Institute of Education

Translational Research in Early Childhood Education

A Systematic Review and Framework for Researchers

Report for The Froebel Trust

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EXECUTIVE SUMMARY

We undertook a systematic review of the research evidence to explore what processes have been employed to translate research into early education practice and to identify key features of academic work that have successfully translated into education settings. There is no shortage of literature which discusses the translation of research to practice. However, translational research or research that examines the processes and methods for promoting the use of research findings (Trivette & Dunst, 2013), is less abundant in the field of education compared to medicine and social care. This is important because successful translation of research to practice will have potentially positive impacts on children's learning and education professionals' expertise.

To identify what processes have successfully been employed to translate research findings to practice in early education settings, we reviewed 231 articles, identified by systematic searches of the peer-reviewed literature databases. From progressively excluding non-relevant or low-quality articles, we conducted a full review of 35 articles. We used a meta-narrative review to analyse the data by mapping and qualitatively coding each study with attention to the processes identified by researchers as vital in translating research to practice.

Seven key themes emerged from our analysis as important –

(1) Time: Educators need time to collaborate both with colleagues and researchers, time to reflect on how the research practice fitted with existing practice, and time to fit the new practice with existing practices.
(2) Fit: Successful uptake of research depended on how well research fitted with existing practices and its relevance to the educational context made a difference.
(3) Accessibility: Research needs to be accessible, both physically in terms of medium of output and in terms of language and clarity.

(4) **Phasing of Implementation:** There should be space for iterative and recursive engagement between researchers and stakeholders to assess feasibility and adaptation of practices jointly.

(5) **Use of Local Data:** Locally collected data help provide a context for shared thinking.

(6) **Recognise Professional Expertise:** Recognising the wisdom in practice builds practitioners' confidence in partnership working.

(7) **Organisational Leadership:** This is vitally important in facilitating the collaboration between researchers and educators.

These findings were translated into a *Framework for Research to Practice Translation* with key considerations that will be helpful for those seeking to make their research more accessible and support the development of successful partnerships.

Framework for Research to Practice Translation	
Element	**Considerations**
Time	When implementing research, will practitioners have opportunities to engage in collaboration with others?
	To what extent does the research align with existing classroom practices from a time perspective?
	Are there opportunities for practitioners to inquire and reflect about the research and how will these reflections be used to feed into any developments of the research?
	Will practitioners have the opportunity to collaborate with researcher(s)?
Context	In which contexts would this research be applicable? How?
	What synergies are there between existing classroom practices and this research?
	Is the setting facing external or internal high-stakes accountability?

Accessibility	How will the findings from this research be communicated?
	If the research involves a collaborative element, how will the findings be brokered or made accessible to practitioners?
Phased Implementation	What elements of the research will be piloted?
	Will there be opportunities for teachers to provide feedback on feasibility?
	Beyond the initial research period, what strategies could be employed to sustain the implementation of the research (e.g. CPD?
	Are there opportunities to introduce this research in stages into an educational context?
Data	Would practitioners have the opportunity to engage in collaboration around examining data from this project?
	How will data from this project be shared with practitioners?
Practitioner Identity	How will collaborative partnerships be formed with practitioners?
	What are the professional backgrounds of the practitioners and what professional development needs are there?
Leadership	What are the organizational barriers to translating this research to practice?
	How will school leadership be engaged?

INTRODUCTION

The Froebel Trust is an independent UK-based charity that funds research and practice development relating to early childhood education and care. The Trust seeks to embed learning from its funded research programmes to practitioner development programmes. Accordingly, the Trust commissioned this research project to explore what processes have been employed to translate research to practice and to identify key feature of academic work that have successfully translated to education settings. The research design included a systematic literature review to synthesise findings from empirical research. The research team aimed to synthesize the findings into a framework for researchers to use when considering the translation of their research into practice.

AIMS OF THE PROJECT

The aims of this research project are:

1. To explore what processes have been employed to successfully translate research findings into early education settings.
2. To identify the key features of academic work that has successfully translated or been used in early education settings.

