences in the levels of conflict and closeness in the student-teacher relationship based on teacher report.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Starnes (2017)	Second Step	63	5.2	57.1	U.S.	Upper-mid	At post-test, children in IG exhibited greater verbal and quantitative reasoning and mathematics than CG. No difference for early literacy achievement.
Stefan (2013)	Social Emotional Prevention Program	158 (note: sample at baseline = 204, however demographics reported for final sample of 158)	IG 4.2 CG 4.1	IG 52.8 CG 58.0	Romania	Mid – High	After accounting for age, gender and pre-test score, intervention status predicted improved ability to name emotions, recognise emotions, positive solutions for possible conflict situations, teacher-rated social competence, emotional competence and reduced externalising problems. No effect identified for teacher-rated internalising.
Stephenson (2009)	Second Step	41	3.9 (0.5)	41.5	U.S., Mixed	Mixed	No differences between IG and CG found for anti-social behaviour, overt/physical aggression, or relational aggression.
Tominey (2011)	Red Light Purple Light	65	4.6	60.0	U.S.	Mixed	No treatment effect found for behavioural self-regulation after controlling for covariates (however improvement in the expected direction). Post hoc tests showed participation in IG was related to self-regulation gains in children who started the program with low skill level. IG children showed significantly greater improvement in letter-word identification compared to CG children. Scores in applied problems and picture vocabulary did not differ between groups.
Ulutaş (2007)	Emotional Intelligence Education	120	6.0	50.0	Turkey	NR	IG children demonstrated improved emotional intelligence and empathy at post-test, compared to CG, after accounting for pre-test scores.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Upshur (2017)	Second Step Early Learning (SSEL) Curriculum – expansion of Second Step (SEL + EF)	492	4.5 (0.3)	49.8	U.S., Mixed	Low	Controlling for baseline executive functioning, social-emotional skills, cognitive ability, parent income, child gender, age, and ethnicity, participating children had marginally better end of preschool social-emotional skills.
Upshur (2013)	Second Step Pre/Kindergarten Social and Emotional Learning	Year 1 233 Year 2 177	Year 1 IG 3.9 (0.7) CG 4.2 (0.7) Year 2 IG 3.7 (0.7) CG 4.0 (0.7)	Year 1 IG 40.9 CG 54.0 Year 2 IG 35.1 CG 50.8	U.S., Mixed	Mixed	In Year 1, the IG group showed greater decrease in behaviour problems than CG, however this was not significant after accounting for baseline score. No differences between IG and CG on prosocial skills in year 1, or on prosocial skills or behaviour problems in year 2.
Vestal (2001)	40-hour College-level course, including I Can Problem Solve curriculum.	64	IG 4.9 (0.6) CG 4.9 (0.5)	IG 53.6 CG 46.4	U.S., IG 73.0% Black, CG 74.1% Black	Low	Children in IG provided more relevant solutions, higher relevancy scores and lower force ratio scores than children in the comparison group.

First Author (Year)	Program	Sample Size at Baseline[a]	Mean Age in Years (SD)	% Female	Nation/ Ethnicity	SES	Findings Related to Difference Between Intervention and Control Groups on Child Social-Emotional Outcomes at First Assessment Post Intervention
Webster-Stratton (2008)[d, e]	Incredible Years (IY) Teacher Classroom Management and Child Social and Emotion curriculum (Dinosaur School)	1,768	5.3 (1.1)	50	U.S., Mixed	Low	Observations showed significant improvement in children's emotional self-regulation, social competence and conduct problems compared with the control children. Effect sizes were strongest for children from classrooms with the poorest initial scores, and significant main were effects identified for conduct problems, disengagement, time in solidary play, positive interactions with teacher, positive interactions with peers and time spent engaging with peers. Conduct problems and disengagement significantly differentially improved in the intervention classrooms compared to the control condition. Children from classrooms that were most at initial risk benefited most from the intervention.

[a] Where studies included preschool and primary school aged children and data for preschool and primary school aged children was reported separately, sample size is based on preschool-aged children.
[b] S =Social; E=Emotional; P = Problem Behaviour and Emotions; B= Behavioural Self-Regulation; L = Early Learning Outcomes
[c] Study not included in meta-analysis
[d] Certain data included in meta-analysis
[e] Due to time constraints, authors not contacted for additional data

eTable 2: Social and Emotional Learning Program Descriptions

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
ABCs of Feelings	To increase emotional knowledge	Focus on emotional knowledge. Each concept is taught and reinforced before the next is introduced. The program alternates between one week of learning a new concept and one week of reinforcement and integration.	Facilitator, California School of Professional Psychology Trainees selected by their supervisor to participate in the study	Once a week, 10-20 minutes for 12 weeks, delivered to small group (5-8 children)	Weekly newsletter	Bassett (2008)
Aprender a Convivir	To develop social competence and deter development of risk behaviours.	Program divided into four blocks sequenced according to the participants' developmental process; Block 1: rules and rule-following, Block 2: feelings and emotions, Block 3: communication skills and Block 4: help and cooperation. Each session starts with a group activity followed by both individual activities (colouring handouts, working with play dough, puzzles) and group activities	Teacher	1.5 hours per week (2 x 45 minute sessions), 4 blocks taking 3 weeks each	First session of each block included planned activity with parents, aimed to create dialogue between parents and children, and reinforce and encourage the transfer of classroom content.	Benitez (2011)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
		(games, songs, role-playing, tales) allowing the children to verbalise what they are doing and why.	Teacher and specialist	2 times per week for 12 weeks	-	Justicia-Arráez (2015)
Al's Pals: Kids Making Healthy Choices.	To identify and understand feelings, express and respond in prosocial ways, appreciate different ideas, think flexibly, distinguish between safe and unsafe substances and situations, make healthy choices and solve interpersonal conflict in non-violent ways.	During each lesson, teacher introduces key concepts that are reinforced throughout the week. Lessons included games, guided creative play, extensive use of puppetry, children's books, photographs, and original songs to convey health-promoting concepts and to enhance prosocial life skills.	Teacher	43 lessons, 20 minutes per lesson for 6 months	-	Dubas (1998)
			Teacher	2 times per week (15-20 minutes per lesson) for 23 weeks	Offers methods to communicate to parents. Parent letters explain what is being taught in the curriculum and offer activities for home.	Lynch (2004)
Behavioural Training for Preschool	To reduce aggressive, shy and withdrawn behaviour.	Skills are promoted in three domains: emotional competencies, problem-solving skills and social skills. Program is based on a story about two mermaids, a boy and a girl of preschool-age and a dolphin. Stories used to motivate children and to introduce typical social problems. Discussions, role-play	Teacher	1-2 lessons per week for an average 35 minutes.	-	Koglin (2011)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
		and games included. Units focus on recognising and naming feelings and solving age-appropriate conflicts. Lesson sequence is based on the social information processing model.				
Conversational Approach	To train preschool children in the comprehension of the nature, causes, and regulation of emotions.	Sessions held during circle time. Three training sessions devoted to each of the four target emotions: during the first session, children were trained in understanding the nature of the target emotion, in the second lesson, children focused on understanding its causes, and in the third session, on understanding that it is possible to regulate this emotion. Children encouraged to converse with their peers about the nature, causes, and regulation of emotions, drawing on their own personal experience.	Researcher	2 times per week for 6 weeks. Each session lasted around 1 hour. Delivered to small group (5-6 children)	-	Ornaghi (2015)
			Teacher	15 minutes daily for 2 months. Delivered to small group (4-5 children)	-	Ornagi (2017)
Curriculum on the Managemen	To teach basic individual social skills.	Program includes instructional and rehearsal components. During instruction, teachers model	Teacher	2 times per week, 15 minutes	-	Carpenter (2002)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
t and Promotion of Appropriate Social Skills (COMPASS)		inappropriate and appropriate behaviours using hand puppets. Social skills included cooperation, participation, validation/support, and communication. To rehearse, children role-play appropriate behaviours with hand puppets with a play partner during a cooperative activity.		circle time and small group practice for 6 weeks		
Early Childhood Friendship Project – Revised	To reduce physical and relational aggression, peer victimisation, and increase prosocial behaviours.	Updated program includes additional lessons focusing on helping and sharing behaviour, and verbal aggression. Each week involves 4 intervention blocks: a lesson facilitated by puppets, in vivo practice through reinforcement during free play, a passive participatory activity (e.g., craft), and an active participatory activity (e.g., game).	PhD students in child clinical psychology or early childhood education	8 weeks	-	Ostrov (2015)
Educational intervention program to improve emotion knowledge, emotion regulation,	To improve emotion knowledge and regulation, and social competence.	Methods include fiction, play, and storytelling. Three marionette characters are used to present the activities to children and provide a connecting theme between the sessions. Activities aimed at the three basic components (identification, causality, and	Teacher	Weekly 30 minute sessions for 6 months	-	Giménez-Dasí (2015)

