A Scoping Review of Relationship-based Training Programs for Early Childhood Educators

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Aim and Background: An increasing rise in childcare attendance has resulted in children spending additional time with non-parental caregivers, such as Early Childhood Educators (ECE's). Strong relationships between children and ECE's are important as these relationships impact on children's development. Relationship-based training programs offered by occupational therapists, are one way of supporting educators with building and maintaining positive relationships with children in their care. This scoping review aimed to provide a summary of the features and outcomes of relationship-based training with ECE's.

Methods: After a systematic search and following PRISMA guidelines, a total of 26 studies were included. **Results:** A wide range of relationship-based training programs were described, with multiple components and group-based training, as well as individual consultation/coaching reported. All included studies reported that relationship-based training programs resulted in positive outcomes for children and/or educators. This review provides a foundation for designing relationship-based training programs for ECE's.

Keywords: Scoping review; relationship-based; early childhood; training

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Introduction

The increasing use of formal or informal childcare is a current trend in the care of young children. Statistics show that 55% of Australian children aged 0-4 years attend either formal or informal childcare (Brebner, Hammond, Schaumloffel, & Lind, 2015). One contributing factor to the increase of childcare attendance is the rise in the number of mothers entering or remaining in the workforce after pregnancy (Ahnert, Pinquart, & Lamb, 2006) . In 2011, 68 percent of mothers in a relationship and 57 percent of single mothers were employed (Baxter, 2013). It is therefore important to understand the experiences of children in childcare and the influence this has on child development. The relationships between children and non-parental caregivers can have a significant impact on child developmental outcomes (Biringen et al., 2012). Research shows a link between good-quality childcare relationships (between Early Childhood Educators – ECE's and the children in their care) and children's speech, language, and cognitive development (Brebner et al., 2015; Curby et al., 2009; Hamre & Pianta, 2001; Pianta & Ryan, 2002).

Furthermore, the building blocks for good mental health are formed in early childhood with relationships with parental and non-parental caregivers being paramount. Lack of opportunity to form these relationships can have a long-term impact on the child's learning and ability to interact with others (Centre on the Developing Child, 2013). Harvard Universities' Centre on the Developing Child (2013) highlights that many costly social issues could be prevented if more resources were invested into improving children's relationships and social emotional experiences at an early age.

Of concern is that only 50% of children have secure attachment relationships with a non-parental caregiver, such as ECE's (Biringen et al., 2012). Attachment is defined as a

deep and enduring emotional bond that connects one person to another (Bergin & Bergin, 2009). Relationship-based training programs may assist with improving the relationships between ECE's and children in their care. Relationship-based training programs aim to meet the emotional and social needs of infants and toddlers, through the use of a strength-based model in which professionals support positive caregiver-child relationships (Stewart, 2008). Ahnert et al. (2006) suggest that the quality of staff training and staff stability may greatly impact children's development. Biringen et al. (2012) advocate for the development of relationship-based training programs for childcare providers.

Occupational therapists often apply relationship-based training with parents, which is well suited with the core principles of their profession, including: that the family is viewed as the client; that the focus is on facilitation of full participation in parenting as an occupation; and that it is client-centred (Townsend & Polatajko, 2007). In working with non-parental carers such as ECE staff, who have a significant role in the child's early childhood experience, occupational therapists have an opportunity to affect a positive influence on child development within the context of the childcare setting.

To guide occupational therapy practice in this area, to the best of our knowledge, there have been no literature reviews undertaken to describe the relationship-based training programs for ECE's offered in childcare settings and the evidence in relation to such training. The present scoping review aims to provide a summary of the features and outcomes of conducting relationship-based training programs with ECE's. Scoping reviews assist with reporting evidence of intervention, identifying gaps in research, and informing practice in a particular field (Peters et al., 2015). This scoping review will help to inform the development and evaluation of relationship-based training programs and will help to identify gaps in the literature to guide future research. In the authors' particular context, we aimed to understand

relationship-based training programs, to assist us with the development and implementation of a program (facilitated by occupational therapists and speech pathologists) for ECE staff in Children's Centres in South Australia. This study was undertaken as part of an honours degree.

Methods

A scoping review methodology was adopted to guide this review, since the topic area is relatively new and has not been extensively reviewed (Scanlan & Novak, 2015). Scoping reviews are also useful for mapping or summarising a research area where various different approaches have been adopted (Scanlan & Novak, 2015). The present review utilised the following five-stage approach for conducting scoping reviews: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarising and reporting the results (Arksey & O'Malley, 2005). The review was conducted and reported according to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) extension for Scoping Reviews (Tricco et al., 2018).

Identifying the review question

Since scoping reviews typically are guided by broad, comprehensive review questions (Anaby et al., 2013), the review question was: What are the features and outcomes of relationship-based training programs for ECE's?

