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Implementation of evidence-based practices for early childhood social learning: A viewpoint on the role of teacher attitudes

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3 Social learning refers to the process through which children develop important social skills
4 such as getting along with peers, forming positive relationships, sharing, and perspective taking
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6 (Durlak *et al.*, 2011; Goodman *et al.*, 2015; Humphrey, 2013). The period of early childhood
7
8 (birth-8 years old) is crucial for the acquisition of important social skills. During this period
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10 children can be very receptive to new learning, because of rapid brain growth and high
11
12 susceptibility to environmental influences (Allen, 2011; Marope and Kaga, 2015). Strong
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14 socioemotional competencies acquired in early childhood contribute to laying the foundation
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16 for successful academic development and the acquisition of core academic subject knowledge
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18 (Center on the Developing Child at Harvard University, 2011; Nix *et al.*, 2013). Significant
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20 setbacks in the development of early childhood social skills can put children at risk of serious
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22 behaviour and mental health problems (Kretschmer *et al.*, 2014), reading difficulties
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24 [REDACTED] 2014, 2018; Russell *et al.*, 2015; Wigelsworth *et al.*, 2017) and leaving school
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26 without qualifications (Jakobsen *et al.*, 2012).
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37 Recent years have witnessed a growing interest in the use of evidence-based practices (EBPs)
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39 in education to promote pupil outcomes (Purper, 2016; Nelson and Campbell, 2017; Navarro-
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41 Cruz and Luschei, 2018). For instance, in the US, a considerable number of federally-funded
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43 platforms of EBP (evidence-based practice) dissemination exist, like the 'What Works
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45 Clearinghouse' databases (Purper, 2016). In the UK, several initiatives to promote the use of
46
47 EBPs in education have been funded by the government. These include the Education
48
49 Endowment Foundation (EEF) 'What Works Centre for Education' established in 2013
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51 (Nelson and Campbell, 2017) and the Teaching and Learning, and Early Years Toolkits that
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53 provide teachers with easily accessible summaries of research on educational resources. In
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55 Australia, the 'Evidence for Learning' initiative, promoted by the Social Ventures Australia,
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3 and partly supported by the EEF, provides professionals with information on good practices in
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5 education. Significant developments in the implementation of EBPs have been noted in the
6
7 early childhood sector, especially in countries where early childhood provision is well-
8
9 established (Navarro-Cruz and Luschei, 2018). Despite the range of EBPs for social learning
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11 and the efforts to increase the use of EBPs in education, the frequency and confidence with
12
13 which EBPs for early childhood social learning are implemented can vary considerably (Evans
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15 *et al.*, 2015; Heo *et al.*, 2014; McLeod *et al.*, 2017; Steed and Roach, 2017; Sutherland *et al.*,
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17 2013).

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25 Implementation science studies the processes and factors that facilitate the implementation of
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27 EBPs in organisations (Bauer *et al.*, 2015; Nilsen, 2015), and its theoretical underpinnings offer
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29 a framework to understand the implementation of EBPs in education. Implementation science
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31 has identified a range of facilitating factors which operate at wider socio-political system,
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33 organisational, and individual level and include political agendas, policies, resources,
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35 leadership support, characteristics of the intervention, the implementer and the
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37 recipient (Aarons, 2005; Aarons *et al.*, 2011; Humphrey 2013). Admittedly, system and
38
39 organisational level factors are critical to the implementation of EBPs. However, individual
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41 factors are equally important with considerable implications for successful implementation as
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43 innovations which depend on humans to operate are sensitive to individual factors (Aarons,
44
45 2005). A growing body of research suggests that professional attitudes towards EBPs can
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47 influence the implementation process significantly (Aarons, 2005; Domitrovich *et al.*, 2008;
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49 Williams and Beidas, 2019). In education, teachers are the key actors in the delivery of
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51 educational interventions and practices, and teacher factors have been found to influence
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53 quality in early childhood education and care significantly. For instance, teacher qualifications
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3 comprise one of the strongest predictors of quality in preschool education and care (Sylva et
4 al., 2014) and teacher preparation in discipline content is significantly associated with pupils'
5 academic outcomes (Boyd et al., 2009). However, little of the research on professionals'
6 attitudes for EBPs implementation in organisations has been extended in education (Monahan
7 et al., 2014
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15). Considering the importance of professionals' attitudes and the role of teachers as primary
16 agents in the implementation process, it is argued that implementation efforts of educational
17 EBPs including practices for early childhood social outcomes should consider these key
18 players' attitudes towards EBPs.
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28 The aim of this viewpoint is to draw on implementation science to contribute to our
29 understanding of the role of teacher attitudes in EBP implementation. The viewpoint starts with
30 a description of what EBP is and a summary of the literature on EBP for early childhood social
31 learning to contextualise the topic. To contextualise the role of teacher attitudes, it then draws
32 on long standing theoretical models of EBP implementation science to understand the
33 contribution of professionals' attitudes to EBP implementation. It then considers the promotion
34 of teacher engagement with research informed teaching (RIT) as a means of nurturing positive
35 attitudes and openness towards EBPs for early childhood social learning. It goes on arguing
36 that RIT may increase the appetite for EBPs by encouraging positive views about teaching
37 practices that are supported by research evidence. To support this assertion, the concept of RIT
38 is explored and an explanatory model of the proposed relationship between teacher attitudes,
39 RIT and EBP is provided. Finally, the viewpoint concludes with recommendations for further
40 research in EBPs implementation for early childhood social learning, RIT, and implications for
41 teacher professional development and initial teacher training.
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Evidence-based practices in education