360

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
and social competence		labelling) of the four basic emotions (happiness, sadness, anger and fear). For negative emotions (sadness, anger and fear), the program also introduces basic emotion regulation strategies. Components and emotions were introduced according to the developmental pattern of acquisition.				
Emotion State Talk Intervention	To train preschool children to use emotional state talk.	Children were read illustrated stories enriched with emotional state talk. At the end of each story, children took part in games designed to elicit emotional mental state talk.	Researcher	2 times per week, storybook and 12-15 minutes discussion, for 2 months. Delivered to small groups (6-7 children)	-	Gavazzi (2011)
Emotional Intelligence Education	-	-	-	Over 2 days each week for 12 weeks	-	Ulutaş (2007)
Emotions Based Prevention Program	To increase children's ability to understand and regulate emotions, utilise modulated emotions and reduce	Program relies on the intrinsic benefits that derive from increased emotional competence and decreased maladaptive behaviour.	Teacher	20 lessons over approx. 20 weeks	-	Izard (2004)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
	maladaptive behaviour.	Part 1 of each lesson begins with the teacher leading a puppet show to illustrate the concepts in the lesson. The rest of the lesson includes interactive games relating to aspects of emotions. The teacher asks the children if they would like to tell the class what causes them to feel the emotion featured in the lesson (e.g., "What makes you feel sad?"). Each lesson ends with the interactive reading of an emotion storybook that provides children the opportunity to experience mild emotions vicariously.	Teacher	20 lessons over 20 weeks	Parents sent a weekly message that summarised the lesson of the week or highlighted a key aspect of it. It also requested that the parent complete and return a brief parent–child lesson-related activity that requires a response from the child. Four meetings held for parents (poor attendance noted)	Izard (2008)
First Friends	To promote the following social skills: problem solving, conflict resolution, planning, emotional understanding, empathy, assertiveness, anger management, verbal communication, creativity, and cooperation.	Each session includes teaching a specific social skill, a play session where children are encouraged and motivated to practice the skills learned, and individual strategies during play where group facilitators chose specific interventions based on the individual child's needs and abilities.	Two facilitators	Weekly 30 minute sessions for 8 weeks, groups of 6 to 8 children	-	Randall (2003)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Fun Friends	To reduce anxiety and behavioural inhibition, and enhance social and emotional competence in young children.	Cognitive-behavioural, using relaxation, cognitive restructuring, attention training and graded exposure to anxiety provoking situations and problem solving. Fun FRIENDS is an acronym for the strategies taught in the program: Feelings, Remember to Relax, I Can Do My Best, Encourage, Nurture, and Don't Forget to be Brave. Program includes relaxation, cognitive restructuring, attention exercises and gradual exposure to and problem solving within situations that provoke anxiety.	Teacher	Once weekly across 2 terms (12 sessions)	Family learning adventure workbook provided step-by-step instruction for home implementation of session skills. Two parent meetings held during the implementation period. Content includes child anxiety, social and emotional competence and resilience.	Anticich (2013)
			Post-graduate psychology student	1 hour per week for 9 weeks	Parents invited to attend three parent information sessions on anxiety psychoeducation and information regarding session content. Parents provided with weekly handouts outlining session content and suggestions for home reinforcement of skills.	Pahl (2010)
			School guidance counsellor	One session per week for 15 sessions, approximately 35-45 minutes per	One hour information session and two hour-long parent groups across the intervention, poorly attended.	Lewis (2012)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				session, including small group activities. Booster 4 weeks after program ended.		
I Can Problem Solve (ICPS)	To teach children how to solve problems and prevent possible problem situations Inter-personal cognitive problem-solving skills	Lessons focus on training children to generate a variety of solutions to interpersonal problems, think about the consequences of each potential solution and identify thoughts, feelings, and motives that can generate problem situations. The child, rather than the teacher, must solve the problem. Program includes formal lessons and specific suggestions for integrating learning into the day-to-day classroom.	Teacher	83 lessons over approx. 4 months, 20-30 minutes per lesson	Monthly letters sent to parents regarding the intervention including activities that could be used at home in problem situations	Anliak (2010)
			Teacher	2 lessons per week for 4 months	-	Boyle (2009)
			Translated as "trained trainer"	15 sessions, 30-60 minutes per session, 3-5 sessions per week,	-	Lösel (2006)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				delivered to small groups		
INSIGHTS	To support children's ability to self-regulate by enhancing their attentional and behavioural repertoire.	During the first 4 weeks, children are introduced to four puppets with different temperaments. Children explore how, on the basis of a puppet's temperament, some situations are easy and others are challenging. Children then work with the puppets to apply problem-solving strategies when confronted with daily problems.	Facilitator with teachers engaged	Over 10 weeks, the classroom program was delivered in 45-minute lessons	Teachers and parents attended 10 weekly 2-hr facilitated sessions based on a structured curriculum. Parents were given assignments to complete between sessions.	O'Connor (2014)
Intensive Teacher Training (based on I Can Problem Solve)	To instruct teachers in the theory of conflict, conflict management, socio-emotional development and a problem-solving curriculum for preschool students.	Over seven weeks, teachers took part in a 13-session college-level course. Topics covered instruction and theories on conflict, peace education, conflict resolution, and emotional and social development. Teacher's took part in lectures, role plays, discussions, and presentations. Teachers were trained in the I Can Problem Solve curriculum.	Teacher	Curriculum implemented for 2 months	-	Vestal (2001)
Kindness Curriculum	Attention and emotional regulation training to cultivate kindness and care	Composed of eight themes (mindful bodies and planting seeds, I feel emotions on the	Experienced mindfulness	20–30 minute lessons	-	Flook (2015)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
	towards oneself and others.	inside, how I feel shows on the outside, taking care of strong emotions, calming and working out problems, gratitude, all people depend on each other and the earth, and gratitude and caring for our world). Each session includes breathing and movement exercises, music, reading children's literature about kindness and caring, and activities that provide opportunities to increase awareness of inner and outer experiences of emotions, sharing, and kind acts.	instructors	twice per week for 12 weeks		
			Experienced mindfulness instructors	20–30 minute lessons twice per week for 12 weeks	-	Poehlmann-Tynan (2016)
Lubo from Outer Space	To promote knowledge, expression, and regulation of emotions, teach social conflict and problem-solving strategies, and promote children's abilities of perspective taking and building friendships.	Program embedded in a story about "extra-terrestrial Lubo" (hand puppet), who travels to Earth to learn about feelings and friendship. "Lubo" keeps running into social problems, which children help to solve. Methods include cooperative games, role-play, discussions, picture cards, creative methods, and a feedback system to support the learning process in a stimulating way.	Teacher under guidance of Lubo worker	3 times per week, 35-40 minutes per lesson for 12 weeks. Delivered to groups of 9-14 children	Parents received monthly letters explaining the key concepts to be taught in the upcoming month and suggestions on how to incorporate these in daily practice at home	Schell (2015)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Making Choices	To reduce aggressive and hostile behaviour by strengthening SIP skills, developing emotional-regulation skills (e.g., self-talk and impulse control), providing structured opportunities for pro-social peer involvement and increased peer acceptance.	Activities structured to correspond to the steps in SIP. Divided into units, lessons had specific skill-related goals and activities.	Social work student and a master's-level teacher co-facilitated	2 x 20-minute sessions per week for 14 weeks, delivered to small groups of 4 children	Included family education intervention, *Strong Families*	Conner (2011)
Peace Education Foundation Socio-Emotional Development Program	The curriculum addresses conflict resolution, anger management and communication skills to promote children's positive interactions, cooperation and emotional self-regulation.	Program instructs teachers and parents how to use activities and "I-Care Rules and Language" to encourage empathy and fair play, express feelings, avoid conflict, manage anger and interact more positively with others.	Teacher	1 year	Parents participated in *Creating Caring Children* and *Peace-making Skills for Little Kids* training (3 hours)	Pickens (2009)
Peaceful Kids Conflict Resolution Program	To promote social-emotional, cognitive and conflict resolution skills.	Circle time sessions relying primarily on hands-on group activities (e.g. modelling by adults, puppetry, stories, role plays), allowing children to analyse situations and behaviours, identify possible causes and consequences of characters actions, and apply problem solving skills.	Peaceful Kids Faciliator	1 session per week for 20-40 minutes, for 15 weeks	Program for parents included four 2-hr workshops (focused on parenting skills through adult-to-adult practice) and were provided take home activities	Sandy (2000)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
					twice weekly to complement work in the classroom.	
Pre-K RECAP	To learn a common language and set of skills for functioning adaptively, developing pro-social classroom norms and expectations for children's interactions with each other.	Incorporates some materials (e.g., puppets, pictures) from Second Step. Lessons reinforced daily by teachers using positive tokens, teacher modelling and mediation of problem-solving steps, and explicit discussion of behavioural and affective consequences of behaviour choices.	Teacher	2-3 times per week for 9 months, reinforced daily.	Included parent program to enhance parent skill in supporting children's prosocial behaviour, parent attendance was very low (<5%).	Han (2005)
Preventative Program	To enhance social and emotional competencies.	Focus on emotional literacy, labelling of emotional states, identification of emotional markers, empathy, emotion-regulation strategies, anger and impulsivity control, problem-solving abilities and social competencies. Methods include direct teaching, stories, role plays, puppet shows and situational scaffolding.	-	3 times per week (20-30 minutes each) for 5 months	-	Dobrin (2013)
Project Prim!r	To improve children's emotional knowledge, understanding and regulation, social information processing, prosocial and problem-	Based on cognitive-behavioural methods and tasks including contingency programs and role play.	Teacher	1-2 sessions per week (25 sessions in total), 20-30	Parallel parenting course consisting of 4 sessions	Peterman (2008)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
	solving skills, and to prevent oppositional defiant and aggressive behaviour.			minutes per session		
Promoting Alternative Thinking Strategies (PATHS) – Preschool Curriculum	To promote children's social-emotional skills. This curriculum targets four domains: prosocial friendship skills, emotional understanding and emotional expression skills, self-control and problem-solving skills, including interpersonal negotiation and conflict resolution.	The curriculum is divided into 33 lessons delivered by teachers during circle time. These lessons include modelling stories and discussions, and use puppet characters, photographs, and teacher role-play demonstrations. Each lesson includes extension activities (e.g., cooperative projects and games), providing children with opportunities to practice the target skills with teacher support.	Teacher	9 weeks	-	Arda (2012)
			Teacher	33 lessons, one per week over the course of one school year	Three 'take-home' packets provided to parents over the year. Each included a modelling videotape, parenting tips, learning activities and activities for home. Children also took home letter stickers and compliment pages to prompt their parents to ask them about their school day and provide positive support at home.	Bierman (2008) Bierman (2014)
			Teacher	Once a week (30	-	Domitrovich (2007)