Identifying relevant studies

A protocol was developed *a priori* and is available from the authors on request. Reviewers searched six electronic databases from July 2016 to February 2017. An academic librarian from the University of South Australia was consulted to assist with developing the search strategy. The search was conducted on 28 December 2016 and updated on 1 June 2018. A search strategy was initially developed for Medical Literature Analysis and Retrieval

Online (MEDLINE) and then adapted to suit other databases. The databases searched included: PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Education Resources Information Centre (ERIC), Joanna Briggs, and Excerpta Medica Database (EMBASE). The search strategy included search terms and key words related to childcare, training programs, and attachment/relationships (outlined in Table 1). There were no restrictions placed on publication year and all searches were limited to English language, peer reviewed literature and studies involving humans.

Table 1 Key search terms

Concept 1	Concept 2	Concept 3
Emotional development	Child day care centres	Early intervention
Attachment behaviour	Centre-based care	Intervention
Attachment theory	Pre-school or preschool	Program*
Attach*	Kindergarten or kindy	Training program*
Emotional availability	Childcare or child-care	Relationship based program*
	Centre-based childcare	Relationship based training
		Head start program*

Study selection

In line with scoping review methodology, a large number of potential publications were identified (n= 1389) in the search. Reviewers then removed duplicates, leaving 1168 potential studies to be screened. Two reviewers (each independently screening half of the articles) completed two rounds of screening to identify the included studies, using the Covidence Online Program.

Firstly, reviewers screened the titles and abstracts of all studies against the selection criteria (outlined in Table 2). Studies progressed to full-text screening when: (a) studies were potentially relevant from information provided in the title and abstract, or (b) the title and

abstract created uncertainty regarding the relevance of a study. Full-text studies were screened and included or excluded based on the selection criteria. The main reasons for exclusion of full-text studies included: inadequate description of program; not relevant to review question; and wrong population. The flow of studies through the selection process is presented in the PRIMSA flowchart shown in Figure 1. Reviewers resolved conflicts or uncertainty through group discussions to reach consensus. Grey literature was not searched or included in this review, as peer reviewed research evidence was the focus to adequately answer the review question. According to Peters et al. (2015) reviewers can impose limits on the types of sources included in a scoping review depending on what sources would be most useful and appropriate for the particular topic.

Table 2 Inclusion and exclusion criteria

Inclusion	Exclusion
Children without diagnosed condition	Children with a diagnosed condition
Children aged 0-6	Children aged 6+
Training programs for educators/childcare providers	Training programs for parents
Training program is relationship or social/emotional development, or attachment based.	Programs focussed only on behaviour management strategies
Training program has a focus on the relationships between the non-parental caregiver and child.	Programs focus on the parent-child relationship
English language	Programs focus only on cognitive or instructional techniques provided to the child
	Articles that did not describe training program in adequate detail

Charting the data

Two independent reviewers extracted data from all 26 included studies to ensure a systematic extraction process. Information extracted included: authors; year of study; location of study;

setting; aim of study; participants; training programs used; outcome measures used; and outcomes reported. As data was extracted, the categories of extraction were discussed and modified and adapted as needed.

Reviewers compared data extraction results and reached full consensus through group meetings and discussions (which included all authors). Researchers did not appraise the quality of included studies, since scoping reviews provide an overview of the existing evidence in a certain area regardless of the quality of evidence (Peters et al., 2015).

Collating, summarising and reporting the results

To further understand the current literature, key categories were identified and summarised. Reviewers allowed these categories to emerge from the literature without using pre-determined criteria. We grouped studies by features, outcomes and designs and looked for links amongst these areas. Results are presented in narrative format with mapping of key items.

Results

Year and location of research

A total of 26 studies were included in this review. An overview of the year, location and study design of the included studies is provided in Table 3. The majority of studies (15 of the 26 studies) were published in the past five years (from 2013 to 2018), with nine published in the previous five years (from 2008 to 2012), and two respectively in 1996 and 2004 - indicating a more recent focus on this area in published research. Research was mainly conducted in the United States (20 of the included 26 studies) (Bierman et al., 2008; Bierman et al., 2013; Biringen et al., 2012; Conners-Burrow, Patrick, Kyzer, & McKelvey, 2016; Denham & Burton, 1996; Fox, Hemmeter, Snyder, Binder, & Clarke, 2011; Gray, 2015;