Recent years have witnessed a significant increase in governmental policies and initiatives which promote the use of EBPs to raise quality in education (Cooper *et al.*, 2017; Farley *et al.*, 2018; Vostanis *et al.*, 2013). The term evidence-based practice (EBP) has its roots in clinical disciplines, but it has gained ground across other disciplines including education (Cook and Cook, 2013; Lilienfeld *et al.*, 2013). EBPs are often associated with either a named intervention programme or a specific approach or strategy. There is not a universal definition or theoretical framework for EBPs. The literature is suggestive of a consensus across disciplines that EBPs are synonymous with practices which have been consistently shown to have a positive impact on the individual by reliable research (Cook and Cook, 2013; Lilienfeld *et al.*, 2013). Reliable research often refers to research which meets specific quality standards typically the use of a randomised controlled trial (RCT), an experimental research design to examine the impact of an intervention programme or practice. RCTs are considered the 'gold standard' for establishing causality between an intervention and change in an individual's outcomes. In RCTs similar people are randomly assigned to receive either the intervention tested or a dummy intervention, alternative intervention, or no intervention at all. RCTs are not always feasible because of the limitations that 'real world' research imposes, for instance parents may not want their children to be randomized or randomization may not be considered ethical in specific contexts. Well-conducted quasi-experimental designs, such as pre-intervention matched control group (Bonell *et al.*, 2011) or regression discontinuity (West *et al.*, 2008), are viable alternatives to the RCT. When the focus is on the processes by which the intervention brings about change to pupils' outcomes naturalistic research approaches, such as observations and interviews, are suitable (Davies, 1999).

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6 In education there is significant controversy over what comprises reliable research and
7 evidence (Davies, 1999; Farley *et al.*, 2018; Goldacre, 2013; Nelson and Campbell, 2017;
8 Norwich, 2014). This controversy is fueled by the complexities related with using RCTs as a
9 'gold standard' to inform educational practice (Bryk, 2015; Norwich, 2014), and by the
10 importance of other types of research and evidence used in education. For example, teacher-
11 generated research, such as practice-based research, and organisational-or system-level data,
12 such as pupil and school data, are as important as externally produced experimental or quasi
13 experimental evidence in informing educational practice (Brown *et al.*, 2017; Bryk, 2015;
14 Norwich, 2014). In response to the complexities with defining EBPs in the context of
15 education, Norwich (2014) endorses a 'hybrid approach' whereby quality experimental and
16 non-experimental methodologies, including action research, are combined to address problems
17 of practice. Similarly, Brown and colleagues' (Brown *et al.*, 2017; Brown and Zhang, 2017a)
18 research on research-informed practice in education highlights the importance of quality
19 evidence beyond experimental as another source of informing educational practice. In light of
20 the above considerations, for the purposes of this viewpoint, a broader definition of EBPs is
21 adopted which refers to practices that are considered to have a positive impact on pupils based
22 on evidence derived from RCTs or other appropriate research methods.
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49 *Classroom-based EBPs to support early childhood social learning*