369

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				lessons) plus extension activities for 9 months		
			Teacher	20 minutes, twice per week for 22 weeks	Frequent parent updates on curriculum content and suggestions for within the home.	Fishbein (2016)
			Teacher	Weekly, 15-30 minutes for 6 months	-	Hamre (2012)
			Teacher	1-2 lessons per week (44 in total) for 9 months	-	Hughes (2015)
			Teacher	1-2 times per week for the school year	-	Lonigan (2015)
			Teacher	Weekly lessons (30 in total) in circle time plus	-	Morris (2014)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				extension activities		
			-	3 days per week for 90-120 minutes, over 16 weeks	-	Saltali (2010)
			Teacher	33 lessons (15-20 minute each) for 9 weeks	-	Seyhan (2017)
Promoting Social Competence in Classrooms (PSC)	To improve social competence.	The program teaches children problem-solving strategies and social and emotional skills. Stories involving puppets are presented to children to stage the demonstration of different skills and enable problem-solving.	Teacher and facilitator	2 workshops per month, 30 minutes per workshop. Program designed for 15 sessions, 9 sessions delivered	-	Moisan (2014)
Ready to Learn	Focused on the prerequisite learning skills cited most frequently in research	Teachers use five strategies: modelling-coaching-curing, peer reporting, story-telling, story	Teacher	Daily for 12 weeks	-	Brigman (2003)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
	literature as predictors of long-term school success: attending, listening comprehension and social skills.	retelling and the encouragement council.				
			Teacher	2 hours per week, reinforced throughout the week for 12 weeks	-	Brigman (1999)
Red Light Purple Light	To improve behavioural self-regulation.	Focuses on circle time games. Participating children taken out of the playroom for each session. Each session began with a greeting song and ended with a goodbye classroom. Six activities (games) presented over the 16 sessions, that increased in complexity over time. Each game required attention and working memory and repeated at subsequent sessions.	Researcher	16 playgroups over 8 weeks. Each session approx. 30 mins. Each session included 5-8 children.	-	Tominey (2011)
Responsible Early Childhood Curriculum plus explicit social-emotional classroom activities	Explicit SEL component: To focus on social and emotional competencies related to success in school.	Whole-class circle time focusing on four units: understanding feelings, making friends, building self-esteem and increasing self-competence. For each unit, between five and seven books and a menu of activities were provided.	Teacher	Daily for 36 weeks	Parent newsletters sent home at the beginning of each 4- to 6-week unit describing the curriculum.	Landry (2014)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Second Step Preschool/ Kindergarte n	A violence prevention curriculum intended to help children learn prosocial skills and reduce impulsive aggressive behaviour.	The Second Step curriculum is based within three units: empathy, management of emotions and resolution. Includes lesson cards accompanied by a manual. In addition, the kit includes posters, cards, puppets, a music CD, and take-home activities.	Teacher	25 lessons, twice per week for 25-50 minutes per lesson, over 3 months	Newsletter sent home	Amesty (2009)
			Researcher	25 lessons, twice per week for 30 minutes per lesson, over 4 months	-	Jack (2009)
			Teacher	15-25 minutes weekly for 7 months	-	Jakob (2005)
			Teacher	30 minutes per day across academic year	-	Starnes (2017)
			Researcher/ nurse	2 times per week, 30 minutes per session for 12 weeks	-	Stephenso n (2009)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
			Teacher	4 times weekly for 15 minutes, for approx. 22 weeks (delivery schedule adapted from publisher recommended weekly schedule)	Four to six parent-group sessions were provided each year	Upshur (2013)
Second Step Early Learning (SSEL) Curriculum	Incorporates instruction and activities that address both social and emotional competence and executive functioning, including emotion knowledge and regulation, perspective taking and empathy, and social problem-solving skills, as well as attention, working memory, and inhibition.	Five major units: skills for learning, empathy, emotion management, friendship skills and problem solving, and transition to kindergarten. 28 weekly themes with different activities for each day of the week, theme-related songs and Brain Builder games intended to be played every day. Beyond the scripted daily activities, there are also suggested teaching strategies designed to reinforce skill growth.	Teacher	Daily, main daily activity 5-7 mins, plus strategies to integrate throughout the day. Pre and post measurements conducted in Sept – Nov and Mar – May	Parent handout for each weekly theme, called Home Link, that describes what the children are learning and ways parents can reinforce the themes at home.	Upshur (2017)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				over 2 years.		
Self – Compassion and Mindfulness Training	To increase school-readiness skills.	The intervention included a variety of activities, demonstrations, and role-plays. Music, storybooks and deep breathing used before and after the main activity for each session. Topics included self-compassion, mindfulness, coping, compassion and managing feelings.	Principal Investigator	2 times per week, 15-30 minutes per session for 11 sessions, delivered to small group	-	Garrison (2017)
Self-Determination Program	Focus on three adaptive skill areas: direction following, sharing, and problem solving.	Stories focused on specific skills, taught through role-playing activities embedded in each story. Puppet games used as learning tools to reinforce individual skill. Each story formatted to introduce the major character, identify the problem, outline steps to solve, solve the problem. Teachers selected situations throughout each day when children could practice their newly learned skills in the classroom environment.	Master's level student with support of teacher [1]	Two 3-hour sessions per week for 12 weeks	Parent training sessions held during each of the major skill lessons (3 sessions, every 4 weeks). Storybooks sent home to enable parents to work on content with their child.	Serna (2000)
			Teacher	Two 3-hour sessions per week for 14 weeks	-	Serna (2003)
Social Emotional	Multifaceted program that targeted children's	Activities derived from several sources. Activities on	Teacher	4 days per week, 20	Newsletters sent home and parents'	Denham (1996)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Intervention (includes components based on ICPS + PATHS)	relationship with their teacher, emotional understanding, social problem solving with an emphasis on individualisation.	understanding emotions held two days per week. These activities reflect a downward extension of the PATHS curriculum, focusing on sympathy to the feelings of others and pro-social behaviour. I Can Problem Solve activities used for other 2 days during the week.		minutes per session, for 32 weeks	night out skits.	
Social Emotional Learning Facilitator Kit (SELF Kit)	To develop social and emotional competencies in kindergarten and primary school children.	Program focused on 8 dysfunctional emotions: sadness/depression, separation anxiety, and fear of emotional injury /of being hurt, anger, guilt, shame, jealousy and envy. Each emotion is presented in a module that includes story-telling, a folktale, one or more therapeutic activities and games.	Teacher	1 module per week for 8 weeks	-	Opre (2013)
Social Emotional Prevention Program	To develop emotional competencies (emotion recognition and emotion regulation) and social competencies (compliance with rules, problem solving, and prosocial behaviours, such as turn-taking, toy sharing, and play cooperation).	Includes a series of modules. Begins with an introduction to classroom rules as the starting point for building more complex competencies such as emotion regulation, conflict resolution and regulatory abilities. The final module integrated children's previously acquired knowledge about emotions, emotion	Two teachers in each room	Daily for 4 months	The parent training included four group sessions combining information with coaching strategies for supporting social and emotional competence	Stefan (2013)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
		regulation, and prosocial behaviours in the context of children's peer play interactions. Methods include stories, puppet shows, role-playing and games.			development and positive discipline.	
Social-Emotional Intervention	Constructed around themes related to awareness of emotions, identification of emotions, and linking emotions with vocabulary.	-	-	-	-	Deacon (2012)
Stop and Think	To teach prosocial skills to children including survival skills, interpersonal skills, problem-solving skills, and conflict resolution.	Includes modelling, prompting, role-play, group activities and feedback. Using a process called "Stop & Think" children learn to verbalise and then to internalise five sequential steps: think about the situation, choose an appropriate plan of action, develop a specific plan to address the situation, implement the plan and self-reinforce appropriate behaviour.	Psychology graduate-level trainees	Two 30 minute sessions per week, for 10 weeks	-	Hall (2008)
			Teacher, with school psychology staff support for the first 3 lessons	Three 30 minute lessons with coach, then 15 minutes per week	-	King (2001)
Strong Start Pre-K	To promote social and emotional competence and reduce internalising problem behaviours.	Lessons cover specific objectives and goals that help to prevent emotional and mental health problems and develop a vocabulary to express feelings.	Teacher	10 lessons in total, approx. 2 lessons per week at a	Bulletin sent home to parents at the end of each lesson outlining the content of the	Gunter (2012)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
		Children's literature related to the relevant SEL topic is part of each lesson. A stuffed animal serves as a mascot to help contribute to scenarios.		convenient time	lesson and providing parents with strategies to reinforce social-emotional learning at home.	
Taking Part	-	Addresses skills essential to social development including listening to others, speaking kindly, using courtesy words, respecting others property, winning and losing with an emphasis on social communication, developing group play skills, and resolving conflicts.	Researcher	2 times per week for 45 minutes to 1 hour, for 15 weeks	After completing a unit, letters were sent home to inform parents about the social skills that were being taught to their children. If the child did not demonstrate this skill at home, the letter was sent back informing the teacher of the area of difficulty.	McKinney (1998)
The Incredible Years

Child Training Curriculum | To promote children's social competence, emotional self-regulation and school behaviour. | Child Program:
Content broken into 7 units: learning school rules; how to be successful in school; emotional literacy, empathy, and perspective taking; interpersonal problem solving; anger management; social | Researcher | 2 hours per week for 22 weeks | Included letters, homework and meeting at regular intervals. | Dereli (2009) |
| | | | Teacher | 2 times per week, 35-40 minutes per | Parents of a group of moderately high-risk children | Reid (2007) |

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
(Dinosaur School)		skills; and communication skills. Teachers use group circle time followed by small group skill practice. There are over 300 small group activities focusing on social emotional skills. Program includes life-size puppets, dinosaur homework activities, picture cue cards for non-readers, and games to stimulate group discussion, cooperation and skill-building.		session for 30 sessions (over approx. 15 weeks). Delivered to classroom and small group. Implemented in kinder and G1	participated in The Incredible Years Parent discussion groups	
			Teacher/ research staff member co-led.	At least 2 times per week, using 15–20-minute large group Circle time followed by 20 minutes of small group skill-practice activities. 30 lessons in curriculm	Weekly dinosaur homework to encourage parents' involvement.	Webster-Stratton (2008) Teacher and child training

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Creating a New Generation of Peacemakers (Peacemakers Program)	Violence prevention Conflict avoidance, conflict resolution skills, respect for others, positive relationship skills	Each lesson begins with circle time. Lesson is presented using visual aids and children provide their own ideas and solutions. Lesson reinforced by individual or small group activities. Each lesson ends with the K.C (kind and caring) dog puppet interacting with the children in their group circle to reinforce the skills from the lesson.	2 trained facilitators	1hr per week for 5 weeks	Parents receive materials about the program before the first lesson and weekly summaries of each lesson with suggestions for home activities.	Allen (2009)
The Positive Action Program	To promote and strengthen positive behaviours, taking an asset-building approach to intervention and prevention.	Includes visuals and hands-on experiences. Based on six units: understanding of PA and self-concept; physical health and intellectual health; self-management and self-control; respect of others, consideration of others, and social bonding; honesty with self and others; and self-improvement.	Teacher	Daily for 10-15 minutes over 10 weeks	-	Schmitt (2014)
			Teacher	Daily 10-15 minutes (64 lessons) over 15 weeks	-	Schmitt (2017)
The Early Impact Program	To address the development of conduct problems in preschool-aged children.	Involved training teachers to implement strategies that could be universally applied. The curriculum focuses on communication, friendship formation, social	Teacher	10 weeks	Parents of children in the intervention group encouraged to attend parent-training sessions, facilitated over	Larmar (2006)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
		problem-solving, self-control, and engaging in pro-social behaviours.			three 120-minute meetings	
The Safe Kindergarten	Provide children with knowledge and tools to create safer effective interactions with peers.	Effective dialogue: conveying thoughts and feelings, and listening attentively to others when they are expressing their thoughts and feeling. 20 units that include Imago topics and practice using the dialogue tool. Sessions follow a cumulative, developmental curriculum with a 4-part structure that includes an introduction, presentation of a theoretical issue and systematic practice of the intentional dialogue.	Teacher	20-30 mins per week for 20 weeks, delivered to small group (approx. 6 children)	A month after the program began, parents participated in a 2-hour workshop that introduced the Imago ideas and the program's aims and approach.	Aram (2008)

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
Tools of the Mind	Build broad foundational skills, regulating social and cognitive behaviors, attending and remembering on purpose, the use of symbolic representation, and early math and literacy skills.	Self-regulation. The program emphasises children's abilities to regulate their own social and cognitive behaviours, attend to and remember on purpose, use symbolic representation, and early math and literacy skills. Teachers support children to develop various psychological "tools" that help children to master their own psychological functions. The curriculum incorporates 40 Vygotsky-inspired activities designed to promote mature dramatic play, encourage the use of self-regulatory private speech, and teach the use of external aids to facilitate attention and memory.	Teacher	Embedded within the classroom during the year.	-	Barnett (2008)
Tools of the Mind - Play	To promote self-regulation through play.	Focuses on developing self-regulation through "pretend" or "make-believe" play where children are supported to use their imaginations to role-play, pretend they are different characters, play out different stories, and enact various scenarios that rely on and encourage creativity.	Teacher	Embedded within the classroom, includes daily 50-minute time block devoted to interactive pretend play, which is organised and scaffolded by teachers in very specific ways.	-	Morris (2014)
Values Education Programme	To learn positive social behaviours	-	Researcher	3 sessions per week (30 minutes	Not directly - parents completed Family	Dereli-Iman (2014)