Green, Malsch, Kothari, Busse, & Brennan, 2012; Heller et al., 2012; Howes, Shivers, & Ritchie, 2004; Landry et al., 2014; Lyon et al., 2009; Morris, Millenky,
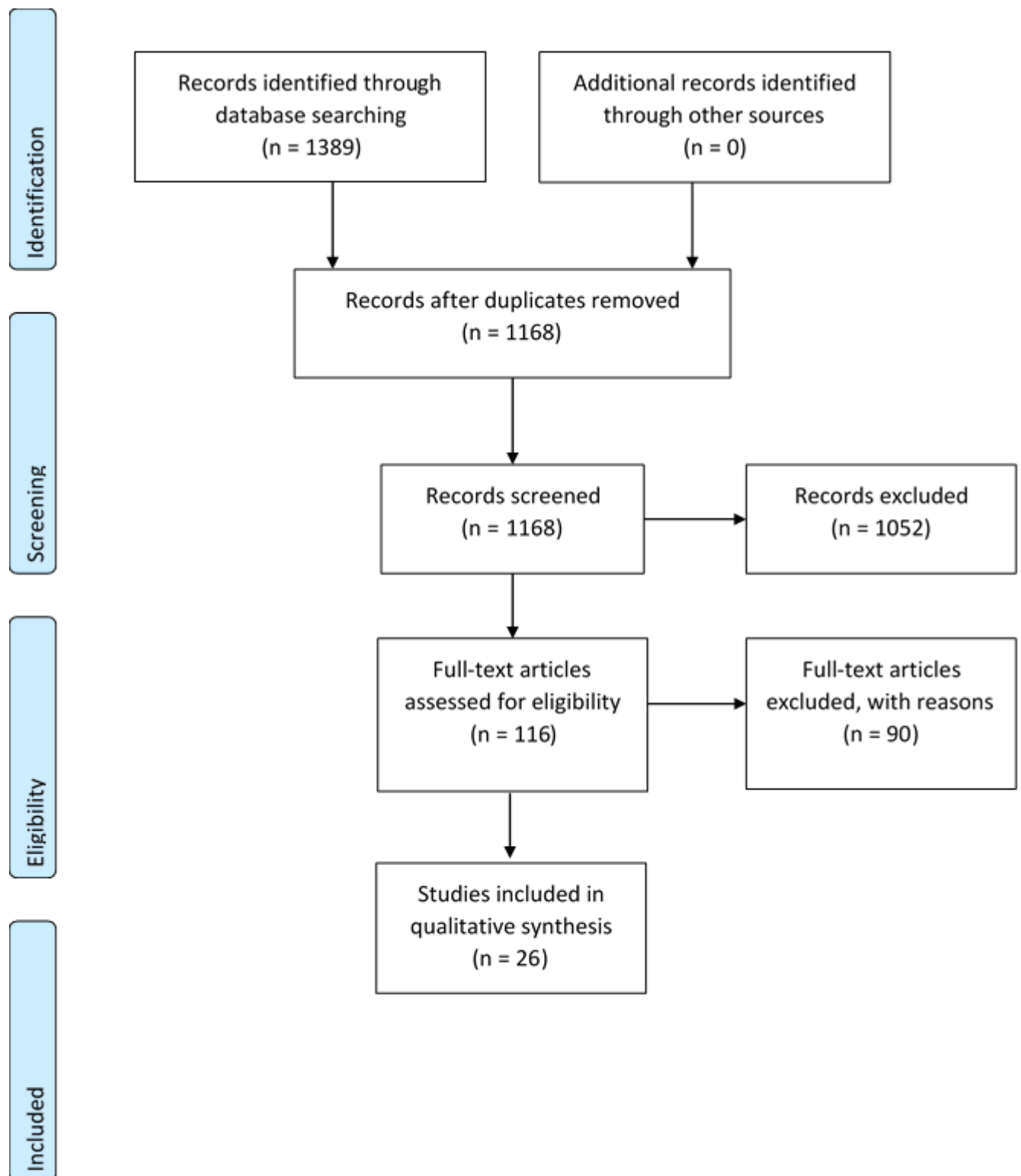
Figure 1 The PRISMA flowchart showing the flow of studies through the selection process

Raver & Jones 2013; Nix, Bierman, Domitrovich, & Gill, 2013; Pickens, 2009; Ritblatt, Hokoda, & Van Liew, 2017; Shamblin, Graham, & Bianco, 2016; Steed & Durand, 2013; Tucker, Schieffer, Wills, Hull, & Murphy, 2017; Williford et al., 2017).The other studies were conducted in Norway (Omdal, 2018), the Netherlands (n=2) (Fukkink & Tavecchio, 2010; Werner, Vermeer, Linting, & Van IJzendoorn, 2018), Jamaica (Baker-Henningham, Walker, Powell, & Gardner, 2009), Belgium (Vancraeyveldt et al., 2015) and Singapore (Ebbeck, Phoon, Tan-Chong, Tan, & Goh, 2015). A majority of the research was conducted in preschool or childcare settings. Some research was however conducted in pre-kindergarten and Head Start settings. Children in all settings ranged from 4 months to 6 years of age.

Types of study designs

In Table 3, an overview of the study designs adopted in the included studies, is provided. Eleven of the 26 studies adopted a randomised controlled trial (RCT) study design, with the majority investigating the benefits of a training program by comparing a training group with a control group who received usual care. Some RCT's however compared the benefits of two different training programs. Eight studies adopted a pre-post study design, without the comparison of a control group. Other study designs undertaken in the literature included: longitudinal; program evaluation; and multiple baseline.