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51 Ample evidence shows that a wide range of evidence-based intervention programmes and
52 instructional practices can promote children's social and emotional learning and reduce
53 behavior problems in the classroom successfully (Waschbusch *et al.*, 2018). For example,
54 findings from a landmark review (meta-analysis) of previously published studies showed that
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3 children from kindergarten to high school who attended universal intervention programmes for
4 social and emotional learning scored significantly higher on social, emotional, and academic
5 achievement measures than children in the control groups (Durlak *et al.*, 2011). Additionally,
6 a systematic review of teacher-led classroom-based interventions for social and emotional
7 problems in 4-12 year-old children showed that some classroom-management programmes can
8 decrease children's disruptive behaviours, such as aggression, disobedience, off-task
9 behaviour, non-compliance, and symptoms of oppositional defiant disorder, successfully
10 (Whear *et al.*, 2013). Furthermore, important review work by the Collaborative for Academic,
11 Social, and Emotional Learning (CASEL), a leading organisation in the promotion of social
12 and emotional learning, has shown that programmes that use one or more of the following four
13 strategies can promote children's social and emotional skills effectively (Dusenbury *et al.*,
14 2015): 1) lessons of explicit instruction of social and emotional skills (e.g. identify
15 happy/sad/angry using puppets); 2) implementation of general teaching practices that create
16 the conditions for social and emotional learning, such as classroom rules, routines, and
17 cooperative learning; 3) integration of social and emotional learning skills in the academic
18 curriculum; 4) adoption of school-wide strategies that facilitate social and emotional learning.
19 Studies also support the effectiveness of discrete behaviour management strategies that can be
20 embedded in every-day educational practice to promote positive behaviour. Some of these
21 practices include rules, problem-solving, modelling, promoting teacher-child relationship, and
22 scaffolding (McLeod *et al.* 2017), verbal praise, planned ignoring, and redirection of
23 inappropriate behaviour (Kern and Clemens, 2007; Parsonson, 2012; Simonsen *et al.*, 2008).
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55 **Contextualising the role of teacher attitudes in the implementation of EBPs for early**
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5 Professionals' attitudes about EBPs refer to the beliefs and opinions that professionals have
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7
8 about EBPs. In line with implementation research and long-standing theoretical frameworks of
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10 implementation in organisations, professionals' attitudes are considered one of the most
11
12 important individual factors that can drive implementation success (e.g. Aarons, 2005; Aarons
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14 *et al.*, 2011; Fixsen *et al.*, 2005; Moullin *et al.*, 2019; Nilsen, 2015; Williams and Beidas, 2019).
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16 Staff attitudes can be a significant precursor of the decision about whether to try a new practice
17
18 or not because the emotional aspect of the attitudes can influence significantly the decision-
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20 making processes of innovation adoption (Aarons *et al.*, 2012). Also, past research suggests
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22 that there is greater intervention and service acceptance if a significant proportion of the
23
24 organisation's staff is positively inclined to adopt it (Detrich and Lewis, 2013; Wiggins *et al.*,
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26 2012).
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33 To appreciate the importance of professionals' attitudes for the implementation of EBPs it is
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35 important to consider them in the context of the implementation process. The implementation
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37 of EBPs is a complex, multiphase process which involves multiple influential factors operating
38
39 at different ecological levels e.g. environmental, organisational, and individual (Novins *et al.*,
40
41 2013). Based on key frameworks used in implementation science, the implementation process
42
43 of a practice can be summarised broadly into four phases (e.g. Damanpour and Schneider,
44
45 2006; Fixsen *et al.*, 2005; Greenhalgh *et al.*, 2004; Wiggins *et al.*, 2012). The first is a
46
47 preparation phase which is often encountered in the literature as initiation or exploration phase
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49 and includes decisions on intervention or practice adoption. The second is the installation phase
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51 where the new practice or intervention gets started. The third is the implementation phase
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53 where the intervention or practice is ready for use and if required is further adapted based on
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3 close monitoring and evaluation. The sustainability or routinisation phase is the final phase and
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5 includes the shift during which a practice or intervention becomes routine.
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11 The preparation phase is very important because it determines the decision to proceed with the
12 adoption of an intervention, service or practice (Aarons, 2005; Damanpour and Schneider,
13 2006; Frambach and Schillewaert, 2002; Schoenwald and Hoagwood, 2001; Simpson, 2002;
14 Proctor *et al.*, 2011). The key factors influencing the process of adoption decision can be
15 classified in to four distinct categories (Wisdom *et al.*, 2014): external system (e.g.
16 governmental and policy factors), organisational, innovation, and individual. Because 'People
17 are not passive recipients of innovations' (Greenhalgh *et al.*, 2004, p. 598) the role of individual
18 factors is instrumental. Hence, various long-standing theoretical models of innovation adoption
19 propose professionals attitudes to EBPs as one of the most influential factors of the adoption
20 process at an individual level (Aarons, 2005; Frambach and Schillewaert, 2002; Greenhalgh *et*
21 *al.*, 2004; Wisdom *et al.*, 2014; Smith *et al.*, 2018; Proctor *et al.*, 2011).
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40 Considering the importance of professionals' attitudes in the application of innovations in
41 organisations, the study of implementation of EBPs for early childhood social learning would
42 be advanced by the examination of the facilitating role of teacher attitudes. Johnson (2017)
43 explains that in an implementation context as 'heterogeneous' as the early childhood education
44 context, understanding the individual factors that influence the decisions to act to support the
45 implementation of an intervention is needed. Resources and organisational support, such as
46 funding, leadership support, manageable workloads and opportunities for learning, are major
47 facilitators of intervention implementation in education (Brown and Zhang, 2017a, 2017b). But
48 is also recognised that teacher beliefs about EBPs could contribute significantly to the success
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3 of the implementation process; arguably, before teachers accept and implement a practice, they
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5 may have to form a positive attitude about it.
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10 The research on attitudes on EBPs implementation in education is not as extensive as in other
11 fields (e.g. health care and business) (Johnson *et al.*, 2017) and we have not fully understood
12 how the decision to adopt EBPs is influenced by teacher attitudes (Monahan *et al.*, 2014).
13 Additionally, to the author's knowledge, the association between EBPs adoption and teacher
14 attitudes towards EBPs in the context of early childhood social outcomes has not been
15 examined systematically by previous studies. However, a growing body of research suggests
16 that teacher views about innovations can influence the implementation process of EBPs. A
17 recent study found that the intensity with which teachers implemented specific EBPs for
18 children with autism was significantly associated with teacher views about the appeal of EBPs
19 and the disparity between usual practice and research or academically based practices (Locke
20 *et al.*, 2019). Another study found that teacher perceptions about their efficacy to handle
21 behaviour difficulties was associated to teacher openness to adopt new and innovative practices
22 (Johnson *et al.*, 2017). A quasi-experimental study used an intervention to cultivate
23 'supportive' beliefs and attitudes towards implementation of EBPs amongst educators and
24 found that the changes in attitudes were significantly associated with higher levels of
25 implementation of a large-scale multi-tier system of supports for pupils with social, emotional
26 and behavioural difficulties (Cook *et al.*, 2015). Furthermore, teacher views about the benefits
27 of an intervention have been found to influence intervention adoption (Clayton *et al.*, 2015;
28 Stahmer *et al.*, 2018). For example, the developers of the School-Wide Positive Behaviour
29 Support (SWPBS) implementation framework suggest that there is greater intervention 'buy-
30 in' if at least 80% of the school staff agree to prioritise positive behaviour before
31 implementation (Detrich and Lewis, 2013). Similarly, an experimental study of the
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3 determinants of teacher participation in classroom-based intervention programmes for early
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5 childhood behaviour difficulties found that teachers who were more concerned over the
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7 implementation of an intervention, for instance in relation to intervention developmental
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9 appropriateness and leadership support, were less likely to implement it frequently (Baker *et*
10
11 *al.*, 2010). The association was significant even after controlling for teacher experience, teacher
12
13 education, and type of setting. To conclude, ample theoretical support and a growing body of
14
15 research endorses the importance of teachers' attitudes for successful EBP implementation, but
16
17 further research is required to understand their contribution to the adoption of EBPs for early
18
19 childhood social learning.
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26 **Research-informed teaching: a promising approach to promote teacher attitudes towards** 27 28 **EBPs for early childhood social learning** 29 30 31 32