382

Intervention	Program Aim	Skills Targeted/Program Approach	Person Delivering Program	Intensity and Program Length	Parental Involvement	Relevant Studies
				each) for 11 weeks	Participation Form that influenced content of program.	
You Can Do It! Early Childhood Education Program	Positive social, emotional, behavioural and achievement outcomes	Children provided with explicit instruction in five social-emotional competencies: Confidence, Persistence, Organisation, Getting Along, and Emotional Resilience, supported by explicit teaching of 12 ways of thinking ('Habits of the Mind'), I Can Do It, Accepting Myself, Taking Risks, Being Independent, Giving Effort, Working Tough, Setting Goals, Planning My Time, Being Tolerant of Others, Thinking First, Playing by the Rules, and Being Socially Responsible.	Teacher	Three 20 minute sessions per week for 2 weeks	-	Ashdown (2011)
Zippy's Friends	Mental health promotion program to teach children coping skills.	Built around six illustrated stories about a group of young children and a pet insect called Zippy. Sessions divided into six modules, each focusing on a theme (feelings, communication, making and breaking relationships, conflict resolution, dealing with change and loss and coping). Each session has specific goals and includes 2–3 participatory activities.	Teacher	Once per week for 24 weeks	-	Mishara (2006)
			Teacher	Weekly one hour sessions for 24 weeks	-	Rodker (2013)

eTable 3. Summary of Constructs within each Domain of Social-Emotional Development and Measures Used

Domain	Construct	Measures Used by Studies Included in this Review
Social Competencies	Pro-Social Skills *Covers Social Knowledge, Social Problem Solving, Sharing, Social Cooperation, Social Interaction, Social Independence, Assertion, Responsibility. Measures of Social-Emotional Competence and School Readiness noted in this category*	ACER Well-Being Survey (Teacher Form— Early Years), Adaptive Social Behavior Inventory, Behavioral and Emotional Rating Scale, Berkeley Puppet Interview, Challenging Situations Task, Cooper-Farran Behavioral Rating Scales, Devereux Early Childhood Assessment Clinical Form (Parent and Teacher Report), Drexel Early Childhood Behavior Rating Scale, Early Screening Project, Hahnemann Behavior Rating Scale, Measure developed for study, Minnesota Preschool Affect Checklist (Adapted), Mize & Ladd Enactive Social Knowledge Interview, Observations, PED Cognition Test Battery, Platform for Child Development Evaluation, Playful Situations Task, Preschool and Kindergarten Behavior Scales, Preschool Behaviour Questionnaire, Preschool Competence Questionnaire, Preschool Interpersonal Problem-Solving Test, Preschool Social Behavior Questionnaire, Preschool Social Behavior Scale, Pro-Social Orientation Story-Completion Task, School Readiness and Conduct Problems: Coder Observation of Adaptation-Revised (COCA-R), Sharing Task, Social Competence and Behavior Evaluation, Social Competence Scale, Social Problem Solving Test, Social Problem Solving Test (modified), Social Skills Evaluation Scale, Social Skills Improvement System, Social Skills Questionnaire, Social Skills Rating System, Strengths and Difficulties Questionnaire, Student Rating Scale, The Head Start Competence Scale,

		The Preschool Promoting Alternative Thinking Strategies Evaluation Kit, The Playful Solutions Task, The Social Competence Screening for Pre-schoolers - Teacher Form, The Student Rating Scale, Wally's Problem Solving Test.
	Relationships and Peer Skill	Adult-Child Relationship Scale, Devereux Early Childhood Assessment Clinical Form (Parent and Teacher Report), North Carolina Family Assessment - Preschool Version, Minnesota Preschool Affect Checklist (Adapted), Multiple Option Observation System for Experimental Studies (MOOSES), Peer Relations Questionnaire, Preschool Competence Questionnaire, Semi-Structured Play Interview, Student-Teacher Relationship Scale.
	Communication	Role play of dialogue between friends, The Vineland Screener.
	Social Information Processing	Structured interview to map social information processing (Tur-Kaspa & Bryan 1994).
Emotional Competencies	Emotional Skills	Assessment of Children's Emotion Skills, Emotional Competence Screening for Pre-schoolers - Parent Form, Behavioural and Emotional Rating Scale, FEEK (Fragebogen zur Erfassung emotionaler Kompetenzen; Emotional Competencies Questionnaire), PED Cognition Test Battery, Schoolagers Coping Strategies Inventory, Second Step Interview, The Sullivan Teacher Rating Scale of Emotional Intelligence for Children, Wally's Feelings Test.

	Emotion Knowledge/Understanding	Affective Knowledge Test, Affective Knowledge Test (modified), Assessment of Children's Emotion Skills, Emotion Knowledge Inventory, Emotion Matching Scale/Emotion Matching Task, Emotion Recognition Measure, Emotion Recognition Questionnaire, Emotional Understanding Measure Adapted from Bullock and Russell Test of Emotion Comprehension, Facial Emotions Identification and Emotions Situations Tasks, NEPSY - Second Edition, Test of Emotion Comprehension, The Sullivan Emotional Intelligence Scale for Children, Wally Understanding Feelings Test.
	Empathy	Teacher Behavior Form, The Attachment Story Completion Task, The Distress Task, The Sullivan Brief Empathy Scale for Children.
	Emotional Vocabulary	Emotion Labelling Measure, Kusche Emotional Inventory.
	Emotional Regulation	Emotion Regulation Checklist, Head Start Competence Scale (Teacher Version), Preschool Behavioral and Emotional Rating Scale, Social Competence Scale.
	Emotional Expression/Affect/Affective Perspective Taking	Assessment of Children's Emotion Skills, Assessment of Children's Emotions Scales, Denham Puppet Interview, Emotion Expression Rating Scale, Minnesota Preschool Affect Checklist (Adapted), NEPSY-II Social Perception Subtests, Observations.
Behavioural Regulation	Learning Engagement	Measure designed for study.
	Positive Behaviour/Behavioural Response	ADD-H Comprehensive Teacher's Rating Scale, Challenging Situations Test, Comprehensive Teacher's Rating Scale, Cooper-Farran Behavioral Rating Scales, Early Screening Project, Independent observations of attending behaviour or positive behaviour, Psycho-Social Behaviour Scale for Pre-school Children.
	Self-Control	Devereux Early Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form - Teacher Report, Social Skills Questionnaire, Social Skills Rating System, The Head-Toes-Knees-Shoulders Task.
Problem Behaviours and Emotions	Aggression	Aggressive Behavior Scale, Berkeley Puppet Interview, Caregiver-Teacher Report Form, Challenging Situations Task, Child Behavior Checklist - Teacher Report Form, Direct assessment that measured social problem solving (Alber et al. 1995), Devereux Early

		Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form – Teacher Report, Drexel Early Childhood Behavior Rating Scale, Early Screening Project, Early Years Behaviour Checklist, Enactive Social Knowledge Interview (Mize & Ladd), Hahnemann Behavior Rating Scale, Observations, Preschool and Kindergarten Behavior Scale, Preschool Behaviour Scale, Preschool Interpersonal Problem-Solving Test (force), Preschool Social Behavior Scale, Revised Aggression Scale, Social Competence and Behavior Evaluation, Social problem solving direct assessment, Teacher Observation of Child Adaptation-Revised, The Preschool Promoting Alternative Thinking Strategies Evaluation Kit.
	Introversion/ Withdrawal/Anxiety	Caregiver-Teacher Report Form, Challenging Situations Task, Child Behavior Checklist - Teacher Report Form, Devereux Early Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form – Teacher Report, Drexel Early Childhood Behavior Rating Scale, Hahnemann Behavior Rating Scale, Multiple Option Observation System for Experimental Studies (MOOSES), Observations, Preschool and Kindergarten Behavior Scales, Preschool Bullying Subscales Measure, Social Competence and Behavior Evaluation, Strengths and Difficulties Questionnaire, The Preschool Anxiety Scale.
	Problem Behaviours	Adaptation of the Minnesota Preschool Affect Checklist, Behavior Problems Index, Caregiver-Teacher Report Form, Devereux Early Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form - Teacher Report, Dyadic Parent-Child Interactive Coding System, Early Screening Project, Multiple Option Observation System for Experimental Studies (MOOSES), North Carolina Family Assessment - preschool version, Observations, Preschool and Kindergarten Behavior Scales, Preschool Social Behaviour Scale, Preschool Social Behavior Questionnaire, Strengths and Difficulties Questionnaire (Parent and Teacher version), Social Competence and Behavior Evaluation - Preschool Edition, Social Problem Solving Test, Social Skills Improvement System, Social Skills Rating System, Sutter-Eyberg Student Behavior Inventory – Revised, The IOWA Conners, The Teacher-Child Rating Scale.

	Conflict	Adult-Child Relationship Scale, Preschool Behavior Scale - Teacher Rating Strengths and Difficulties Questionnaire, Student-Teacher Relationship Scale.
	Externalising	Caregiver-Teacher Report Form, Child Behavior Checklist -Teacher Report Form, Preschool Behavior Questionnaire, Preschool Social Behavior Questionnaire, Social Competence and Behaviour Evaluation - Preschool Edition, Social Skills Rating System, Teacher Observations, The Preschool and Kindergarten Behavior Scales.
	Internalising	Caregiver-Teacher Report Form, Child Behavior Checklist -Teacher Report Form, Preschool and Kindergarten Behavior Scales, Social Competence and Behaviour Evaluation - Preschool Edition, Social Skills Rating System, Teacher Observation of Child Adaptation-Revised, Teacher Observations, The Preschool and Kindergarten Behavior Scales
	Emotional Reactivity/Emotional Control Problems	Caregiver-Teacher Report Form, Child Behavior Checklist - Teacher Report Form, Devereux Early Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form – Teacher Report, Emotion Regulation Checklist, Social Skills Rating System, Strengths and Difficulties Questionnaire (Parent and Teacher version), The Emotion Expression Ratings Scale, Teacher Rating of Negative Emotions.
	Anxiety/Depression	Berkeley Puppet Interview, Caregiver-Teacher Report Form, Child Behavior Checklist - Teacher Report Form, Platform for Child Development Evaluation, Preschool and Kindergarten Behavior Scale, Preschool Anxiety Scale.
	Behaviour Inhibition	Behavioral Inhibition Questionnaire, Behavior Inhibition Scale.
	Attention Problems	ADHD Rating Scale, Caregiver-Teacher Report Form, Child Behavior Checklist - Teacher Report Form, Devereux Early Childhood Assessment Clinical Form, Devereux Early Childhood Assessment Clinical Form – Teacher Report, Multiple Option Observation System for Experimental Studies (MOOSES), Preschool and Kindergarten Behavior Scale, Preschool Social Behaviour Scale, Social Competence Scale, Social Skills Rating System, Strengths and Difficulties Questionnaire, Teacher Observations, The Abbreviated Conners Rating Scale, The IOWA Conners.