Table 3 Year, location, study design and outcome measures of included studies

Study	Year	Location	Study Design	Outcome Measures
Baker-Henningham et al.	2009	Jamaica	RCT	Observations Child behaviour rating scale Questionnaire
Bierman et al.	2008	USA	RCT	Child behaviour observations
Bierman et al.	2013	USA	Follow-up RCT	CLASS, TBRS, CLEO
Biringen et al.	2012	USA	RCT	CIS, AQS, EA Scales
Conners-Burrow et al.	2016	USA	Pre-post	CIS, PMHCS, Attendance/ surveys
Denham & Burton	1996	USA	Pre-post	MPAC
Ebbeck et al.	2015	Singapore	Pre-post	Observations
Fox et al.	2011	USA	Pre-post	TPOT
Fukkink & Tavecchio	2010	Netherlands	Pre-post	CIS, VIG-JSS
Gray	2015	USA	Program Evaluation	TOS
Green et al.	2012	USA	Pre-post	MHSS
Heller et al.	2012	USA	Prospective Cohort	CLASS
Howes, Shivers & Ritchie	2004	USA	Longitudinal Cohort	CIS, AQS, AIS, RPPS
Landry et al.	2014	USA	RCT	TBRS, EOWPVT
Lyon et al.	2009	USA	Multiple Baseline	DPICS, Surveys
Morris et al.	2013	USA	RCT	CLASS

Nix et al.	2013	USA	Longitudinal Evaluation	EOWPVT, TOPEL
Omdal	2018	Norway	Program Evaluation	Focus Groups, Semi-structured Interviews
Pickens	2009	USA	RCT	PBS
Ritblatt, Hokoda, Van Liew	2017	USA	Pre-post	CIS, Surveys
Shamblin, Graham & Bianco	2016	USA	Program Evaluation	TOS, DECA, ECMHC, survey
Steed & Durand	2013	USA	RCT	TOS, TSES, SPSG, questionnaire
Tucker et al.	2017	USA	Pre-post	GOLD, ASQ, PBQ, TPOT, interviews
Vancraeyveldt et al.	2015	Belgium	RCT	Strengths and Difficulties Questionnaire
Werner et al.	2018	Netherlands	RCT	ECERS-R, CIS, caregiver questionnaire on attitude towards caregiving
Williford et al.	2017	USA	RCT	TC-SPT, CLASS, inCLASS, ADHDRS–IV, ODDRS, ECBI, SESBI–R

Features of training programs

In Table 4 an overview of the different training program components found in the literature, is provided. Some of the common features of the training programs included (in order of prevalence): (a) group training (n=19/26); (b) feedback or support sessions (n=20/26); (c) role plays/modelling/ videotaping (n=11/21); and (d) activities/tools to support and reinforce the training program (n=9/21). Most programs can therefore be described as being multi-component in nature and with a prominence of group programs. Most group programs (n=17/19) were combined with another feature. There were two programs that included all four components, seven with three components, thirteen with two components, and only four with just one component.

Programs that included a group training component were delivered via workshops or information sessions. The number and length of these sessions varied from one two-hour workshop to multiple workshops run over six-weeks.

As can be seen in Table 4, individual feedback or support was another common component of training programs. Feedback or support most commonly consisted of participants receiving ongoing consultation, coaching sessions, supervision, or reflection time. During these support sessions, participants were often provided with feedback regarding implementation of skills learnt; examples of desired skills; advice regarding planning for future implementation of skills; help with setting goals; and opportunities to further practice skills learnt. The frequency of consultation ranged from once a week to once a month. The majority of the studies that utilised RCT designs, had an individual feedback component (n=10/11).

Table 4 Overview of training program components in the included studies

Study:	Program Component			
	Feedback/support sessions	Role play/modelling/ videotaping	Group Training	Activities/tools to support
Baker-Henningham et al. (2009)	X	X	X	
Bierman et al. (2008)			X	X
Bierman et al. (2013)	X	X	X	
Biringen et al. (2012)	X		X	
Conners-Burrow et al. (2016)	X		X	X
Denham & Burton (1996)			X	
Ebbeck et al. (2015)		X	X	
Fox et al. (2011)	X		X	X
Fukkink & Tavecchio (2010)		X	X	
Gray (2015)		X	X	
Green et al. (2012)			X	
Heller et al. (2012)	X	X		
Howes, Shivers & Ritchie (2004)	X			
Landry et al. (2014)	X	X	X	X
Lyon et al. (2009)	X		X	
Morris et al. (2013)	X		X	
Nix et al. (2013)	X		X	X
Omdal (2018)	X		X	
Pickens (2009)	X		X	X
Shamblin, Graham & Bianco (2016)	X			X
Ritblatt, Hokoda, Van Liew (2017)	X	X	X	X
Steed & Durand (2013)	X			
Vancraeyveldt et al. (2015)	X	X		X
Werner et al. (2018)	X	X		
Williford et al. (2017)	X	X		
Tucker et al. (2017)	X		X	
	N=20	N=11	N=19	N=9

In Table 4 it is indicated that many training programs used videotapes, role plays, or modelling. Videotapes were used to either: observe interactions between children and educators; provide educational material; or as a reflection/feedback tool. Fukkink and Tavecchio (2010), for example, used videotapes as a reflection tool by videotaping participants weekly for 10-minutes and then reviewing the video with participants to provide feedback. Gray (2015) on the other hand used videotapes as an educational tool to assist with participant training.

Training programs frequently used further tools or activities to support and reinforce program implementation. All of these studies provided participants with a program 'guide' or 'manual'. Other tools provided to participants to support program implementation included: educational CD's; information handouts; information posters; readings; video examples; and other classroom material (e.g. puppets, children's books, and calendar cards).