Review of the Literature

Bridging the gap between research and practice is a problem that has challenged researchers and practitioners in multiple disciplines, including early childhood education. In the field today, there is no shortage of evidence and opinion about 'what works in education' (Ball, 2007) or evidence-based practice or practice-informed research. The challenge, as Sheard and Sharples (2016) argued is that 'sometimes the knowledge reaches educators, sometimes the educators might use the knowledge' but that 'overall, the relationship between research evidence and educational provision and practice is tenuous and controversial' (p.669). Therefore, this research reviews what processes have been employed to successfully translate research findings into early education practice. These findings will form the basis of a framework that can be used to guide those who seek funding from the Froebel Trust to ensure that their research is more likely to inform pedagogy and curriculum and underpin the educational experiences of practitioners and young children and their families.

Translational research is defined as 'the movement of available research knowledge into active professional use' (La Velle, 2015, p. 460). This can include (a) using research findings to inform and develop evidence-based practices in the classroom and (b) examining the processes and methods that promote the use of research findings (Trivette & Dunst, 2013). Successful translation of research into the field of study has the potential to ensure that the positive benefits of the phenomenon under scrutiny actually impact society. The term 'translational research' is more commonly used in the field of medicine and related disciplines. Rubio et al. (2011) described how the term itself has only been in use since the early 1990's but could be best defined as the transference of findings from the laboratory setting to the field.

Translational research is not a term commonly used in the field of education. This became evident in our initial foray into the literature. We therefore considered terms in use in education research that might mean the same thing and reviewed how they have been conceptualised. For instance, Ball (2012) referred to the 'knowledge-practice gap' or the 'knowing-doing gap' and suggests these terms are synonymous

with how the term translational research is used in science and medicine. She argued that closing the gap between research and practice requires concerted effort on the part of both researchers and practitioners. One issue with the discourse about the knowledge-practice gap is that it may assume a hierarchy of knowledge with the research community 'knowing' and the practitioner merely 'doing'. This in turn, privileges the researcher's knowledge and it may be suggest that practice is not imbued with intuitive (and other) forms of valid knowledge.

To identify relevant literature, we therefore considered the following research question:

- *What processes have been employed to successfully translate research findings into early education settings?*

METHOD:

A systematic literature review was used to identify what processes have been employed to successfully translate research findings from external sources into early education settings as identified by peer-reviewed literature in academic journals. There is a vast amount of knowledge that could be gleaned from non-journal sources. However, we wanted to find literature that had relatively clear descriptions of method and theorising of the process so restricted our search to peer-reviewed journals where such features are a requirement.

SYSTEMATIC REVIEW PROTOCOL

We conducted a full search of the literature. Inclusion criteria and search terms, restrictions and databases are provided in the table below:

Table 1. *Literature review search parameters*

Inclusion Criteria	Peer-reviewed articles
	Published in the last twenty years (1999-2019)
	English
	Children aged 0 – 8 years only
Search Terms	Translational Research
	Research Utilization
	Knowledge mobilisation
	Theory practice relationship
	Evidence based practice*
	Practice informed research*
Restricted to	Early childhood education
	Journal article
	Systematic review
Databases	Ebscohost (ERIC and British Education Index)
	Scopus
	Psycinfo

* We have added these terms based on initial searches and discussion.

We used EBSCOHOST UK, SCOPUS, and Web of Science to search ERIC, British Education Index, Child Development and Adolescent Studies, and Teacher Reference Centre. We used Mendeley to catalogue references and bibliography. We searched Ebscohost UK first. We used Psycinfo, and Scopus to consider if there were any articles emerging that were not revealed in the initial searches given our experience of conducting evidence reviews. We only gained 7 extra studies by using these databases. Based on research team discussions, we included two other search terms that were not in the original proposal (evidence-based practice and practice informed research) but have been cited as conceptually similar in the field of education research (Ball, 2012). We think this is important given the lack of the use of the term translational research in the field of education. This was solidified by our first search using the term, which returned no articles. Therefore, the lack of use of the term

'translational research' in education lead to the inclusion of other relevant terminology. It also pointed to the originality and novelty of this systematic literature review, as we didn't find any previous similar work published in English.