Early Learning Outcomes	Reading/Literacy	Admission Assessment for Beginning Learners, Get Ready to Read, Teacher report, Test of Preschool Early Literacy, The Preschool Comprehensive Test of Phonological and Print Processing, Woodcock-Johnson Letter-Word Identification Test.
	Language	Admission Assessment for Beginning Learners, Expressive One-Word Picture Vocabulary Test, Peabody Picture Vocabulary Test-III, Preschool Language Scale, Test of Language Development, The Primo Vocabolario del Bambino, Woodcock-Johnson Picture Vocabulary Test.
	Listening	Metropolitan Readiness Test, Stanford Early School Achievement Test.
	Comprehension/Understanding of Vocabulary	Metacognitive Verb Comprehension, Test di Valutazione del Linguaggio (Test of Language Evaluation).
	Math Skill	Admission Assessment for Beginning Learners, Child Math Assessment, Woodcock-Johnson Applied Problems.
	Academic Competence	Academic Rating Scale, Berkeley Puppet Interview, North Carolina Family Assessment - Preschool Version, Preschool Competence Questionnaire, Social Skills Rating System - Teacher Questionnaire.

APPENDIX B

Supporting Files for Chapter Four

Appendix B includes the following documents relating to the qualitative study presented in Chapter Four:

- Plain Language Statement and Consent Form for Interviews
- Plain Language Statement and Consent Form for Focus Group Discussions
- Interview Schedule for Interviews and Focus Group Discussions

Please note, this PhD commenced in the School of Psychology at Deakin University, and transferred to the Monash Centre for Health Research and Implementation in March 2018. Ethics approval for this study was granted by the Human Ethics Advisory Group Health (HEAG-H) at Deakin University.

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Plain Language Statement

Date: 11 May 2017

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Principal Researcher: Claire Blewitt

Supervisors: Professor Helen Skouteris, Professor Andrea Nolan, Dr Heidi Bergmeier

1. Your Consent

You are being invited to take part in this research project.

This Plain Language Statement contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project so that you can make a fully informed decision whether you are going to participate.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project. <u>Please do this prior to participating in the interview.</u>

You will be given a copy of the Plain Language Statement and Consent Form to keep as a record.

2. Purpose and Background

The social and emotional competencies that emerge during early childhood are critical for long-term development, health and well-being. Increasingly, Australian children are accessing early childhood education and care (ECEC) services in the formative years before they commence school, where early childhood educators can play an important role in nurturing social-emotional skill development.

The overall aim of this project is to develop a social and emotional learning (SEL) program for ECEC providers that will support educators to promote children's social and emotional development within their classrooms. The program will be co-designed with professionals and experts working within the ECEC sector, parents and children.

The specific purpose of this part of the project is to draw on the insight and experience of professionals working within the ECEC sector to examine the following:
- ECEC professionals' understanding of early social-emotional development.

- Current practices and approaches that encourage children's social-emotional skill development in ECEC settings.
- Policy instruments driving a focus on social-emotional development in ECEC settings.
- The enablers and barriers for early childhood educators in fostering social-emotional development within their classrooms, and the additional resources and support that could assist in this respect.

3. Procedure

Participation in this project will involve taking part in a telephone interview with a member of the research team from Deakin University in August 2017 on a day and time that best suits you. Potential participants will have at least one year of experience within the sector in one of the following roles: early childhood educator, ECEC manager or administrator, early childhood policy-maker or government officer, early childhood researcher or non-government employee working on early social and emotional learning.

If you agree to participate in this project, we will ask you a range of questions relevant to your role.
- If you are working directly with children as an educator or ECEC centre manager, questions will focus on your understanding and knowledge of children's social-emotional development, the practices and approaches you use to encourage children's social-emotional skills and the enablers and barriers to this, and what you think is needed to further foster children's social-emotional development in the preschool classroom.
- If you are working in a policy, government or research role, questions will focus on your understanding and knowledge of children's social-emotional development, your experience with social and emotional learning policy or programs, the opportunities and challenges for broad implementation of social-emotional learning policy or programs and what you think is needed from the sector to further support educators.

Participants will also be asked to provide some basic demographic information (e.g. years working within the sector and educational qualifications). The interview will be audio-recorded and later typed into text by the principal researcher to be analysed. You will be given the opportunity to review a copy of your transcript to ensure your responses have been correctly recorded. There is no time limit for the interview, however it is anticipated it will take up to 30 minutes to complete.

4. Possible Benefits

The responses from participants will improve our understanding of the approaches used by Australian ECEC providers to foster social and emotional development during early childhood and the opportunities to better support educators to nurture social and emotional skills growth. It will also help us to look at how policy is influencing social and emotional learning in preschool settings and will inform the development of an educator-led social and emotional learning program for preschool children.

5. Possible Risks

There are no anticipated risks involved in this research study.

6. Privacy, Confidentiality and Disclosure of Information

Participants should note that only named researchers will have access to your details and responses and any information obtained in connection with this research project that can identify you will remain confidential and will only be used for the purpose of this research project. You can

be assured that you will not be identified by name in any way in the reporting of our results. Any information we collect from you that can identify you, including audio-taped material, will remain confidential and will be stored in a locked cabinet within the School of Psychology at Deakin University for a minimum of 5 years from the date of any publication.

7. Results of Project
A summary of the findings will be made available to any interested participants to read at the completion of this study. The results of this research will also be written as reports and pubications and will be accessible on academic websites hosted by the researchers. Claire Blewitt will monitor this research project. Please email cblewitt@deakin.edu.au to receive a copy of this summary report.

8. Right to Withdraw from Participation
Participation in any research project is completely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained from you to date will not be used. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with Deakin University.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Please sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please complete the Withdrawal of Consent Form attached to this Plain Language Statement and mail or email this to Claire Blewitt at the address provided.

9. Reimbursement for your costs
You will not be paid for your participation in this project.

10. Funding of Project
There is no funding associated with this study.

11. Further Information:
If you would like any additional information concerning this project or if you have any problems which may be related to your involvement in the project, please contact the principal researcher Claire Blewitt in the School of Psychology, Deakin University, 221 Burwood Highway, Burwood, Victoria, 3125, on 0423 683 289 or email: cblewitt@deakin.edu.au.

12. Complaints
If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact:

> The Manager, Ethics and Biosafety, Deakin University, 221 Burwood Highway, Burwood
> Victoria 3125, Telephone: 9251 7129, research-ethics@deakin.edu.au

Please quote project number **HEAG-H39_2017.**

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Consent Form – PARTICIPANT COPY

Date: 11 May 2017

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H39_2017

I have read and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

I agree to allow the interview to be audio-taped.

Participant's Name (printed) …………………………………………………………………

Signature ……………………………………………………… Date …………………………

Email address …………………………………………………

Telephone number ……………………………………………………

Please return, mail or email this form to:

Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

Plain Language Statement & Consent Form to Participants
HEAG-H 39_2017 version 2:070417   Page 4 of 7

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Withdrawal of Consent Form – PARTICIPANT COPY

Date: 11 May 2017

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H39_2017

I hereby wish to WITHDRAW my consent to participate in the above research project and understand that such withdrawal WILL NOT jeopardise my relationship with Deakin University.

Participant's Name (printed) …………………………………………………….

Signature …………………………………………………………….Date ……………………

Please mail or email this form to:

Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

Page left blank

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Consent Form – RESEARCHER COPY

Date: 11 May 2017

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H39_2017

I have read and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

I agree to allow the interview to be audio-taped.

Participant's Name (printed) …………………………………………………………………….

Signature ……………………………………………………   Date …………………………

Email address ………………………………………………………….

Telephone number …………………………………………………………

Please return, mail or email this form to:
Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Plain Language Statement

Date:

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Principal Researcher: Claire Blewitt

Supervisors: Professor Helen Skouteris, Professor Andrea Nolan, Dr Heidi Bergmeier

1. Your Consent

You are being invited to take part in this research project.

This Plain Language Statement contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project so that you can make a fully informed decision whether you are going to participate.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project. <u>Please do this prior to participating in the focus group.</u>

You will be given a copy of the Plain Language Statement and Consent Form to keep as a record.

2. Purpose and Background

The social and emotional competencies that emerge during early childhood are critical for long-term development, health and well-being. Increasingly, Australian children are accessing early childhood education and care (ECEC) services in the formative years before they commence school, where early childhood educators can play an important role in nurturing social-emotional skill development.

The overall aim of this project is to develop a social and emotional learning (SEL) program for ECEC providers that will support educators to promote children's social and emotional development within their classrooms. The program will be co-designed with professionals and experts working within the ECEC sector, parents and children.

The specific purpose of this part of the project is to draw on the insight and experience of professionals working within the ECEC sector to examine the following:
* ECEC professionals' understanding of early social-emotional development.

- Current practices and approaches that encourage children's social-emotional skill development in ECEC settings.
- Policy instruments driving a focus on social-emotional development in ECEC settings.
- The enablers and barriers for early childhood educators in fostering social-emotional development within their classrooms, and the additional resources and support that could assist in this respect.

3. Procedure

Potential participants will have at least one year of experience within the sector in one of the following roles: early childhood educator, ECEC manager or administrator, early childhood policy-maker or government officer, early childhood researcher or non-government employee working on early social and emotional learning.

For bestchance Early Child Care educators, participation in this project will involve taking part in a focus group discussion with a member of the research team from Deakin University on [date] at [location] during the [workshop]. Each group will include up to 8 bestchance early childhood educators. If you agree to participate in this focus group, we will ask you a range of questions relevant to your role. Specifically, questions will focus on your understanding and knowledge of children's social-emotional development, the practices and approaches you use to encourage children's social-emotional skills and the enablers and barriers to this, and what you think is needed to further foster children's social-emotional development in the preschool classroom.

Participants will also be asked to provide some basic demographic information (e.g. years working within the sector and educational qualifications). The focus group discussion will be audio-recorded and later typed into text by the principal researcher to be analysed. It is anticipated the focus group discussion will take up to 30 minutes to complete.

4. Possible Benefits

The responses from participants will improve our understanding of the approaches used by Australian ECEC providers to foster social and emotional development during early childhood and the opportunities to better support educators to nurture social and emotional skills growth. It will also help us to look at how policy is influencing social and emotional learning in preschool settings and will inform the development of an educator-led social and emotional learning program for preschool children.

5. Possible Risks

There are no anticipated risks involved in this research study.

6. Privacy, Confidentiality and Disclosure of Information

Participants should note that only named researchers will have access to your details, and the recording and transcript of the focus group discussion. Any information obtained in connection with this research project that can identify you will remain confidential and will only be used for the purpose of this research project. You can be assured that you will not be identified by name in any way in the reporting of our results. Any information we collect from you that can identify you, including audio-taped material, will remain confidential and will be stored in a locked cabinet within the School of Psychology at Deakin University for a minimum of 5 years from the date of any publication.