Theories underpinning programs

Some of the studies did not describe the theoretical background underpinning the development of the training programs (n=12/26), however the majority did (n=14/26). Attachment Theory (Bowlby, 1969) was most commonly used to guide program development, as was Emotional Availability, which is a construct of the original attachment theory (Biringen et al., 2012; Ebbeck et al., 2015; Gray, 2015; Howes et al., 2004; Landry et al., 2014; Lyon et al., 2009; Vancraeyveldt et al., 2015). Other studies alternatively followed Social Learning Theories, such as that of Bandura (Fukkink & Tavecchio, 2010; Vancraeyveldt et al., 2015). Finally, some programs were based on Socio-cultural and Development Theories, however researchers did not explicitly indicate which of these specific theories/constructs underpinned the training programs (Landry et al., 2014; Lyon et al., 2009).

Outcomes and outcome measures

A variety of outcome measures were used in the studies (see Table 3), with the following most prominently used: Caregiver Interaction Scale (n=6), Classroom Assessment Scoring System (n=4), Teacher Opinion Scale (n=3), Teacher Behaviour Rating Scale (n=2) and Attachment Q-Sort (n=2), with the rest all being used only in one study. Due to the variety of outcome measures used, it is not possible to combine the results of the various studies.

In Table 5 a summary of the outcome areas measured by the instruments, is provided. The outcomes most commonly reported throughout the included studies included (in order of prevalence): teacher behaviours/skills (n=18); child behaviours (n=16); teacher satisfaction (n=8); and classroom environment/atmosphere (n=6). Positive outcomes were reported across all these areas. The studies that utilised an RCT design (n=11), reported most outcomes for children (n=9/11) and teacher behaviour (n=8/11).

Studies frequently focussed on the changes in teacher behaviours/skills after participating in a relationship-based training program. All of these studies reported significant positive changes in at least one teacher behaviour or skill. Some examples of teacher behaviours or skills reported throughout the literature included: emotional support; promoting children's social and emotional skills; positive discipline; problem solving; teaching social skills; sensitivity; or stimulating caregiving.

Table 5 Overview of outcome areas reported in the included studies

Study	Teacher Behaviours/Skills	Child Behaviours	Teacher Satisfaction/Feedback	Classroom Environment/Atmosphere
Baker-Henningham et al. (2009)	x	x	x	x
Bierman et al. (2008)		x		
Bierman et al. (2013)	x			x
Biringen et al. (2012)	x	x		
Conners-Burrow et al. (2016)	x	x	x	
Denham & Burton (1996)		x		
Ebbeck et al. (2015)	x			
Fox et al. (2011)	x			
Fukkink & Tavecchio (2010)	x		x	
Gray (2015)	x			
Green et al. (2012)			x	
Heller et al. (2012)	x			x
Howes, Shivers & Ritchie (2004)	x	x		
Landry et al. (2014)	x	x		x
Lyon et al. (2009)	x		x	
Morris et al. (2013)	x	x		x
Nix et al. (2013)		x		
Omdal (2018)	x	x		
Pickens (2009)		x		
Ritblatt (2017)			x	
Shamblin, Graham & Bianco (2016)	x	x	x	
Steed & Durand (2013)	x	x	x	
Tucker et al. (2017)		x		
Vancraeyveldt et al. (2015)		x		
Werner et al. (2018)	x			x
Williford et al. (2017)	x	x		
	N=18	N=16	N=8	N=6

In Table 5, it can be seen that studies commonly focussed on the changes in behaviour of children in the care of ECE staff who had participated in a relationship-based training program. All of these studies reported significant positive changes in at least one aspect of children's behaviours. Examples of children's behaviours investigated throughout the included studies included: language skills; vocabulary; emerging literacy skills; social cognitions; child involvement; prosocial behaviours; productiveness; peer skills; conflict; emotional understanding; social independence; and hyperactivity/inattention.

Seven studies asked participants to rate their job satisfaction or satisfaction with the training program implemented. All seven studies reported positive results regarding teacher satisfaction and confidence after participating in a relationship-based training program.

Six studies investigated the changes in classroom atmosphere/community after implementing a relationship-based training program with ECE staff. Two of the six studies reported significant changes in classroom organisation on the CLASS rating scale (Heller et al., 2012; Morris et al., 2013). Baker-Henningham et al. (2009) and Landry et al. (2014) reported significant improvements in classroom atmosphere and classroom community respectively. Werner et al. (2018) reported change in quality of care assessed on the Early Childhood Environment Rating Scale-Revised (ECERS-R). Bierman et al. (2013) alternatively reported slightly mixed results in classroom management.

Reported common study strengths and limitations

The common strengths noted in the included studies included: randomisation of participants into the training group or control group; blinding of raters; and the use of a usual practice control group. A number of common limitations were also highlighted. Firstly, a number of studies did not include a control group, which could limit the significance of study results. Secondly, many studies included relatively small sample sizes, making it difficult to

generalise results to other contexts and participants. A number of studies included raters (either external observers or educators/participants) that were not blinded, meaning they were aware of the training program being implemented. This does create a source of potential bias, as raters may expect the program to improve educator or child behaviours/skill.