33 The impetus for evidence-based practice in education has led to the promotion of research-
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35 informed teaching (RIT), a term used to refer to informing teacher practice through
36
37 knowledge acquired through teacher engagement with research (Brown *et al.*, 2017). In the
38
39 context of RIT, engagement with research refers to the use of existing research to inform or
40
41 transform pedagogic practice (Brown *et al.*, 2017). Some of the documented benefits of RIT
42
43 include assistance with practice-based problem identification and problem solving in the
44
45 context of high performing schools, association with positive teacher outcomes, such as
46
47 improved knowledge and skills and confidence (Brown *et al.*, 2017), and school improvement
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49 in the form of information sharing about successful practices, testing of new ideas and the
50
51 development and implementation of interventions (Mincu, 2014). Furthermore, elements of
52
53 RIT such as use of research evidence are characteristics of successful teacher training and
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55 educational systems (Tatto, 2015).
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6 Generally, few studies focus specifically on ways to promote positive attitudes towards EBPs
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8 to augment implementation (Cook *et al.*, 2015). It is proposed that research-informed
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10 teaching (RIT) could be a viable way to cultivate positive views towards EBPs among
11
12 teachers and maximise chances of implementation. The pathway from RIT to EBPs for social
13
14 learning is not fully understood but some studies with psychology students, for instance,
15
16 suggest that an understanding of research and empirically supported interventions at training
17
18 level are related to positive attitudes and openness to EBPs (Aarons *et al.*, 2012; Bearman *et*
19
20 *al.*, 2015). Also, UK-based studies suggest that professional development on raising teacher
21
22 awareness and engagement with research can be linked to more positive attitudes towards
23
24 using research to inform teaching practices (Speight *et al.*, 2016; Rose *et al.*, 2017). It is
25
26 plausible that an understanding of the importance and value of research and evidence from
27
28 research to inform and transform educational practice could help teachers appreciate the value
29
30 of using interventions and strategies supported by sound evidence for their effectiveness to
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32 promote children's social outcomes. As a result, higher appreciation of research through RIT
33
34 engagement may promote more positive attitudes towards EBPs. This process can then
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36 stimulate a higher demand for EBPs resulting in teachers seeking for EBPs more actively which
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38 in turn can instigate higher chances of EBP adoption and implementation. It is therefore
39
40 possible that increases in teacher engagement in RIT could be linked to increases in positive
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42 attitudes towards the adoption and implementation of EBPs. Figure 1 shows a conceptual
43
44 model of the proposed pathway from RIT to EBP implementation and the role of teacher
45
46 attitudes towards EBPs adoption. As Figure 1 shows, there are additional individual,
47
48 organisational, and intervention-level factors that can influence the proposed relationships.
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50 Some factors often encountered in the literature are briefly summarised and described in the
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52 following paragraphs.
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6 Individual level factors pertain to professionals' personal characteristics. For example, factors
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8 such as age, ethnicity, level of education, type of training, amount of professional experience,
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10 individual disposition to innovation adoption (Aarons and Sommerfeld, 2012) and knowledge
11
12 of EBPs, were found to be associated with professionals' attitudes to adopt EBPs (Nakamura,
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14 *et al.*, 2011). In addition, professionals' self-efficacy, knowledge and familiarity with EBPs,
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16 degree of affiliation to the organisation, skills, emotions, such as stress and burnout, and
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18 motivation have been identified as important determinants of EBP implementation (Williams
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20 and Beidas, 2019).
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28 Organisational-level factors include organisational culture and climate (Aarons *et al.*, 2012;
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30 Lyon *et al.*, 2018; Williams and Beidas, 2019). It has been found that a positive work climate
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32 was associated with less divergence between EBPs and professionals' own practice (Aarons *et*
33
34 *al.*, 2012) and intentions to adopt EBPs (Williams *et al.*, 2017). Leadership conceptualised as
35
36 providing guidance and support has also been related to professionals' attitudes (Aarons *et al.*,
37
38 2012; Aarons and Sommerfeld, 2012; Powell *et al.*, 2017; Williams and Beidas, 2019).
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40 Research in education has shown that high school teachers' perceived principal support and
41
42 affiliation were linked to more openness to adopting EBPs (Johnson *et al.*, 2017). Additional
43
44 facilitators of implementation include implementation climate, which refers to what extent the
45
46 organisation rewards and supports the use of a specific practice, team working, whether a
47
48 specific EBP is considered to be a priority by the organisation and aligned with the school
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50 philosophy and goals, and resources, such as time, materials and teacher support and training
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52 (Forman *et al.*, 2009; Williams and Beidas, 2019). Speight and colleagues (2016) identified
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3 lack of time and the difficulties associated with applying research evidence in educational
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5 settings as the primary barriers to teachers' use of evidence-based approaches.
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11 Finally, EBP characteristics include the type of intervention and the setting that is delivered in
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13 (Aarons *et al.*, 2012). For example, a study of preservice and student teachers found that the
14
15 perceived suitability of the intervention, the amount of teacher time required and whether the
16
17 intervention puts children at risk or has negative effects on other children may affect the
18
19 judgments of intervention acceptability significantly (Witt *et al.*, 2017).
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23 [Figure 1]
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26 27 28 **Final reflections and implications for research and practice** 29