Each search was recorded in an excel file, which documented the following:

- Search Number
- Database
- Search Term 1
- Search Term 2
- Number of Articles returned after search
- Search URL
- Number of articles kept after scanning
- Titles kept for review
- Type of Study (journal article or systematic review)
- Status (excluded, included, excluded as repeated)
- Explanation for exclusion

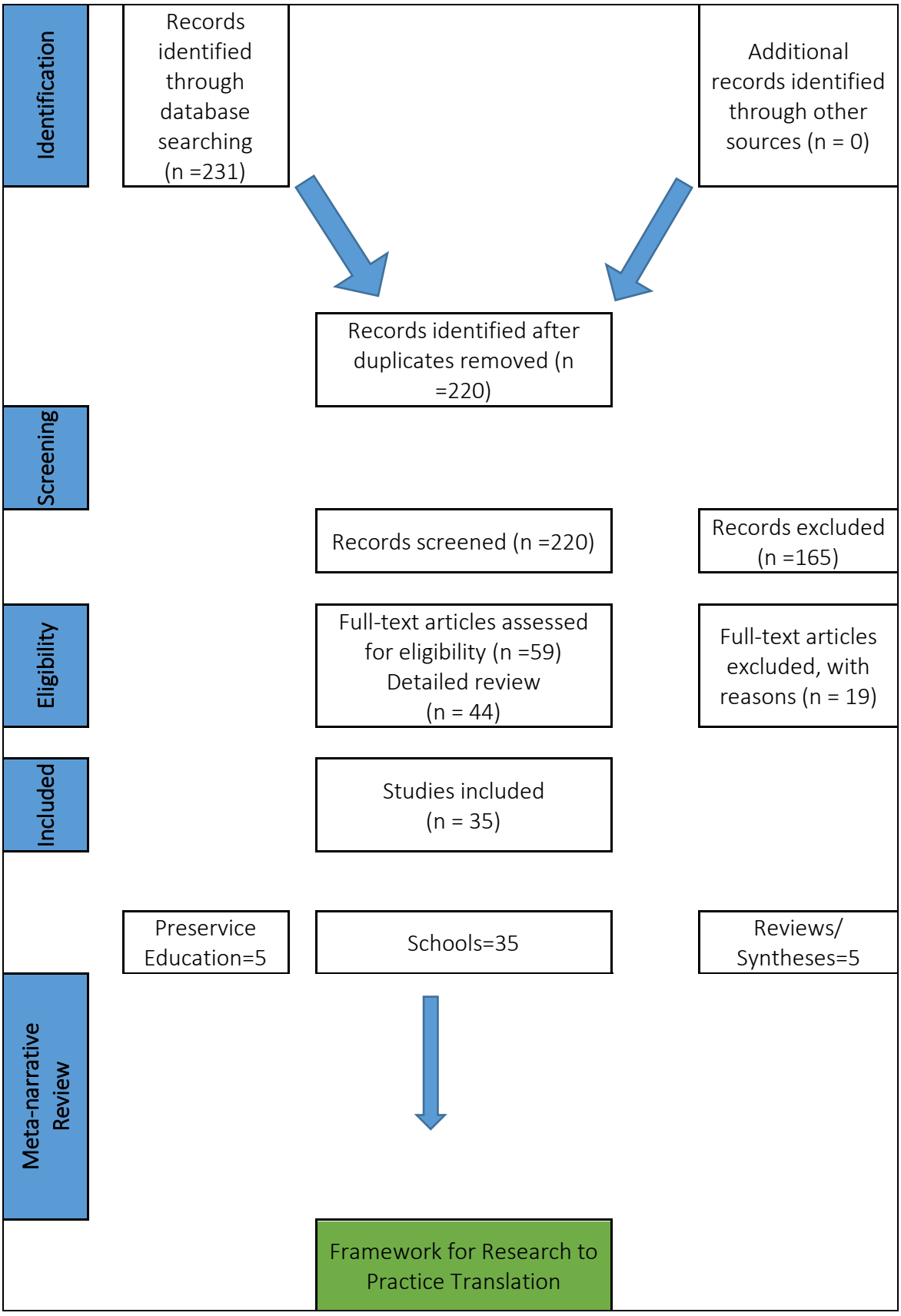
We used our excel document to map our review of the articles noting:

- Study Number
- Year
- Author
- Country
- Institutional funder (if any)
- Educational Setting
- Age group
- Population sample type (SEN, for example)
- Number of participants
- Design
- Methodology
- Findings
- Limitations
- Comments on research to practice links

- Brief notes on emerging themes.