7. Results of Project

A summary of the findings will be made available to any interested participants to read at the completion of this study. The results of this research will also be written as reports and pubications and will be accessible on academic websites hosted by the researchers. Claire Blewitt will monitor this research project. Please email cblewitt@deakin.edu.au to receive a copy of this summary report.

8. Right to Withdraw from Participation
Participation in any research project is completely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained from you to date will not be used. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with Deakin University.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Please sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please complete the Withdrawal of Consent Form attached to this Plain Language Statement and mail or email this to Claire Blewitt at the address provided.

9. Reimbursement for your costs
You will not be paid for your participation in this project.

10. Funding of Project
There is no funding associated with this study.

11. Further Information:
If you would like any additional information concerning this project or if you have any problems which may be related to your involvement in the project, please contact the principal researcher Claire Blewitt in the School of Psychology, Deakin University, 221 Burwood Highway, Burwood, Victoria, 3125, on 0423 683 289 or email: cblewitt@deakin.edu.au.

12. Complaints
If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact:

> The Manager, Ethics and Biosafety, Deakin University, 221 Burwood Highway, Burwood
> Victoria 3125, Telephone: 9251 7129, research-ethics@deakin.edu.au

Please quote project number HEAG-H 39_2017

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Consent Form

Date:

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H 39_2017

I have read and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

I agree to allow the focus group discussion to be audio-taped.

Participant's Name (printed) ……………………………………………………………………

Signature ……………………………………………………………   Date …………………………

Please mail or email this form to:

Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Withdrawal of Consent Form – PARTICIPANT COPY

Date: 11 May 2017

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H39_2017

I hereby wish to WITHDRAW my consent to participate in the above research project and understand that such withdrawal WILL NOT jeopardise my relationship with Deakin University.

Participant's Name (printed) …………………………………………………….

Signature …………………………………………………………….Date ……………………

Please mail or email this form to:

Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: Participants

Withdrawal of Consent Form

Date:

Full Project Title: Social and Emotional Learning in Early Childhood Education and Care Settings

Reference Number: HEAG-H 39_2017

I hereby wish to WITHDRAW my consent to participate in the above research project and understand that such withdrawal WILL NOT jeopardise my relationship with Deakin University.

Participant's Name (printed) ……………………………………………………….

Signature …………………………………………………………….Date ……………………

Please mail or email this form to:

Claire Blewitt
School of Psychology, Deakin University
221 Burwood Highway, Burwood, Victoria, 3125
e: cblewitt@deakin.edu.au

Interview Schedule (semi-structured interview/focus group)

Social and emotional learning in early childhood education and care settings: Perceptions of educators, policy-makers and researchers

Questions for Educators/ECEC Managers (possible prompts in italics)

Preamble

- Deakin researcher to provide brief overview of the study.
- This is an interview conducted on _____
- This is interview no. _____

General

- What is your age? (provide age ranges: 18-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60+)
- What is your current position? (type of service, age of children under care, full time/part time/casual).
- How long have you been in your current position?
- How long have you been working as an early childhood educator/manager?
- Can you please tell me your highest level of education?

Knowledge of social and emotional development

- Can you please describe what you think social and emotional development is for children?
- What factors affect a child's social and emotional development?
- How might you recognise children who are having difficulty socially?
- How might you recognise children who are having difficulty emotionally?

Current approaches

- Can you tell me about the strategies and approaches you (educator)/your center (managers) currently use to help children develop socially?
- Can you tell me about the strategies and approaches you (educator)/your center (managers) currently use to help children develop emotionally?
    - *E.g. PD for educators, educator-child relationships, modeling, classroom/group activities, story-telling, play*
- What resources, tools or supports help you support young children's social and emotional development? These may be informal or formal.
    - *E.g. VEYLDF resources, training/PD, books/online resources etc.*
- Do you speak/engage with parents regarding children's social and emotional development?
    - *How do you go about this?*
- What are the barriers for you (educator)/your centre (managers) in supporting social and emotional development in children?

- *E.g. time, resources, knowledge and skill, confidence.*

Part 3: Potential pathways

- What might help you overcome these barriers?
    - *What tools, resources or supports do you think would work in your classroom?*

Questions for policy-makers and non-government agencies (possible prompts in italics)

Questions will be linked to organisational/departmental focus in social and emotional learning

Preamble

- Deakin researcher to provide brief overview of the study.
- This is an interview conducted on _____
- This is interview no. _____

General

- What is your current position?
- How long have you been working in this position?
- How long have you worked in the early childhood education and care sector?
- Can you please tell me your highest level of education?

Knowledge of social and emotional development

- Can you please describe what you think social and emotional development is for children?
- What factors affect a child's social and emotional development?

Program/policy overview

- Can you please tell me about [program/policy]?
    - *Can you please tell me more about how the [program/policy] was developed and implemented? Has the [program/policy] been evaluated? What outcomes have been achieved to date? What are the future plans for the [program/policy]?*
- What role do you think [program/policy] plays in enabling ECEC providers to support social and emotional development?

Enablers and barriers

- What drivers exist at the policy or program level to enable/encourage children's social and emotional development in ECEC settings?
- What are the barriers to designing effective SEL interventions/programs for ECEC providers at scale?
- What are the barriers to implementing effective SEL interventions/programs for ECEC providers at scale?
- What are the barriers to evaluating effective SEL interventions/programs for ECEC providers at scale?

- What is needed for broad, system-wide uptake of SEL policy?

- What is needed for broad, system-wide uptake of SEL initiatives/programs?

Cross-sector collaboration

- Can you tell me about collaboration between government, ECEC centre managers and ECEC educators in supporting children's social and emotional development?

- What do you think would further support this collaboration?

APPENDIX C

Supporting Files for Chapter Six

Appendix C includes the following documents relating to the qualitative study presented in Chapter Six:

- Matrix of Change Objectives for Early Years Teams (Interpersonal Level)
- Matrix of Change Objectives for Service Providers (Organisational Level)

Table C1

Matrix of Change Objectives for Early Years Teams (Interpersonal Level)

Early Years Team	Key Determinants		
Performance Objectives (PO)	Knowledge (K)	Belief (B)	Skill (SK)
PO7: Set goals for individual children and groups	K7.1: Understand the role of reflection and goal setting in early years environment	B7.1: Goal setting is an important component of ECEC educator role	SK7.1: Establish goals at individual and group level
PO8: Encourage and support each other to implement strategies that target children's social and emotional skill development	K8.2: Knows range of strategies to help achieve goals	B8.1: Collaboration can improve educator practice	SK8.1: Implement strategies SK8.2: Ability to engage with and encourage team members SK8.3: Ability to share experiences, ideas and learning
PO9: Reflect on changes in children's behaviour and social-emotional competencies as a result of strategies	K9.1 Know how to observe and monitor changes in children's behaviour and skill	B9.1: Strategies to change behaviour are most likely to benefit children when used consistently over time B9.2: Awareness that tangible improvement will likely emerge over time	SK9.1: Evaluate changes in child behaviour
P10: Reflect on any changes in educators' own practice as a result of strategies	K10.1 Know how to monitor changes in own practice and interactions	B10.1: Recognise that educators' everyday practice can be strengthened and improved	SK10.1: Evaluate changes in practice

Table C2

Matrix of Change Objectives for Service Providers (Organisational Level)

Service Provider Performance Objectives (PO)	Resources (R)
PO11: Offer time and encouragement for educators to engage in learning, reflection and discussion, and embed strategies into their practice and routines	R11.1: Allocate time within working hours for educators to participate in professional learning activities
	R11.2: Ensure suitable technology is available for educators to participate in professional learning activities
	R11.3: Encourage individuals and teams to participate in professional learning to build on current knowledge
	R11.4: Make funding available to implement changes in the ECEC environment
	R11.5: Allocate time within working hours for educators and educational teams to share learning and experience through Communities of Learning
	R11.6: Allocate time within working hours for educators to evaluate the benefit of strategies for children's behaviour and social-emotional skill.
	R11.7: Allocate time within working hours for educators to evaluate changes to practice.

APPENNDIX D

Supporting Files for Chapters Seven and Eight

Appendix D includes the following documents relating to the pre-testing and feasibility study presented in Chapters Seven and Eight:

- Modules and lessons in preliminary version of Cheshire SEED used in pre-testing
- Educator reflection sheet to identify priorities
- Approval Letter from Monash University to conduct research
- Approval Letter from the Department of Education and Training to conduct research
- Plain Language Statement and Consent Form for educators
- Pre-Post surveys
- Educator Observation Sheet

Preliminary Version of Cheshire SEED Used in Pre-Testing

List of Modules and Lessons

Home Page

Module 1: Program Foundations
What is the Cheshire Toolkit?
Toolkit Concepts
Have your Say

Module 2: My Priorities
Overview
Form and Function of Behaviour
Identify Priorities
Have your Say

Module 3: My Environment
Overview
My Environment Strategies
Educator Checklist
Have your Say

Module 4: My Strategies
The Three R's
Cheshire Rubric
Have your Say

2.2 Identify Priorities

To help us identify the most relevant strategies for your setting, please tell us a little more about the children in your group.

Once you've completed the form below, please press 'Submit'. We will then send you a list of suggested strategies based on your priorities. You can have a look through all of the current strategies in Modules 3 and 4.

Please add your name in the form below so that we can send the plan back to you.

Please enter your name

Question 1: Think about the strengths and challenges of children in your group, and what you would like to learn more about. Briefly describe your goals for this program (e.g. you might be interested in strategies that benefit all children, and strategies to support a child who has been showing aggressive behaviours during play time).

Add answer here

Question 2: Based on your response to Question 1, please describe your priorities by completing the fields below. We suggest you identify between one and three priorities. For e.g., priority 1 might be universal strategies for all children in your room, and priority 2 might be strategies for a specific child who is behaving aggressively. We've added an example that might help!

EXAMPLE	Child #1
Please describe the behaviours observed	Hitting and kicking other children, seems to become angry quickly, has trouble calming down.
When is the behaviour usually observed?	Noticed throughout the day but especially evident at transitions
What do you think is the reason (function) of the behaviour?	Seems to be avoiding coming into the room after free play. May be seeking attention from educators
What strategies have you tried?	Time in Calming Space, seperate child from other children, talking with child about what they are feeling, musical cues to flag upcoming transitions
What is your goal?	Reduce aggressive behaviour. Increase prosocial behaviours

Name for Priority #1	Add answer here
Please describe the behaviours observed	Add answer here
When is the behaviour usually observed?	Add answer here
What do you think is the reason (function) of the behaviour?	Add answer here
What strategies have you tried?	Add answer here
What is your goal?	Add answer here

Name for Priority #2	Add answer here
Please describe the behaviours observed	Add answer here
When is the behaviour usually observed?	Add answer here
What do you think is the reason (function) of the behaviour?	Add answer here
What strategies have you tried?	Add answer here
What is your goal?	Add answer here

Name for Priority #3	Add answer here
Please describe the behaviours observed	Add answer here
When is the behaviour usually observed?	Add answer here
What do you think is the reason (function) of the behaviour?	Add answer here
What strategies have you tried?	Add answer here
What is your goal?	Add answer here

Question 3: Is there anything else you would like to add?