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31 The early years are a critical developmental period and social learning comprises a building
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33 block for social and emotional wellbeing and academic achievement. By embedding EBPs in
34
35 day-to-day early childhood professional practice we could increase the chances of supporting
36
37 pupils' social outcomes successfully. The theoretical underpinnings of implementation science
38
39 propose that professionals' attitudes towards EBPs are critical for implementation because they
40
41 can determine very early in the implementation process the decision to adopt an intervention
42
43 or practice. Clearly, EBPs are not 'self-implementing mechanisms that will be embraced and
44
45 used automatically as they are identified' (Cook and Cook, 2013, p. 72). Prior to the
46
47 implementation of any intervention it is important to ensure that those involved in the
48
49 implementation process hold the right attitude before they can accept it and eventually
50
51 implement it. However, little of the implementation research has been extended to the field of
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53 education and we have not yet fully understood if and how teachers' attitudes determine the
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55 implementation process of EBPs in the school setting (Johnson *et al.*, 2017). The study of
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3 teacher attitudes, beliefs and perceptions of EBPs for early childhood social learning is an
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5 important step in enhancing our understanding of the factors and the processes that can lead to
6
7 successful implementation. To advance the rigour of this research it will be necessary to
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9 consider the impact of teachers' attitudes in the context of other factors that are known to
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11 determine the implementation outcome and operate across different macro and micro system
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13 levels (e.g. society, organisation, individual, intervention) and time points in the lifecycle of
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15 the implementation process.
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23 Ways to promote professionals' attitudes for EBP implementation have not been extensively
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25 studied (Cook *et al.*, 2015). In education, cultivating a culture of using research to inform
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27 teaching and practice is proposed as a viable way of shaping teacher attitudes towards EBPs
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29 for early childhood social learning. The investigation of the pathway from research informed
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31 teaching (RIT) to teachers' attitudes towards EBPs for social learning should be considered in
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33 relation to aspects of RIT and the context of its implementation. First, it is important to establish
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35 what forms of RIT can lead to positive attitudes towards EBPs for promoting pupil outcomes
36
37 including social learning outcomes. For example, an important question is whether it is the
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39 engagement with research in the form of articles, books, training, or their combination that
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41 shapes teachers' views about EBP adoption. Another important question pertains to the impact
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43 of research awareness, including research methods understanding, on RIT and its role in the
44
45 partway from RIT to teacher openness towards EBPs adoption. A working hypothesis is that
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47 research awareness raises teachers understanding of the significance of evidence from research,
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49 research methodologies and the importance of methodologically rigorous research to answer
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51 important questions about pedagogy and children's learning and, as a result, it triggers
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53 engagement with research which in turn stimulates use of research-based teaching. The
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3 research in this area of study suggests that transforming educational research into pedagogical
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5 knowledge and practice is a non-linear complex process and that we need more research to
6
7 understand how teacher knowledge around research is used to inform educational practice
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9 (Cain, 2015). Moreover, teacher use of research as a source of information to address issues of
10
11 pedagogy is another topical area of enquiry. The literature suggests that there is an appetite
12
13 among teachers for research use but there is a gap between teachers' intentions towards
14
15 research and what is happening in practice (Cain 2015; Nelson *et al.*, 2015). For instance, UK-
16
17 based research suggests that teachers may have positive views about 'externally-produced
18
19 academic or professional research', but they do not use it often to inform their practice (Nelson
20
21 *et al.*, 2015; Coldwell *et al.*, 2017). Finally, increasing research use and openness to empirically
22
23 validated pedagogies may not be enough to lead to more frequent use of EBPs. The benefits of
24
25 RIT are not 'comprehensively and systematically established' (Brown *et al.*, 2017) and
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27 although there is some evidence on its positive impact the research is still in its initial stages
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29 (Nelson and Campbell, 2017).
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39 The identification of factors that influence the implementation of school-based EBPs for social
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41 learning will help school leaders and policymakers consider changes in in-service teacher
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43 professional development and pre-service teacher training that could impact the
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45 implementation of EBP both for social learning and more generally. Additionally, the findings
46
47 about the impact of RIT on teacher attitudes for EBPs for social learning will contribute to the
48
49 ongoing research on initiatives that look to enhance the use of research evidence to inform
50
51 practice among educators through professional development interventions. Significant research
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53 in this area was pioneered by the EEF's (Education Endowment Foundation) Research Use in
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55 Schools initiative which launched a series of studies to examine whether research engagement
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3 strategies can contribute to teachers' use of, and attitudes towards, academic research to support
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5 pupil progress. Some of the studies yielded promising results about professional development
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7 efforts to enhance teacher research use. For instance, the evaluation trial of the efficacy of the
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9 Research Learning Communities model found a small positive association of teacher use of
10
11 research and intervention receipt (Rose *et al.*, 2017). The model involves practitioner
12
13 engagement in a learning process that allows connections to be made between research and
14
15 own practical knowledge and personal research (Brown *et al.*, 2017; Brown and Zhang, 2017b).
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17 However, the authors note that the relationship may had to do with teacher personal
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19 characteristics, such as level of postgraduate qualification or seniority. Another study showed
20
21 that examination of an evidence-informed professional development programme aimed at
22
23 enhancing the use of research in the classroom and promote a learning culture was related with
24
25 more positive attitudes to using research for the teachers who were intensively involved in the
26
27 programme (Speight *et al.*, 2016). An interesting extension of this line of research would be
28
29 the examination of the impact of promising interventions on teacher attitudes towards use of
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31 EBPs for social learning and their impact on the progress of pupils with social and emotional
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33 difficulties.
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43 The research in the pathway from research informed teaching practice at teacher preparation
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45 level to attitudes towards EBPs can contribute to our understanding of the change mechanism
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47 of trainee teacher behavior and to the development of new conceptual tools to explain teacher
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49 professional learning and preparation to meet the needs of children with difficulties not only in
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51 the social learning domain but also across the curriculum. It will also raise important questions
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53 about research capacity building in non-university-based routes of teacher training and how
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55 openness towards EBPs is encouraged if not through research engagement. Additionally,
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3 teacher training programs are well-positioned to address issues around openness to research
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5 and EBPs more effectively than in-service professional development activities do. Compared
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7 to a short and budget -restrained in-service professional development course, an undergraduate
8
9 or postgraduate teacher training programme could facilitate the systematic introduction of
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11 research methods and literature on evidence-based interventions and practices. Research and
12
13 EBP awareness will allow students to gradually develop their skills to make connections
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15 between research and practice and with time develop an open view towards research and EBPs
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17 before even they hit the classroom. Considering the above possibilities, the study of whether
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19 initial teacher training can contribute to bridging the gap between research and practice is of
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21 great importance.
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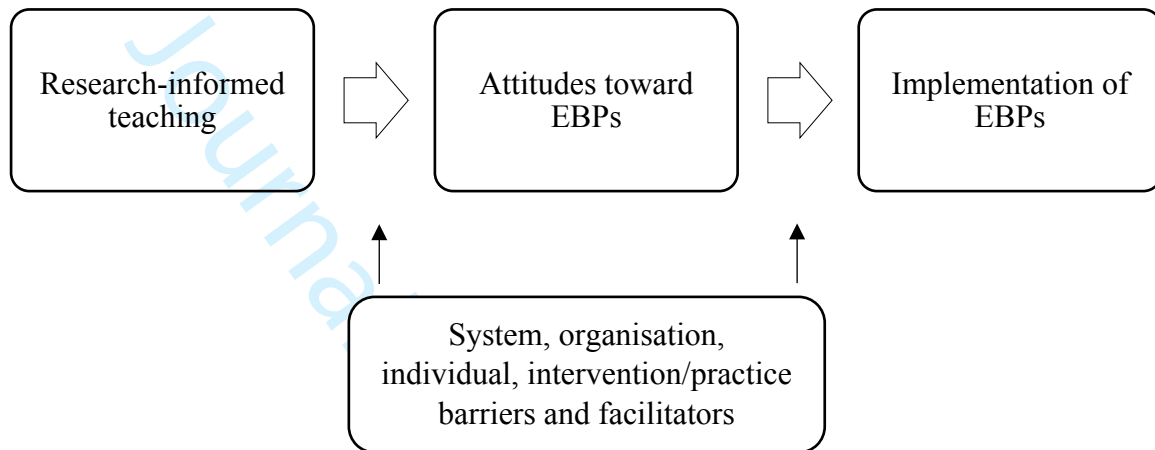
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Journal of Children's Services