The result of the search is documented in Figure 1. We identified 231 articles in our initial scan of titles and abstracts. We removed 11 duplicates. We examined 220 articles by scanning abstract and contents and kept 59 for more detailed review. We then excluded 19 studies – mainly because they were not related to the topic or because they were commentary papers (see Figure 1). We included 44 studies for detailed review and excluded a further 9 on full reading as they were either not relevant to the review question (see appendix 1 for the full list of studies) or they were judged to be low quality or sufficient information was not provided to ascertain if the claims of authors were warranted. The final number of papers reviewed was 35.

Figure 1. *PRISMA Flow Diagram: Translational Research in Early Childhood Education*



The included studies can be grouped into three main areas: (1) preservice education, (2) practicing educators, and (3) systematic reviews or reviews. They address a range of topics including early childhood educational pedagogy, literacy, mathematics, researcher-teacher partnerships, inclusive education, and early childhood educator professional development (see table 2). Overall, the articles explore the problems of translating research into practice. They directly study use of research evidence (e.g. Ward & Wilcox-Herzog, 2019), implementation of interventions (e.g. Thomas et al., 2018), effects of continuing professional development (CPD) on quality of pedagogical practice (e.g. Sutherland et al., 2019)., and research-practice partnership (e.g. Hedges, 2012).

Table 2. *Design, Country, Funding, and Topic of Included Studies*

	N
Design	
Case Study(ies)	14
Action Research	2
Synthesis/ Review	5
Survey	5
Mixed Methods	4
Ethnography	1
Quantitative (pre-test/post-test)	1
Qualitative (range of qualitative methods but not described as a case study)	3
Country	
Australia	4
Denmark	2
United Kingdom	4
Europe (multiple countries in EU)	2
New Zealand	2
Sweden	3
Turkey	1
United States	17
Funding	
None	22
University Grant	4
Government/ External Funder	9
Topic	
Adult-child interactions/ language	2
SEN/ Inclusive education	7
Models of continuing professional development	4
University – school partnerships	3

Preservice early childhood educators	4
Early literacy	3
Preservice early childhood educators	4
Early childhood pedagogy	5
Policy and evidence-based practice	3

Analysis

Once studies were identified a meta-narrative review technique as suggested by Wong, Greenhalgh et al. (2013) was utilised to synthesise and present findings. This method of analysis was used as a response to the Froebel Trust research sub-committee's helpful comments at the first review meeting for this project. This type of review was preferable than the originally planned weight of evidence review which privileges RCTs and large-scale quantitative studies. We also included case studies as it was generally studies with this design where the research question regarding process was best addressed. In order to be able to successfully identify processes and to sample from a wide range of research traditions, a meta-narrative review provided greater scope to describe processes in a more nuanced way.

We followed analytic steps for metanarrative review suggested by Greenhalgh et al (2005). We already engaged in the process of planning (the literature search), mapping by displaying each study in Excel and evaluating each study for its validity and relevance to the research question. To analyse the studies, we extracted the key results by coding each study according to the main process that the researchers highlighted as vital in translating research to practice, we made notes on the research to practice links described or recommended in the papers. This process was iterative and recursive as we read and reread the findings to note emerging themes.

Findings

As described previously the studies included in the review spanned a wide range of topics. Given the scope of the review, settings and scale also varied considerably. In this section of the report we present the key themes emerging from the review. The frequency of themes is provided in Table 3.

Table 3. *Seven key themes from analysis of the literature*

Theme	Codes	Frequency of Code	Total
Time	Time to engage in collaboration with other educators	6	26
	Time to fit practice in with existing demands	7	
	Time to collaborate with the researcher	8	
	Opportunity to inquire, reflect, or practice strategy	5	
Context	Applicability of the research to particular context, researcher understands context	13	22
	Synergies with existing practices – this requires understanding of context	9	
Accessibility	Reachability of research and clarity in communication	13	13
Phased Implementation	Implementation that involves piloting, several rounds of research and feedback from teachers on feasibility	9	12
	Sustained professional development to support implementation	3	
Data	Use of data as a tool for engaging in interrogating the research	5	9
	Data as feedback from outcomes that intervention or practice is working	4	
Practitioner Experience	Confidence or professional experience	7	9
	Practitioner understanding of the concept or background knowledge	2	
Support of leadership	Support of leadership	5	5