Discussion

This scoping review aimed to map and summarise current research around the features and outcomes of relationship-based training programs conducted with ECE staff. The review found that most training programs resulted in positive outcomes for educators and/or children. Furthermore, the present review sets the foundation for further research to synthesise and critically appraise the outcomes reported in the included studies.

Directions for future occupational therapy practice and research

In this review, a variety of relationship-based training programs were uncovered and are described for occupational therapists to consider as a foundation in designing their own training programs. The features include programs with multiple components and group-based training, as well as individual consultation/coaching. A majority of training programs included a group training component for participants through workshops or information sessions (19 of the included 26 studies). Seven studies (Heller et al., 2012; Howes et al., 2004; Shamblin et al., 2016; Steed & Durand, 2013; Vancraeyveldt et al., 2015; Werner et al., 2018; Williford et al., 2017) however did not include a group training component (as shown in Table 4) and alternatively provided participants with ongoing individual consultation and support. Given the wide variety of results presented, it is not possible to identify whether group-based training is more useful than individual training for ECE's or whether both may be equally useful. It is also difficult to determine whether a combination of different training components (e.g. group-based and individual) is more useful than a single training

component (e.g. solely consultation). Previous research does suggest however that a combination of coaching/consultation and workshop training assists with changes or modifications in teacher practices (Baker-Henningham et al., 2009). The results of this review therefore highlight the need for future research into the usefulness of multi-component training programs versus single component training.

Process evaluations allow researchers to gain a greater understanding of the interaction between specific program components and program outcomes (Saunders, Evans, & Joshi, 2005). Only Shamblin (2016) specifically stated that they had utilised process evaluation. Saunders, Evans and Joshi (2005) emphasise that a process evaluation should consider the following elements: fidelity (consistency with underlying theory/philosophy); dose delivered (whether all components/materials/content were provided to participants); dose received (whether all components/materials/content were used by participants); reach (how many of the target population participated in program sessions); recruitment (barriers); and context (the environmental/social contexts impacting on the implementation of the program). The inclusion of process evaluation in relationship-based training research would help to guide future program development for ECE's by providing information on what features/components are most feasible and engaging.

Clear reporting of program rationale and features is essential for future replication of research and program implementation. A number of included studies did not adequately describe the theories used to guide the development of their training programs or specifically outline the skills taught to ECE's. Theory enables developers to provide explicit clinical reasoning for program choices and a description of the design process (French et al., 2012). Furthermore, the Improved Clinical Effectiveness through Behavioural Research Group (2006) suggests, that theory assists the researchers to look at potential causes for behavioural

change based on the theoretical constructs. In addition to details regarding program theory Hoffman et al (2014, p. 2) emphasise that the intervention descriptions include: "duration, dose/intensity, mode of delivery, essential processes and monitoring" and have designed a checklist (TIDieR) to guide intervention/program reporting. Use of tools such as TIDieR ensures accurate and detailed reporting of program theory, content and structure.

The results of this review highlight that there have been a wide variety of tools used to measure outcomes in the literature. The heterogeneity of these outcome measures warrants further research into which instruments provide the most valid and reliable information on outcomes of relationship-based training. A systematic review looking at the psychometric properties of outcomes, cost and time needed to administer the instruments would provide valuable information to inform tool selection. In addition, the development of guidelines for the design and evaluation of relationship-based training for ECE's, using research methods such as Delphi, would also help to strengthen this area of practice.

Finally, the reported strengths and limitations of the included studies have been outlined in the results section of this article. These highlighted the need for more robust research on the effectiveness of relationship-based training for ECE's through the use of randomised controlled trials with adequate power (larger sample sizes) and blinding of assessors.

Strengths and limitations of the study

The major strength of this review is the broad and systematic search capturing the relevant studies published in academic journals. The search included broad key search terms with no date restrictions.

We acknowledge that this scoping review has some limitations. Firstly, the search strategy did not include grey literature. We identified that the focus of the review was on the

features and outcomes of training programs, and therefore the decision was made to only include studies published in peer reviewed journals as these were deemed to provide quality evidence. Secondly, this review was conducted as a first attempt at identifying all available literature to describe the features and outcomes of relationship-based training programs for ECE's. A quality assessment of the included studies was therefore not conducted, which is in line with scoping review guidelines (Peters et al., 2015).

Conclusion

Given the importance of responsive relationships with non-parental caregivers on children's cognitive, social and emotional development, this scoping review provides occupational therapists with important information on the characteristics and outcomes of relationship-based training programs provided to early childhood educators. This review highlights the training programs currently being conducted worldwide with positive outcomes being reported in teachers' skill development and satisfaction, children's behaviour and classroom atmosphere. Future studies adopting a process evaluation approach may assist with identifying the specific training components that are most useful for providing positive outcomes for educators and/or children. A variety of programs were uncovered and the features that are commonly used. Finally, future research into the features and psychometric properties of tools used to measure outcomes of relationship-based training programs may also be warranted, given the wide range of tools used.