Figure 1. A conceptual model of the association between RIT, teachers' attitudes about EBPs and the implementation of EBPs for early childhood social learning



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3 Social learning refers to the process through which children develop important social skills
4 such as getting along with peers, forming positive relationships, sharing, and perspective taking
5
6 (Durlak *et al.*, 2011; Goodman *et al.*, 2015; Humphrey, 2013) The period of early childhood
7
8 (birth-8 years old) is crucial for the acquisition of important social skills. During this period
9
10 children can be very receptive to new learning, because of rapid brain growth and high
11
12 susceptibility to environmental influences (Allen, 2011; Marope and Kaga, 2015). Strong
13
14 socioemotional competencies acquired in early childhood contribute to laying the foundation
15
16 for successful academic development and the development of core academic subjects in middle
17
18 childhood, such as maths (Center on the Developing Child at Harvard University, 2011; Nix
19
20 *et al.*, 2013). Significant setbacks in the development of early childhood social skills can put
21
22 children at risk of serious behaviour and mental health problems (Kretschmer *et al.*, 2014),
23
24 reading difficulties, and leaving school without qualifications (Jakobsen *et al.*, 2012;
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26 ██████████ 2014, 2018; Russell *et al.*, 2015; Wigelsworth *et al.*, 2017).
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37 Recent years have witnessed a growing interest in the use of evidence-based practices (EBPs)
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39 in education to promote pupil outcomes (Purper, 2016; Nelson and Campbell, 2017; Navarro-
40
41 Cruz and Luschei, 2018). However, the frequency and confidence with which EBPs for early
42
43 childhood social learning are implemented can vary considerably (Heo *et al.*, 2014; Steed and
44
45 Roach, 2017; Sutherland *et al.*, 2013). Professional attitudes are considered central in the
46
47 implementation of EBPs in organisations. In education, teachers are the key actors in the
48
49 delivery of educational interventions and practices, and teacher factors have been found to
50
51 influence quality in early childhood education and care significantly. For instance, teacher
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53 qualifications comprise one of the strongest predictors of quality in preschool education and
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3 care (Sylva *et al.*, 2014). This viewpoint discusses the importance of teacher attitudes in the
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5 success of EBPs implementation in the context of early childhood social learning.
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11 **Evidence-based practices in education**

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14 Recent years have witnessed a significant increase in governmental policies and initiatives
15 which promote the use of EBPs to raise quality in education (Cooper *et al.*, 2017; Farley *et al.*,
16 2018; Vostanis *et al.*, 2013). The term evidence-based practice (EBP) has its roots in clinical
17 disciplines, but it has gained ground across other disciplines including education (Cook and
18 Cook, 2013; Lilienfeld *et al.*, 2013). EBPs are often associated with either a named intervention
19 programme or a specific approach or strategy. There is not a universal definition or theoretical
20 framework for EBPs. The literature is suggestive of a consensus across disciplines that EBPs
21 are synonymous with practices which have been consistently shown to have a positive impact
22 on the individual by reliable research (Cook and Cook, 2013; Lilienfeld *et al.*, 2013). Reliable
23 research often refers to research which meets specific quality standards typically the use of a
24 randomised controlled trial (RCT), an experimental research design to examine the impact of
25 an intervention programme or practice. RCTs are considered the 'gold standard' for
26 establishing causality between an intervention and change in an individual's outcomes. In
27 RCTs similar people are randomly assigned to receive either the intervention tested or a dummy
28 intervention, alternative intervention, or no intervention at all. RCTs are not always feasible
29 because of the limitations that 'real world' research imposes, for instance parents may not want
30 their children to be randomized or randomization may not be considered ethical in specific
31 contexts. Well-conducted quasi-experimental designs, such as pre-intervention matched
32 control group (Bonell *et al.*, 2011) or regression discontinuity (West *et al.*, 2008), are viable
33 alternatives to the RCT. When the focus is on the processes by which the intervention brings
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3 about change to pupils' outcomes naturalistic research approaches, such as observations and
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5 interviews, are suitable (Davies, 1999).
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11 In education there is significant controversy over what comprises reliable research and
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13 evidence (Davies, 1999; Farley *et al.*, 2018; Goldacre, 2013; Nelson and Campbell, 2017;
14
15 Norwich, 2014). This controversy is fueled by the complexities related with using RCTs as a
16
17 'gold standard' to inform educational practice (Bryk, 2015; Norwich, 2014), and by the
18
19 importance of other types of research and evidence used in education. For example, teacher-
20
21 generated research, such as practice-based research, and organisational-or system-level data,
22
23 such as pupil and school data, are as important as externally produced experimental or quasi
24
25 experimental evidence in informing educational practice (Brown *et al.*, 2017; Bryk, 2015;
26
27 Norwich, 2014). In response to the complexities with defining EBPs in the context of
28
29 education, Norwich (2014) endorses a 'hybrid approach' whereby quality experimental and
30
31 non-experimental methodologies, including action research, are combined to address problems
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33 of practice. Similarly, Brown and colleagues' (Brown *et al.*, 2017; Brown and Zhang, 2017a)
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35 research on research-informed practice in education highlights the importance of quality
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37 evidence beyond experimental as another source of informing educational practice. In light of
38
39 the above considerations, for the purposes of this viewpoint, a broader definition of EBPs is
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41 adopted which refers to practices that are considered to have a positive impact on pupils based
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43 on evidence derived from RCTs or other appropriate research methods.
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Classroom-based EBPs to support early childhood social learning