1. Time

A key consideration for successful translation of research to practice was time. In terms of successfully translating research to practice this seemed to be the most important factor to impact successful translation. We suggest that time encompassed four key areas;

- Time to fit with existing practice
- Time to collaborate as a school community
- Time to collaborate with researchers
- Time to engage in reflection and inquiry around the topic

Brown and Zhang (2017) in a study of how school leaders could establish evidence-informed schools, stated that leadership needed to make time for teachers to engage in CPD (Continuous Professional Development) about evidence use. We suggest evidence-informed should be conceptualised broadly and include practitioners' reflection on practice and professional conversations. Time was also deemed necessary to promote uptake of practices (Fong & Sheets, 2004) and lack of time was cited as a barrier to uptake of evidence-based practices in a study that documented the implementation of an early literacy programme (Clasen & Jensen de Lopez, 2017). The evidence also suggested that, if the gap between research and practice was to be successfully reduced, time needed to be accounted for in terms of three key opportunities:

1. Opportunities for educators to connect with colleagues (virtually or face to face) and to participate in reflection and inquiry (Erwin, Puig, Evenson, & Beresford, 2012).
2. Opportunities to collaborate with researchers (see Peleman et al., 2018; Pramling Samuelsson & Pramling, 2013). In an action research project on practitioner-led research on adult-child interactions, Fisher and Wood (2013) stated that co-researching was an essential agent in processes of change and development and both researchers and practitioners needed dedicated opportunities to do this. Equally, Fried, Konza, & Mulcahy (2012) found that collaborative work sessions with researchers were essential in supporting education assistants to enhance early reading.
3. Opportunities to develop relationships: Hedges (2010) suggested that the notion of time also applied to the need to provide space for educators and researchers to develop trusting relationships which might, in turn, encourage risk-taking and constructive dialogue or a 'personal willingness to negotiate risky ground' (p.310).

2. Context

Synergies with existing practice

A key factor in terms of uptake of research was the synergy between the research and existing practice. In other words, how does the strategy or practice fit with what is happening already in the intended setting? For pre-service teachers, misalignment between the principles or values of the university course and placement often created a barrier to the student implementing or using a pedagogical approach (cf. Harrison, Dunn, & Coombe, 2006; Yoon & Larkin, 2018). This often was due to curricular rigidity and demands to adhere to a particular programme in the placement. Similarly, Clasen and Jensen de Lopez (2017) found that successful uptake of shared book reading strategies depended on the practice not conflicting too much with existing practice and Hamre, Partee, and Mulcahy (2017) suggested that professional development in preschools needed to dovetail with existing practice. Christ and Wang (2013) found in a researcher-teacher community of practice model that it was more effective to extend existing practices by co-planning rather than expect that new strategies would be implemented without gradual introduction. Taken together these findings imply that researchers should be cognisant that a collaborative approach that supported the use of research in a developmental way, and acknowledges existing practice was the most effective for research uptake.

Relevance to the educational context

A key challenge to the uptake of practices from research was the relevance of the research to the educational context. Hedges (2012) in an ethnographic study of teachers' use of 'evidence-based practices' found that teachers often drew on their own personal funds of knowledge (of children, their own family, and own experiences) and as such research needs to speak to their own life experience. In a study about how a research -practice partnership informed a professional development model, Hindman et al. (2015) stated that teachers often voiced a need for researchers to consider how they could consider the implications of research specific to their own context (for example, how to differentiate or support children who are dealing with the effects of poverty). McKeown at al. (2018) described how teachers needed to feel enabled to adapt the principles of self-regulated strategy development (a writing intervention) to their own context.

Roll-Petterson, Olsson, & Ala'i-Rosales (2016) helpfully described how researchers who wish to bridge the research to practice gap need to consider the 'distal' or less immediate influences of context which might include local guidelines, the physical environment, and values of the organisation as a whole. In sum, in considering how to translate research to practice is incumbent on researchers to prioritise context on both a practical level, at the level of the teacher or professional and their experiences and demands, but also in terms of existing curricular and organisational demands.