Conflicts of interest: There are no conflicts of interest pertaining to this article.

Key points

- Strong relationships between early childhood educators and the children in their care is important for child development

- This review provides a foundation from which occupational therapists can develop their relationship-based training programs for early childhood educators

- All included studies reported that relationship-based training programs resulted in positive outcomes for children and/ or early childhood staff.

References

Ahnert, L., Pinquart, M., & Lamb, M. E. (2006). Security of children's relationships with nonparental care providers: a meta-analysis. *Child Dev, 77*(3), 664-679. doi:10.1111/j.1467-8624.2006.00896.x

Anaby, D., Hand, C., Bradley, L., DiRezze, B., Forhan, M., DiGiacomo, A., & Law, M. (2013). The effect of the environment on participation of children and youth with disabilities: a scoping review. *Disabil Rehabil, 35*(19), 1589-1598. doi:10.3109/09638288.2012.748840

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32. doi:10.1080/1364557032000119616

Baker-Henningham, H., Walker, S., Powell, C., & Gardner, J. (2009). 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, 35*(5), 624-631. doi:http://dx.doi.org/10.1111/j.1365-2214.2009.00964.x

Bergin, C., & Bergin, D. (2009). Attachment in the Classroom. *Educational Psychology*

    Review, 21(2), 141-170. doi:10.1007/s10648-009-9104-0

Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., .

    . . Gill, S. (2008). Promoting academic and social-emotional school readiness: The

    Head Start REDI program. *Child Dev, 79*(6), 1802-1817.

    doi:http://dx.doi.org/10.1111/j.1467-8624.2008.01227.x

Bierman, K. L., Sanford DeRousie, R. M., Heinrichs, B., Domitrovich, C. E., Greenberg, M.

    T., & Gill, S. (2013). Sustaining High-Quality Teaching and Evidence-Based

    Curricula: Follow-Up Assessment of Teachers in the REDI Project. *Early Education*

    and Development, 24(8), 1194-1213.

Biringen, Z., Altenhofen, S., Aberle, J., Baker, M., Brosal, A., Bennett, S., . . . Swaim, R.

    (2012). Emotional availability, attachment, and intervention in center-based child care

    for infants and toddlers. *Development and Psychopathology, 24*(1), 23-34.

    doi:http://dx.doi.org/10.1017/S0954579411000630

Bowlby, J. (1969). Attachment and loss v. 3 (Vol. 1). *Random House. Methods and*

    measures: The network of relationships inventory: Behavioral systems version.

    International Journal of Behavioral Development, 33, 470-478.

Brebner, C., Hammond, L., Schaumloffel, N., & Lind, C. (2015). Using relationships as a

    tool: early childhood educators' perspectives of the child–caregiver relationship in a

    childcare setting. *Early Child Development and Care, 185*(5), 709-726.

    doi:10.1080/03004430.2014.951928

Centre on the Developing Child, H. U. (2013). Early Childhood Mental Health (Inbrief).

    Retrieved from https://46y5eh11fhgw3ve3ytpwxt9r-wpengine.netdna-ssl.com/wp-

    content/uploads/2015/05/InBrief-Early-Childhood-Mental-Health-1.pdf

Conners-Burrow, N. A., Patrick, T., Kyzer, A., & McKelvey, L. (2016). A preliminary evaluation of reach: Training early childhood teachers to support children's social and emotional development. *Early Childhood Education Journal*(Pagination), No Pagination Specified. doi:http://dx.doi.org/10.1007/s10643-016-0781-2

Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., Burchinal, M., . . . Barbarin, O. (2009). The Relations of Observed Pre-K Classroom Quality Profiles to Children's Achievement and Social Competence. *Early Education and Development, 20*(2), 346-372. doi:10.1080/10409280802581284

Denham, S. A., & Burton, R. (1996). A Social-Emotional Intervention for At-Risk 4-Year-Olds. *Journal of School Psychology, 34*(3), 225-245.

Ebbeck, M., Phoon, D. M. Y., Tan-Chong, E. C. K., Tan, M. A. B., & Goh, M. L. M. (2015). A research study on secure attachment using the primary caregiving approach. *Early Childhood Education Journal, 43*(3), 233-240. doi:http://dx.doi.org/10.1007/s10643-014-0647-4

Fox, L., Hemmeter, M., 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.

French, S. D., Green, S. E., O'Connor, D. A., McKenzie, J. E., Francis, J. J., Michie, S., . . . Grimshaw, J. M. (2012). Developing theory-informed behaviour change interventions to implement evidence into practice: a systematic approach using the Theoretical Domains Framework. *Implementation Science, 7*(1), 38.

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:http://dx.doi.org/10.1016/j.tate.2010.06.016

Gray, S. A. (2015). Widening the circle of security: A quasi-experimental evaluation of attachment-based professional development for family child care providers. *Infant Mental Health Journal, 36*(3), 308-319. doi:http://dx.doi.org/10.1002/imhj.21513

Green, B. L., Malsch, A. M., Kothari, B. H., Busse, J., & Brennan, E. (2012). An intervention to increase early childhood staff capacity for promoting children's social-emotional development in preschool settings. *Early Childhood Education Journal, 40*(2), 123-132. doi:http://dx.doi.org/10.1007/s10643-011-0497-2

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Dev, 72*(2), 625-638.