Ample evidence shows that a wide range of evidence-based intervention programmes and instructional practices can promote children's social and emotional learning and reduce behavior problems in the classroom successfully (Waschbusch *et al.*, 2018). For example, findings from a landmark review (meta-analysis) of previously published studies showed that children from kindergarten to high school who attended universal intervention programmes for social and emotional learning scored significantly higher on social, emotional, and academic achievement measures than children in the control groups (Durlak *et al.*, 2011). Additionally, a systematic review of teacher-led classroom-based interventions for social and emotional problems in 4-12 year-old children showed that some classroom-management programmes can decrease children's disruptive behaviours, such as aggression, disobedience, off-task behaviour, non-compliance, and symptoms of oppositional defiant disorder, successfully (Whear *et al.*, 2013). Furthermore, important review work by the Collaborative for Academic, Social, and Emotional Learning (CASEL), a leading organisation in the promotion of social and emotional learning, has shown that programmes that use one or more of the following four strategies can promote children's social and emotional skills effectively (Dusenbury *et al.*, 2015): 1) lessons of explicit instruction of social and emotional skills (e.g. identify happy/sad/angry using puppets); 2) implementation of general teaching practices that create the conditions for social and emotional learning, such as classroom rules, routines, and cooperative learning; 3) integration of social and emotional learning skills in the academic curriculum; 4) adoption of school-wide strategies that facilitate social and emotional learning. Studies also support the effectiveness of discrete behaviour management strategies that can be embedded in every-day educational practice to promote positive behaviour. Some of these practices include rules, problem-solving, modelling, promoting teacher-child relationship, and

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3 scaffolding (McLeod *et al.* 2017), verbal praise, planned ignoring, and redirection of
4
5 inappropriate behaviour (Kern and Clemens, 2007; Parsonson, 2012; Simonsen *et al.*, 2008).
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10 11 **Contextualising the role of teacher attitudes in the implementation of EBPs for early** 12 13 **childhood social learning** 14

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16 Despite the range of EBPs for social learning and the efforts to increase the use of EBPs in
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18 educational settings teachers struggle to use them to address children's social learning needs
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20 (Evans *et al.*, 2015; McLeod *et al.*, 2017; Sutherland *et al.*, 2013). Implementation science
21
22 studies the processes and factors that influence the systematic delivery of EBPs across different
23
24 organisational settings (Nilsen, 2015) and its theoretical underpinnings offer a helpful
25
26 framework to understand the implementation of EBPs in education. Implementation research
27
28 and long-standing theoretical frameworks of implementation in organisations show that a wide
29
30 range of factors contribute to the implementation of EBPs (e.g. Aarons, 2005; Aarons *et al.*,
31
32 2011; Fixsen *et al.*, 2005; Moullin *et al.*, 2019; Nilsen, 2015; Williams and Beidas, 2019).
33
34 These factors can operate at wider socio-political system, organisational, and individual level,
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36 and include political agendas, policies, resources, leadership support, and characteristics of the
37
38 intervention, the implementer and the recipient. Admittedly, system and organisational level
39
40 factors are critical to the implementation of EBPs. However, individual factors are equally
41
42 important with considerable implications for the success of the implementation of EBPs as
43
44 innovations which depend on humans to operate are susceptible to individual factors (Aarons,
45
46 2005). Professional attitudes refer to the beliefs and opinions that professionals have about
47
48 EBPs and comprise one of the most important individual factors that can drive implementation
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50 (Williams and Beidas, 2019). Staff attitudes can be a significant precursor of the decision about
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52 whether to try a new practice or not because the emotional aspect of the attitudes can influence
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3 significantly the decision-making processes of innovation adoption (Aarons *et al.*, 2012). By
4 extension, teacher beliefs about EBPs should contribute significantly to the success of their
5 implementation. Past research suggests that there is greater intervention and service acceptance
6 if a significant proportion of the setting's staff is positively inclined to adopt it (Detrich and
7 Lewis, 2013; Wiggins *et al.*, 2012). Resources and organisational support, such as funding,
8 leadership support, manageable workloads and opportunities for learning, are major facilitators
9 of intervention implementation in education (Brown and Zhang, 2017a, 2017b). However,
10 considering the importance of professional attitudes in the application of new services or
11 interventions in organisations, the study of implementation of EBPs for social learning in
12 education should also examine the extent to which teacher attitudes can facilitate it.

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28 To appreciate the importance of professionals' attitudes for the implementation of EBPs it is
29 important to consider them in the context of the implementation process. The implementation
30 of EBPs is a complex, multiphase process which involves multiple influential factors operating
31 at different ecological levels e.g. environmental, organisational, and individual (Novins *et al.*,
32 2013). Based on key frameworks used in implementation science, the implementation process
33 of a practice can be summarised broadly into four phases (e.g. Damanpour and Schneider,
34 2006; Fixsen *et al.*, 2005; Greenhalgh *et al.*, 2004; Wiggins *et al.*, 2012). The first is a
35 preparation phase which is often encountered in the literature as initiation or exploration phase
36 and includes decisions on intervention or practice adoption. The second is the installation phase
37 where the new practice or intervention gets started. The third is the implementation phase
38 where the intervention or practice is ready for use and if required is further adapted based on
39 close monitoring and evaluation. The sustainability or routinisation phase is the final phase and
40 includes the shift during which a practice or intervention becomes routine.