3. Accessibility

A third key theme was that if research was to be used, it needed to be accessible. Dunst and Trivette (2009) stated, in a research synthesis that considered how research evidence is used to inform early childhood interventions, that 'researchers must ask the question '*what needs to be done to support practitioners and parents to feel competent and confident using this practice?*'' (p.48). In order for research to translate to practice, curricula needed to be clear and unambiguous (Grifenhagen, Barnes, Collins, & Dickinson, 2017), with clearly articulated practices (Hamre, Partee, & Mulcahy, 2017) or defined practice outlines (Sutherland et al., 2019) and specificity (Hindman et al., 2015), with clearly defined terms (Jones, 2003). These findings could usefully be applied to research findings more generally. There is also a need to listen and communicate in order to develop shared understandings and use reciprocal language (Lord & McFarland, 2010). Similarly, Sheard and Sharples (2016) suggested that researchers should consider their role in terms of brokering research with practitioners. Given the difficulties there are in accessing research both physically (in terms of paywalls) but also in terms of language and time, they suggest that researchers can play a pivotal role in summarising the research.

4. Phased Implementation

Successful translation of research requires a clear plan for phased implantation and adjustment as needed based on feedback from key stakeholders. Phased implementation creates time for researchers and practitioners to communicate and listen. This is often envisaged as a reciprocal and non-linear process in which both parties engage as equals. Goldstein and Olszewski (2015) and Jensen and Brandi (2018) used an implementation

science framework (ISF) to explore directly the implementation of an early literacy curriculum and professional development programme respectively. In these studies, the researchers clearly articulated a phased approach to the implementation and application of a research-based practice to the classroom. For example, Goldstein and Olszewski used a conceptual framework to shape their work that involved 4 phases (exploration, preparation, implementation, sustainment) that occurred and reoccurred in a non-linear manner. This meant that for the first iteration of the curriculum they explored the topic and context, prepared the materials, and conducted a multiple baseline study with a small group (implementation), then returned to explore the results with teacher feedback to consider adjustments and feasibility before repeating the cycle once again. It was only at the end of the research cycle that a larger scale RCT was conducted to examine outcomes. Jensen and Brandi used interviews at baseline with follow up focus groups to provide feedback on adjustments and feasibility. Although not using an ISF framework, Sutherland et al. (2019) described a phased process to the implementation of an early childhood behavioural support programme. They used direct observations, teacher and coach reports, family interviews and pre-test post-test ratings of behaviour as part of the first phase of the study to examine feasibility. In the second phase, they adapted the programme and again re-engaged in interviews with key stakeholders. In sum, the mentioned studies exemplified a clear and strategic plan on the side of the researchers which placed feasibility and implementation front and centre of the studies, with room for adjustments to be made to the programme in its context of use. Multiple methods were used iteratively with multiple stakeholders with a clear acknowledgement that context and feedback were key factors which needed to be considered in bridging the research to practice gap.

5. Data

Engaging in collaborative research-practice partnerships requires a common focus. Fisher and Wood (2012) used data iteratively in partnership with practitioners in an action research study as a tool to provide a context for sustained shared thinking between partners in the study. They used video recordings and stimulated recalls in practitioner led inquiry cycles as a means to examine and improve adult-child interactions in the classroom. These data in turn informed the literature that the researcher would choose to introduce as a tool to engage in critical reflection with practitioners. Eddy-Spicer (2017) conducted a study which

compared the diffusion of professional practices across two schools (one deemed as 'outstanding', one in 'special measures'). He found that while data can be conceptualised as a 'threatening' tool of external accountability with a surveillance function it could equally be viewed as supportive. The conceptualisation of data as supportive was more prevalent in the 'outstanding' school where research-based practices had diffused across the school. Dunst and Trivette (2009) argued that if the focus remained on outcomes, this in turn will provide the feedback to educators that the changes in practice they are implementing are working and provide an impetus to use the intervention or pedagogical practice. In sum, data can be a supportive tool that provides a context for collaboration and reflection. It can also provide feedback to practitioners that the research, whether that is a change in practice or a particular programme, is actually worth implementing.