Add answer here

Submit

Previous

Next

412

Monash University Human Research Ethics Committee

Approval Certificate

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project ID: 13617
Project Title: Building Capacity in the Early Childhood Sector to Foster Positive Mental Health in Preschoolers
Chief Investigator: Professor Helen Skouteris
Approval Date: 18/07/2018
Expiry Date: 18/07/2023

Terms of approval - failure to comply with the terms below is in breach of your approval and the *Australian Code for the Responsible Conduct of Research*.

1. The Chief Investigator is responsible for ensuring that permission letters are obtained, if relevant, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash letterhead and the Monash University complaints clause must include your project number.
6. Amendments to approved projects including changes to personnel must not commence without written approval from MHUREC.
7. Annual Report - continued approval of this project is dependent on the submission of an Annual Report.
8. Final Report - should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected completion date.
9. Monitoring - project may be subject to an audit or any other form of monitoring by MUHREC at any time.
10. Retention and storage of data - The Chief Investigator is responsible for the storage and retention of the original data pertaining to the project for a minimum period of five years.

Kind Regards,

Professor Nip Thomson

Chair, MUHREC

CC: Ms Claire Blewitt, Dr Kylie Jackson

List of approved documents:

Document Type	File Name	Date	Version
Questionnaires / Surveys	Teacher Self Efficacy Scale	01/01/1997	1
Questionnaires / Surveys	STRS-SF_Modified	01/01/2015	1
Questionnaires / Surveys	Educator Demographic Information	02/04/2018	1
Consent Form	bestchance_Consent Form_Educators	20/04/2018	1
Consent Form	bestchance_Consent Form_Mentor	20/04/2018	1
Explanatory Statement	bestchance_Explanatory Statement_Educators	20/04/2018	1
Explanatory Statement	bestchance_Explanatory Statement_Mentor	20/04/2018	1
Explanatory Statement	bestchance_Explanatory Statement_Educators_v2	02/07/2018	2
Explanatory Statement	bestchance_Explanatory Statement_Mentor_v2	02/07/2018	2
Explanatory Statement	bestchance_Explanatory Statement_Design Group	09/07/2018	1
Explanatory Statement	bestchance_Explanatory Statement_Design_Educators	09/07/2018	1
Consent Form	bestchance_Consent Form_Design Group	09/07/2018	1
Consent Form	bestchance_Consent Form_Design_Educators	09/07/2018	1

Supporting Documentation	Cheshire Toolkit_Ethics Amendment	09/07/2018	1
Supporting Documentation	Design Group – Educator Feedback Session_Interview Schedule	09/07/2018	1

Department of
Education & Training

2018_003807

Ms Claire Blewitt
School of Public Health and Preventive Medicine
Monash Centre for Health Research and Implementation
Monash University
Locked Bag 29
CLAYTON   3168

Dear Ms Blewitt

Thank you for your application of 26 July 2018 in which you request permission to conduct research in Victorian early childhood settings titled *Building Capacity in the Early Childhood Sector to Foster Positive Mental Health in Preschoolers.*

I am pleased to advise that on the basis of the information you have provided your research proposal is approved in principle subject to the conditions detailed below.

1. Department approved research projects currently undergoing a Human Research Ethics Committee (HREC) review are required to provide the Department with evidence of the HREC approval once complete.

2. The research is conducted in accordance with the final documentation you provided to the Department of Education and Training.

3. Separate approval for the research needs to be sought from centre directors. This is to be supported by the Department of Education and Training approved documentation and, if applicable, the letter of approval from a relevant and formally constituted Human Research Ethics Committee.

4. The project is commenced within 12 months of this approval letter and any extensions or variations to your study, including those requested by an ethics committee must be submitted to the Department of Education and Training for its consideration before you proceed.

5. As a matter of courtesy, you advise the relevant Regional Director of the schools or governing body of the early childhood settings that you intend to approach. An outline of your research and a copy of this letter should be provided to the Regional Director or governing body.

6. You acknowledge the support of the Department of Education Training in any publications arising from the research.

VICTORIA
State
Government

MONASH University

EXPLANATORY STATEMENT

Kindergarten Educators

Project: Building Capacity in the Early Childhood Sector to Foster Positive Mental Health in Preschoolers

Professor Helen Skouteris
School of Public Health and Preventive Medicine
Phone: 8572 2377
email: helen.skouteris@monash.edu

Claire Blewitt
School of Public Health and Preventive Medicine
Phone: 0423 683 289
email: claire.blewitt@monash.edu

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

The social and emotional competencies that emerge during early childhood are critical for long-term development, health and well-being. Increasingly, Australian children are accessing early childhood education and care (ECEC) services in the formative years before they commence school, where early childhood educators can play an important role in nurturing social and emotional skill development.

bestchance Child Family Care ("bestchance"), The Cheshire School and Monash University have partnered to develop a toolkit of resources to support early childhood educators to recognise and take up opportunities to foster children's social and emotional skills through their everyday practice and interactions. The program is based upon a series of interactional strategies, aligned to daily ECEC practice and routines, to strengthen children's self-esteem, self-regulation and resilience. These strategies are informed by the evidence-based approaches used by The Cheshire School when working with children with significant social, emotional and behavioural challenges, and research conducted by Monash University into social and emotional learning in preschool settings. The program is accessed through an online portal, with expert coaching and support from The Cheshire School psychologist and senior educator. It includes the following components:

- Introductory Workshop: Educators will be asked to reflect with their peers on opportunities to support social-emotional development through everyday interactions, the specific needs within their room, and to participate in a workshop covering responsive teaching strategies for social-emotional wellbeing. The tools and resources within the Toolkit will be presented to educators during this workshop. This session will run for no more than 3 hours, and will be scheduled within normal working hours.

- Coaching Module: Educators will take part in two coaching sessions with two professionals from The Cheshire School skilled in early childhood development, positive behaviour strategies, child psychology and/or play therapy. These sessions will include skill practice, strategies, approaches and problem-solving, and target educator skill, knowledge and self-efficacy. The coaches will visit each site twice for approximately 3-4 hours, allowing educators to work one-on-one with coaches in their room.

- Classroom Tools and Resources: An online portal will describe the responsive strategies and offer resources to assist educators to embed these strategies into their daily practice, including written description of the techniques, videos, visual posters, classroom/playroom planning approaches, advice for recognising and responding to challenging behaviour, and links to support services. These resources will be discussed with you during the Introductory Workshop and your coaching sessions. They will be made available so you can use them within your classroom and during planning and reflection activities.

As an early childhood educator, you are invited to participate in a research project that will evaluate whether the Toolkit improves educator-child relationships and increases educator confidence, knowledge and readiness to foster social-emotional skills within the classroom. This research will also examine the feasibility of implementing the Toolkit at a broader scale. We will use a wait-list control group design to evaluate the effectiveness of the Toolkit, whereby the program will be offered at two kindergartens initially, with educators at a third kindergarten invited to participate as a control group (i.e. complete the surveys and observations without taking part in the program). The Classroom Tools and Resources will be offered at the control centre once the program at the intervention sites are complete.

If you decide to take part in this research, you will be asked to complete a number of measures at before and after participating in the program, during your normal work hours:

- Educators will be asked to provide basic demographic information at commencement, including your age, education and experience in the ECEC sector.

- The Modified Version of the Student-Teacher Relationship Survey - Short Form (STRS - SF) provides an overall assessment of your relationship with the children in your room. You will be asked to complete this before and after taking part in the program. This paper-based form should take no longer than 10 minutes to complete.

- The Teacher Self-Efficacy Scale examines educators' confidence in working with children in their classrooms. You will be asked to complete this before and after taking part in the program. This paper-based form should take no longer than 15 minutes to complete.

- A survey measuring your understanding of children's social-emotional development and strategies to promote social and emotional wellbeing will be completed at commencement and completion on a paper form.

- In addition to the surveys described above, educators will be asked to provide consent for a member of the Monash research team to observe them in the classroom during free play time for 60 minutes (2 x 30 minute sessions) at commencement and completion, and record their observations using The Teacher Coder Impressions Inventory (TCI). This measure provides an assessment of teacher style and positive and negative educator-child interactions. We will also record any observations of strategies targeted through the Toolkit.

Educators from the intervention sites will also be invited to take part in a focus group (with up to six educators) or interview discussion with the research team after the program has concluded. This discussion will run for up to 1.5 hours, will be audio-recorded and later transcribed into text. We will seek your reflections on the appropriateness of the research design, your experiences participating in the intervention, your confidence and engagement in using the Toolkit, and your perception of any subsequent change in your interactions with children in your room. Finally, we will ask for your feedback regarding revisions to program content and methods.

Why were you chosen for this research?
Kindergarten educators will be invited to take part in this research project.

Source of funding
The costs associated with this research project are covered by bestchance Child Family Care and Monash University. A PhD student from Monash University involved in this research is engaged by The Cheshire School one day per week in a Research Officer capacity.

Consenting to participate in the project and withdrawing from the research
Participation in any research project is completely voluntary. **If you do not wish to take part you are not obliged to.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained from you to date will not be used. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with bestchance Child Family Care.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Please sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please contact the Chief Investigator, Helen Skouteris on phone: 8572 2377 or email: helen.skouteris@monash.edu

Possible benefits and risks to participants

This research will deliver a Toolkit of resources designed to strengthen educators' ability to recognise and take up opportunities to foster children's social and emotional skills through educator-child interactions. The findings generated with inform best practice models for ECEC providers, with potential to upscale across early childhood service providers. It is also anticipated children in participating classrooms will be exposed to increased opportunity for social-emotional learning and positive educator-child relationships, which could lead to improved social and emotional functioning, kindergarten and school readiness, reduction in challenging behaviours, and the early identification and management of social, emotional and behavioural issues, though child outcomes will not be evaluated in this stage of the research.

We do not anticipate participation in this project presents any risks to educators or children. Early childhood educators are trained to support children's social-emotional development through preservice education, professional development, and on-the-job learning. Our intervention aims to build on these foundational skills to strengthen educators' ability to nurture social and emotional functioning within their classrooms. If participation in the research, questionnaires, focus group, interview or observations, or any other aspect of this project raises issues or concerns for you, your Educational Leader, the Chief Investigator or the Supervising Psychologist will be available to discuss this with you if you wish.

Confidentiality

Participants should note that only the research team will have access to the data you provide and any information obtained in connection with this research project that can identify you will remain confidential and will only be used for the purpose of this research project. You can be assured that you will never be named or identified in any way in the reporting of results through any publications, conference presentations or any other output that may arise as a result of this research.

Storage of data

Any information we collect from you, including electronic data, audio recordings or hard-copy materials will remain confidential and will be stored on secure Monash University servers or a locked cabinet at Monash University for a minimum of 5 years from the date of any publication, after which the research data and audio recordings will be destroyed unless further ethics approval is sought to maintain the records for a longer period of time.