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3 The preparation phase is very important because it determines the decision to proceed with the
4 adoption of an intervention, service or practice (Aarons, 2005; Damanpour and Schneider,
5 2006; Frambach and Schillewaert, 2002; Schoenwald and Hoagwood, 2001; Simpson, 2002;
6 Proctor *et al.*, 2011). The key factors influencing the process of adoption decision can be
7 classified in to four distinct categories (Wisdom *et al.*, 2014): external system (e.g.
8 governmental and policy factors), organisational, innovation, and individual. Because 'People
9 are not passive recipients of innovations' (Greenhalgh *et al.*, 2004, p. 598) the importance of
10 individual factors is self-evident. Hence, various long-standing theoretical models of
11 innovation adoption propose professionals attitudes to EBPs as one of the most influential
12 factors of the adoption process at individual level (Aarons, 2005; Frambach and Schillewaert,
13 2002; Greenhalgh *et al.*, 2004; Wisdom *et al.*, 2014; Smith *et al.*, 2018; Proctor *et al.*, 2011).
14 Johnson (2017) explains that in an implementation context as 'heterogeneous' as the early
15 childhood education context, understanding the individual factors that influence the decisions
16 to act to support the implementation of an intervention is needed. Therefore, it is plausible that
17 attitudes can play an equally important role in the adoption of EBPs for early childhood social
18 learning in routine professional practice as other individual factors do, such as qualifications,
19 and factors operating at system and organisational level, such as time, resources and support;
20 arguably, before teachers accept and implement a practice they may have to form a positive
21 attitude about it. A better understanding of teacher attitudes towards EBPs in the context of
22 early childhood social learning can provide an important insight into the teacher factors that
23 influence the success of the implementation.
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Research-informed teaching: a promising approach to promote teacher attitudes towards EBPs for early childhood social learning

Research-informed teaching (RIT) refers to informing teacher practice through knowledge acquired through teacher engagement in and with research (Brown *et al.*, 2017). There are two major types of educational research: existing research produced by researchers and research generated by teachers. RIT could potentially help cultivate positive views towards EBPs among teachers with the view to maximise chances of implementation. Through the appreciation and use of research, teachers who engage in RIT may develop a more positive view about using EBPs to support and actively look for them. Therefore, it is plausible that increases in teacher engagement in RIT are linked to increases in EBP implementation through teachers' attitudes towards EBPs. Arguably, barriers and facilitators that pertain to the organisation, individual, and intervention or practice itself are also important in the decision about whether a practice is going to be implemented. Furthermore, RIT may be also directly linked to higher use of EBPs. However, it is expected that attitudes themselves would make a unique contribution to the final decision about implementation, considering that professional attitudes are a strong predictor of EBP implementation. Figure 1 shows a conceptual model of the proposed pathway from RIT to EBP implementation and the role of teacher attitudes.

It is important to note that the study of teacher engagement in RIT is still in its infancy (Nelson and Campbell, 2017) and although there are studies to suggest that research is valued and appreciated by teachers (Nelson *et al.*, 2015; Coldwell *et al.*, 2017), the interest to use research evidence is not universally shared across the sector (Judkins *et al.*, 2014; Cain, 2015; Procter, 2015). Also, the benefits of RIT are not 'comprehensively and systematically established' (Brown *et al.*, 2017, p. 161) but there is some evidence on its positive impact (Nelson and Campbell, 2017). Some of the documented benefits include assistance with practice-based

1
2
3 problem identification and problem solving in the context of high performing schools, and
4
5 association with positive teacher outcomes, such as improved knowledge, skills, and
6
7 confidence (Brown et al., 2017). It is worth investigating whether RIT holds promise for
8
9 increasing acceptance of EBPs among teachers and contribute to successful implementation of
10
11 EBPs both in the form of specific practices and full-scale comprehensive intervention
12
13 programmes for early childhood social learning.
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20 [Figure 1]
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26 **Final reflections**

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29 The early years are a highly critical period in a child's life and social learning comprises a
30
31 building block for social and emotional wellbeing and academic achievement. By embedding
32
33 the use of EBPs in day-to-day professional practice teachers could support pupils' outcomes
34
35 successfully. According to established models of EBP implementation in organisations and
36
37 past research professionals' attitudes can determine very early on the decision to adopt an
38
39 intervention or practice and, as a result, they play a crucial role in the implementation process.
40
41 It is plausible that teacher attitudes towards the use of EBPs for early childhood social learning
42
43 could influence implementation significantly. Clearly, EBPs are not 'self-implementing
44
45 mechanisms that will be embraced and used automatically as they are identified' (Cook and
46
47 Cook, 2013, p. 72). Prior to the implementation of any intervention programme or instructional
48
49 practice it is important to ensure that those involved in the implementation process hold the
50
51 right attitude before they can accept it and eventually implement it. Therefore, to understand if
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53 and how teacher views can influence any decisions to use EBPs to promote children's social
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3 learning in the early years the study of teacher attitudes towards EBPs is critical. Cultivating a
4
5 culture of using research to inform teaching and practice could potentially lead to a more open
6
7 mind about using EBPs to support pupils learning. However, before looking at shaping
8
9 teachers' views about EBPs for social learning it is important to establish whether, in fact,
10
11 teacher attitudes have a significant impact on social learning intervention adoption and
12
13 implementation. In addition, it is important to consider this impact in the context of other key
14
15 factors that operate across different levels and time points in the lifecycle of the implementation
16
17 process and are known to determine the implementation outcome. Also, it will be important to
18
19 examine the impact and processes whereby RIT may exert its influence on teacher attitudes
20
21 and practice. For instance, what aspect of RIT can lead to positive attitudes toward EBPs? Is
22
23 it the engagement with research in the form of articles, books, training and/or the acquisition
24
25 of knowledge on available interventions that makes teachers less skeptical about integrating
26
27 EBPs, and what is the role of teacher attitudes toward using research to inform practice and
28
29 teacher knowledge about research? To date, we have not fully understood the mechanisms
30
31 whereby teacher engagement with research can influence practice (Coldwell *et al.*, 2017).
32
33 Finally, another important area of investigation is whether the pathway from RIT to increases
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35 in EBPs implementation through teacher attitudes is linked to any positive outcomes for the
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37 children such as improved social skills and/or reductions in behavior difficulties.
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Figure 1. A conceptual model of the association between RIT, teacher attitudes about EBPs and the implementation of EBPs for early childhood social learning