Heller, S. S., Rice, J., Boothe, A., Sidell, M., Vaughn, K., Keyes, A., & Nagle, G. (2012). Social-emotional development, school readiness, teacher-child interactions, and classroom environment. *Early Education and Development, 23*(6), 919-944. doi:http://dx.doi.org/10.1080/10409289.2011.626387

Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., . . . Johnston, M. (2014). Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. *Bmj, 348*, g1687.

Howes, C., Shivers, E. M., & Ritchie, S. (2004). Improving Social Relationships in Child Care through a Researcher-Program Partnership. *Early Education and Development, 15*(1), 57-78.

ICEBeRG. (2006). Designing theoretically-informed implementation interventions. *Implementation Science, 1*(1), 4.

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.

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. doi:http://dx.doi.org/10.1177/0145445509344215

Morris, P., Millenky, M., Raver, C. C., & Jones, S. M. (2013). Does a Preschool Social and Emotional Learning Intervention Pay Off for Classroom Instruction and Children's Behavior and Academic Skills? Evidence from the Foundations of Learning Project. *Early Education and Development, 24*(7), 1020-1042.

Nix, R. L., Bierman, K. L., Domitrovich, C. E., & Gill, S. (2013). Promoting Children's Social-Emotional Skills in Preschool Can Enhance Academic and Behavioral Functioning in Kindergarten: Findings from Head Start REDI. *Early Education and Development, 24*(7), 1000-1019.

Omdal, H. (2018). Creating teacher capacity in Early Childhood Education and Care institutions implementing an authoritative adult style. *Journal of Educational Change, 19*(1), 103-129.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc, 13*(3), 141-146. doi:10.1097/xeb.0000000000000050

Pianta, R., & Ryan, B. (2002). Enhancing relationships between children and teachers. *Canadian Journal of Early Childhood Education, 9*(2), 121.

Pickens, J. (2009). Socio-emotional programme promotes positive behaviour in preschoolers. *Child Care in Practice, 15*(4), 261-278. doi:http://dx.doi.org/10.1080/13575270903149323

Ritblatt, S. N., Hokoda, A., & Van Liew, C. (2017). Investing in the Early Childhood Mental Health Workforce Development: Enhancing Professionals' Competencies to Support Emotion and Behavior Regulation in Young Children. *Brain sciences, 7*(9), 120.

Saunders, R. P., Evans, M. H., & Joshi, P. (2005). Developing a process-evaluation plan for assessing health promotion program implementation: a how-to guide. *Health promotion practice, 6*(2), 134-147.

Scanlan, J. N., & Novak, T. (2015). Sensory approaches in mental health: A scoping review. *Australian Occupational Therapy Journal, 62*(5), 277-285. doi:10.1111/1440-1630.12224

Shamblin, S., Graham, D., & Bianco, J. A. (2016). Creating trauma-informed schools for rural appalachia: The partnerships program for enhancing resiliency, confidence and workforce development in early childhood education. *School Mental Health, 8*(1), 189-200. doi:http://dx.doi.org/10.1007/s12310-016-9181-4

Steed, E. A., & Durand, V. (2013). Optimistic teaching: Improving the capacity for teachers to reduce young children's challenging behavior. *School Mental Health, 5*(1), 15-24. doi:http://dx.doi.org/10.1007/s12310-012-9084-y

Stewart, K. B. (2008). Outcomes of Relationship-Based Early Intervention. *Journal of Occupational Therapy, Schools, & Early Intervention, 1*(3-4), 199-205. doi:10.1080/19411240802589395

Tucker, C., Schieffer, K., Wills, T., Hull, C., & Murphy, Q. (2017). Enhancing social-emotional skills in at-risk preschool students through Theraplay based groups: The Sunshine Circle Model. *International Journal of Play Therapy, 26*(4), 185.

Townsend, E. A., & Polatajko, H. J. (2007). *Enabling occupation II: Advancing an occupationaltherapy vision for health, well-being, and justice through occupation.* Ottawa, ON: Canadian Association of Occupational Therapists.

Tricco, A., Lillie, E., Zarin, W., O'Brien, K., Colquhoun, H., Levac, D., . . . Straus, S. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Annals of Internal Medicine, 167(7), 467-483. doi:10.7326/M18-0850

Vancraeyveldt, C., Verschueren, K., Wouters, S., Craeyevelt, S., Noortgate, W., & Colpin, H. (2015). Improving teacher-child relationship quality and teacher-rated behavioral adjustment amongst externalizing preschoolers: Effects of a two-component intervention. *Journal of Abnormal Child Psychology, 43*(2), 243-257. doi:http://dx.doi.org/10.1007/s10802-014-9892-7

Werner, C. D., Vermeer, H. J., Linting, M., & Van IJzendoorn, M. H. (2018). Video-feedback intervention in center-based child care: A randomized controlled trial. *Early Childhood Research Quarterly, 42*, 93-104.

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.