6. Building Confidence and recognition of Professional Experience

In the dialogue between researcher and practitioner, the recognition of professional expertise is regarded in many quarters as essential (Sheard & Sharples,2016). Hedges (2012) argued that if research is to be put into practice it must speak to the practitioner's experience. Experience could be situated at a national level (in other words descriptions of practice that are closely related to the practitioner's own context) but also given that she found that teachers drew on personal experiences that researchers must consider how their research speaks to these experiences. Fong and Sheets (2004) reiterated this assertion by describing that teachers must recognise how their background (cultural, linguistic, and professional) mediates the implementation of educational practices. In addition to this, researchers must consider the background knowledge of practitioners who will be engaging with researchers and use this knowledge to inform how terms are used and as a basis for the development of shared understanding (Jones, 2003). This requires piloting, active engagement, and consideration of the context on the part of the researcher. Hedges (2010) described how there needs to be (from a researcher and practitioner perspective) a 'personal willingness to negotiate risk ground' (p.310).

Where studies alluded to teacher confidence and identity as key in translating research practice, recommendations to support this included engagement in a community of practice model of inquiry with researchers, willingness on the part of researchers to engaging in

teaching (Christ & Wang, 2013), the sharing of field notes and other data to check understanding (Hedges, 2010), and a focus on reducing the complexity of the practice or intervention to promote confidence to implement.

7. Support of leadership

Organisational support from school leadership will mediate the flow of research to classrooms and influence the sustainability or uptake of, for example, evidence-based practices. Roll-Pettersson, Olsson, and Ala'i-Rosales (2016) stated that 'leadership affects climate, acceptance, and sustainability of evidence-based practices' (p.328). In their study, the barriers to implementation of the uptake of educational practices to support children with autism through interviews, observations, and focus groups were examined. They found that proximal or immediate influences (e.g. within the school building) like opportunities to engage in professional development and administrative support created barriers but that there were also distal or less immediate influences (e.g. outside the school building) like inter-organizational tensions and values which needed to be considered in bridging the research to practice. Christ and Wang (2013), in a study of a university-preschool community of practice model of professional development where high teacher turnover and planning practices impacted uptake – concluded that engagement with leadership to mediate the realities of the school context was essential.

Summary

The main purpose of this systematic literature review was to examine the processes that have been employed to successfully translate research to practice particularly in early childhood settings. Given that our focus was on process, many of the studies we examined were descriptive and used qualitative designs with small samples and, as such, lack generalisability as understood within quantitative research traditions. We did, however, identify two large studies which delivered an implementation science framework that we found insightful in considering how to translate research to practice, particularly for large scale studies. We included elements of this framework in Figure 2, a tentative framework based on our findings from the review of the literature, that we suggest will be helpful for researchers seeking to make their research more accessible, and critically, practitioners aiming to enhance their research-informed practice. We frame these as questions to be

shared with researchers and practitioners. For example, regarding accessibility we hope that feedback from practitioners will identify where our findings resonate with their experience and sources that are accessible.

Figure 2. *Translating Research to Practice: Key Considerations*

Element	Considerations
Time	When implementing research, will practitioners have opportunities to engage in collaboration with others?
	To what extent does the research align with existing classroom practices from a time perspective?
	Are there opportunities for practitioners to inquire and reflect about the research and how will these reflections be used to feed into any developments of the research?
	Will practitioners have the opportunity to collaborate with researcher(s)?
Context	In which contexts would this research be applicable? How?
	What synergies are there between existing classroom practices and this research?
	Is the setting facing external or internal high-stakes accountability?
Accessibility	How will the findings from this research be communicated?
	If the research involves a collaborative element, how will the findings be brokered or made accessible to practitioners?
Phased Implementation	What elements of the research will be piloted?
	Will there be opportunities for teachers to provide feedback on feasibility?
	Beyond the initial research period, what strategies could be employed to sustain the implementation of the research (e.g. CPD?
	Are there opportunities to introduce this research in stages into an educational context?

Data	Would practitioners have the opportunity to engage in collaboration around examining data from this project?
	How will data from this project be shared with practitioners?
Practitioner Identity	How will collaborative partnerships be formed with practitioners?
	What are the professional backgrounds of the practitioners and what professional development needs are there?
Leadership	What are the organizational barriers to translating this research to practice?
	How will school leadership be engaged?

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APPENDIX 1: STUDIES REVIEWED

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