Results

A summary of the research findings will be prepared and provided to you if you wish. The Consent Form attached to this Explanatory Statement asks you to note if you wish to receive the summary report and the best way for us to provide this to you.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics (MUHREC):

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Room 111, Chancellery Building E,
24 Sports Walk, Clayton Campus
Research Office
Monash University VIC 3800

Tel: +61 3 9905 2052   Email: muhrec@monash.edu   Fax: +61 3 9905 3831

Thank you,

MONASH University

CONSENT FORM

Early Childhood Educators

Project: Building Capacity in the Early Childhood Sector to Foster Positive Mental Health in Preschoolers

Chief Investigator: Professor Helen Skouteris

I have been asked to take part in the Monash University research project specified above. I have read and understood the Explanatory Statement and I hereby consent to participate in this project.

I consent to the following:	Yes	No
I have read and I understand the attached Explanatory Statement.	☐	☐
I freely agree to participate in this project according to the conditions in the Explanatory Statement.	☐	☐
I have been given a copy of the Explanatory Statement and Consent Form to keep.	☐	☐
The researcher has agreed not to record or reveal my identity and personal details, including where information about this project is published, or presented in any public form.	☐	☐
I agree to allow the focus group to be audio-taped (intervention services only).	☐	☐

A Summary Evaluation Report will be available for participants.

I DO/DO NOT wish to receive a copy of the Summary Evaluation Report.

Please send this to me by POST/EMAIL

      Postal Address: _____

                    _____

      Email address: _____

Name of Participant _____

Participant Signature _____ Date _____

Please return, mail or email this form to:
Claire Blewitt
Monash Centre for Health Research and Implementation
Locked Bag 29 Clayton VIC 3168
e: claire.blewitt@monash.edu
m: 0423 683 289

Dear Educators,

Thank you for taking part in The Cheshire Toolkit pilot study.

This pack includes four surveys for you to complete:

- Part 1: Demographic information.

- Part 2: Modified version of the Student-Teacher Relationship Scale.

- Part 3: Modified version of the Teacher Self-Efficacy Scale.

- Part 4: Strategies to support children's social and emotional skills.

All responses provided will be kept completely confidential. Only Monash University researchers will have access to this data, and no identifiable information relating to this project will ever be released. You will notice a code has been written on these surveys, this just allows us to match your pre and post program responses.

Once you've completed the surveys, could you please place in the envelope provided, seal this envelope and provide to your service leader, who will pass it onto the research team. If you're able, could you please complete by Monday 5 November.

If you have any questions, please contact Claire Blewitt at e: claire.blewitt@monash.edu or m: 0423 683 289.

Thank you again for being part of this project.

PART 1: EDUCATOR DEMOGRAPHIC INFORMATION

1. What is your age?

   18-24   25-29   30-34   35-39   40-44

   45-49   50-54   55-59   60+

2. What is your current position? (please note role, type of service and age of children under care)

   _____

3. Do you work:

   Full time   Part time   Casual   Volunteer

4. How long have you worked in this position?

   _____Months   _____Years

5. How long have your worked in the Early Childhood Education and Care sector?

   _____Months   _____Years

6. What are your qualification/s (please select all that apply):

   Certificate III   Diploma   Advanced Diploma

   Bachelor Degree   Masters   Actively working towards qualification

   Other, please specify _____

Thank you for completing Part 1.

PART 2: YOUR RELATIONSHIPS WITH CHILDREN IN THE GROUP

Please reflect on how much each of the statements below currently applies to your relationship with the children in your group. All relationships are individual, but in responding, please think about your relationships with the children in your group <u>in general</u>.

Please circle the appropriate response for each item.

Question	1 Definitely does not apply	2 Not really	3 Neutral, not sure	4 Applies Somewhat	5 Definitely applies
1. I share an affectionate, warm relationship with the children.	1	2	3	4	5
2. The children and I always seem to be struggling with each other.	1	2	3	4	5
3. If upset, the children will seek comfort from me.	1	2	3	4	5
4. The children are uncomfortable with physical affection or touch from me.	1	2	3	4	5
5. The children value their relationship with me.	1	2	3	4	5
6. When I praise the children, they beam with pride.	1	2	3	4	5
7. The children share information with me about themselves even if I don't ask.	1	2	3	4	5
8. The children easily become angry with me.	1	2	3	4	5
9. It is easy to be in tune with what the children are feeling.	1	2	3	4	5
10. The children remain angry or are resistant after being disciplined.	1	2	3	4	5
11. Dealing with the children drains my energy.	1	2	3	4	5
12. When the children are in a bad mood, I know we're in for a long and difficult day.	1	2	3	4	5
13. The children's feelings toward me can be hard to predict or can change suddenly.	1	2	3	4	5
14. The children are sneaky or manipulative with me.	1	2	3	4	5
15. The children openly share their feelings and experiences with me.	1	2	3	4	5

Thank you for completing Part 2.

PART 3: TEACHER SELF-EFFICACY SCALE

This questionnaire is designed to help us gain a better understanding of things that create difficulties for teachers in their educational setting. Please indicate your opinions about each of the statements below by circling the appropriate number.

Efficacy to create a positive climate

1. How much can you do to make the room a safe space?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

2. How much can you do to make children enjoy coming to kinder/daycare?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

3. How much can you do to get children to trust teachers?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

4. How much can you do to help other teachers with their teaching skills?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

5. How much can you do to get children to believe they can do well at kinder/childcare?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Instructional Self-Efficacy

6. How much can you do to get through to the most challenging children?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

7. How much can do to do to promote learning and development when there is lack of support from the home?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

8. How much can do to keep children on task during difficult activities?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

9. How much can you do to increase children's memory of what has been taught in previous sessions?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

10. How much can you do to motivate children who show low interest in room or group activities?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

11. How much can you to do get children to work together?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

12. How much can you do to overcome the impact of adverse community conditions on children's learning and development?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

Disciplinary Self-Efficacy

13. How much can you do to get children to follow the room/group rules?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

14. How much can you do to manage challenging behaviour in the room?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

15. How much can you do to prevent challenging behaviour in the room?

1 2 3 4 5 6 7 8 9
Nothing   Very Little   Some Influence   Quite a Bit   A Great Deal

Thank you for completing Part 3 of the survey

PART 4: STRATEGIES TO SUPPORT CHILDREN'S SOCIAL AND EMOTIONAL SKILLS

Please indicate your opinions about each of the statements below by circling the appropriate number.

1. Educators play an important role in supporting children's social and emotional development

	1	2	3	4	5	6	7
	Strongly disagree			Neither agree nor disagree			Strongly agree

How?

_____

_____

_____

_____

_____

2. Educators can strengthen children's social, emotional and behavioural skills through their everyday interactions

	1	2	3	4	5	6	7
	Strongly disagree			Neither agree nor disagree			Strongly agree

How? Please provide a recent example

_____

_____

_____

_____

_____

3. I have knowledge of strategies to support _all children's_ social and emotional development

	1	2	3	4	5	6	7
	Strongly disagree			Neither agree			Strongly agree

Please provide a recent example

_____

_____

_____

_____

_____

4. I have knowledge of strategies to support the social and emotional development of children with specific _social, emotional or behavioural challenges_

1	2	3	4	5	6	7
Strongly disagree			Neither agree			Strongly agree

Please provide a recent example

_____

_____

_____

_____

_____

_____

Thank you for completing Part 4 of the survey.

EDUCATOR OBSERVATION SHEET

Assessor Initials:		Educator observed (initials)		Date: Start Time: End Time:

Item	Tally	Quotes/Notes
Teacher paid attention when child talked or asked questions	Yes: No:	
Teacher was verbally affectionate to child		
Teacher was physically affectionate to child		
Teacher provided emotional stimulation, encouragement of praise		
Teacher taught prosocial skills		
Teacher used and encouraged feeling language		
Teacher threatened or delivered publishment		
Teacher showed disapproval or criticised child		
Teacher showed anger, irritability or frustration		

DESCRIPTION OF ITEMS

	Item	**Tally**
1	Teacher paid attention when child talked or asked questions	Tally yes when the teacher responds directly to an interaction initiated by the child (e.g. asking a question, asking for help, stands nearby). Look for the educator making eye contact with the child, stopping what they are doing to talk to the child, providing a clear verbal response, or responding to a request for help. Tally no when the educator doesn't respond to the child, is dismissive etc.
2	Teacher was verbally affectionate to child	Any expression of warmth, positive regard and closeness between teacher and child(ren). This includes praise or compliments. There must be clear positive tone and intention (e.g. neutral greetings should not be tallied here unless they display clear affection for child). Use 4) when in response to a specific behaviour. "I'm so happy to see you today" "how was your weekend Max?" "good morning brilliant astronomers"
3	Teacher was physically affectionate to child	Any display of positive regard through physical gestures including touch. Include instances where teacher provided comfort using physical means e.g. hugging child, high-five, hand on back when helping with a problem
4	Teacher provided emotional stimulation, encouragement of praise	Any praise, encouragement or comments that boost a child's motivation and self-esteem, delivered directly to the child or children that is related to specific behaviour (don't code general compliments here). "Everyone has worked so hard on their drawings" "I saw how careful you were carrying the paint over, thank you for helping me" "Keep trying, you can do it" Teacher gives thumbs up after asking children to move quietly to mat
5	Teacher taught prosocial skills	Teaching a prosocial behaviour or prompting child to use a previously learned skill. Look for the teacher providing options to solve problem, providing language to navigate a social situation, teaching appropriate behaviour etc. "I can see you look sad. Maybe you could ask Max to join you?" "You both want this book right now, what are some of the ways we could solve this problem? "It looks like those words hurt Sam's feelings, perhaps we could say…" "This morning we talked about some of the ways we can calm down when we feel angry. Do you remember any of these?"
6	Teacher used and encouraged feeling language	Look for labelling and describing feelings in the room (this can be the child's feelings, adult feelings, feelings of other children or future feelings that might result from a course of action Tally any instance where the teacher expresses feelings, encourages others to express feelings or speculates on future feelings. "I'm really happy you decided to come and play with us"

		"It looks like you're really angry right now. Would you like me to help you solve the problem, or would you like some space first?" "I can see on Jess' face that she's really happy you shared with her"
7	Teacher threatened or delivered publishment	Distinguish between punishment and logical consequences. Logical consequences are a respectful way for educators to help children learn from behaviour. Punishment may be evident through angry tone, and included element of shame "IF you don't stop I am going to have to talk to your mum" "Ok you need 10 minutes away from the group, I'm not putting up with this" "Do you want me to take away this toy"
8	Teacher showed disapproval or criticised child	Tally any negative regard for children. May be verbal or non-verbal. Do not code instances of positively phrased, calmly delivered discipline "Don't do that" "Max, stop and be a good boy" "Freddy is stopping us going outside because he won't put his hat on"
9	Teacher showed anger, irritability or frustration	Tally negative emotions expressed verbally non-verbally (if occurs with another item, tally both). If continues over several minutes, tally each comment or gesture. Teacher rolls eyes and sighs Teacher raise voice "I'm so tired of this"