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Partnering with Parents in Early Childhood Education

2019 Cluster Randomised Controlled Trial report

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Abstract

This paper reports the findings of an evaluation including a cluster randomised controlled trial (cRCT) of a new practice support system designed to support Early Childhood Education and Care services in their work with parents.

Participants were 118 educators and 302 parents from 19 early childhood services in Victoria, Australia in 2019. Services in the trial implemented a new practice support system for enhancing partnership with families. By training kindergarten teachers, educational leaders and room leaders as coaches, *Partnering with Parents* is designed to support services to create an environment welcoming of and responsive to parents, and to strengthen educators' skills and confidence in interacting with parents in a way that supports their parenting.

Results showed educators perceived they had changed the way they worked with parents and their skills had improved. High acceptability and intention to use strategies in future was reported. Parents noted their interactions with educators improved. Multi-level modelling comparing Time 1 and Time 2 data of the intervention and control groups revealed null significance. The impact of the ceiling effect in cRCTs is discussed.

The control group was given the intervention after Time 2 data were complete and analysis showed this group outperformed the intervention group, achieving significance Time 2 to Time 3. The results suggest *Partnering with Parents* is beneficial in enhancing educators' skills and perceived confidence. More diverse samples with more sensitive measures, such as use of direct observation of educators, are warranted.

Keywords

Early childhood education, Parents, Educators, Partnership, Relationship, Cluster randomised controlled trial.

Introduction

In Australia, similar to other developed countries, partnership with families in early childhood education and care (ECEC) services is recognised as fundamental to achieving quality outcomes for children (Australian Children's Education & Care Quality Authority, 2012). This study used a cluster randomised controlled trial (cRCT) methodology to evaluate the effectiveness of a new practice support system designed to support ECEC services to improve their work with parents.

A substantial body of research shows parenting and the home learning environment affect children's cognitive, language and social development (Barnes & Melhuish, 2017; Hackworth et al., 2017; National Institute of Child Health and Human Services, 2006; Sammons et al., 2015). Programs that focus on strengthening educators' partnerships and engagement with parents in the preschool years have been shown to boost child academic and social-emotional skills, and improve school readiness (Bierman et al., 2017; Fenech, 2013; Lang et al., 2016; Sheridan et al., 2010)

In Victoria, Australia, our Victorian Early Years Learning and Development Framework (VEYLDF; Department of Education and Training, 2016) Partnerships with families principle recognizes that "Children learn most in their early years from those adults with whom they have the closest relationships" (p.9), and that "Families and kinship members have primary influence on their children's learning and development" (p.5). Studies of educator-parent partnership and communication suggest both educator and parent capacity to provide supportive and sensitive care of the child can be improved by a quality relationship between educator and parent (Owen et al., 2000). Further, studies such as Lin et al. (2019) have found a positive relationship between parent perceptions of educator communication and parent-child engagement in more frequent home literacy and numeracy activities.

Although it is acknowledged that when educators and parents collaborate well child outcomes are improved, research suggests many educators find this challenging. In a 2016 Parenting Research Centre (PRC) online survey, 98% of 318 educators surveyed said they wanted training in working with parents. Educators reported they felt confident to talk with parents about children's successes but less

confident to greet families by name, raise concerns with parents, respond to parent concerns, or work with families facing significant parenting stressors (Parenting Research Centre, 2016). In a 2019 survey, 79% of parents with children attending ECEC services reported they had sought information or advice from their child's educator (Parenting Research Centre, 2019). This indicates a need for educator training in working with parents to be embedded throughout the ECEC sector.

The intervention evaluated in this paper is informed by literature that identifies critical features of successful training and implementation. Research reporting about professional development for working with parents in the ECEC sector is limited. However, research such as (Kuhn et al., 2017) highlights the relevance of active skills-based training for educators in parent relationship-building communication strategies. Interventions such as these are based on knowledge that successful educator-parent collaboration is founded on mutual respect, high levels of trust, and collaborative, family-centred practices (Dunst et al., 2002).

Extensive literature exists about development of training programs for working directly with children (Barnes et al., 2018; Blewitt et al., 2020; Cherrington & Thornton, 2013; Early et al., 2017). Sheridan et al. (2009) discussed critical features of professional development initiatives that produce change in educators' skills, behaviours and dispositions. They summarise how different delivery approaches suit different training objectives. A training objective of increasing educators' knowledge might be met using information-giving, demonstrations of practice, opportunity to practice and feedback. When training objectives aim to acquire or improve skills, on-the-job coaching and post-training support become critical (Sheridan et al., 2009). On-the-job feedback and support are highlighted as essential for changing practice and mastering new skills in implementation research across the education and social services sectors (Fixen et al., 2005).

Coaching focuses on specific work-based skills, practice and/or interventions (Nadeem et al., 2013) to support implementation. It builds the capacity of a practitioner to improve existing abilities and develop and gain a deeper understanding of new skills (Rush & Shelden, 2011). Practice-based coaching is a learner-driven cyclical process—planning goals and action steps, engaging in focused observation, and reflecting on and sharing feedback. Coaching works well when the coach connects personally, recognizes the educator's current skills, and has a commitment to the educator's success. The coaching interaction benefits from good listening, observation, feedback and reflection skills (Passmore, 2007).

Research investigating training preferences of educators also points to coaching as a key to success. Educators in the 2016 PRC online survey reported a preference for face-to-face training but acknowledged it is costly; 25% indicated they preferred on-the-job coaching to face-to-face training (Parenting Research Centre, 2016).

In light of policy and economic reviews of the investment return of quality ECEC (Pascoe & Brennan, 2017; The Front Project, 2019), there is a call for well-conducted empirical studies to validate professional development initiatives (Sheridan et al., 2009). In a meta-analysis of randomised controlled trials (RCTs) targeted at professional development interventions for early childhood educators, Werner et al. (2016) identify an urgent need for more and larger well-designed RCTs to provide evidence to guide policy makers about which programs to implement and invest in. Several RCTs published since then provide key insights into considerations for conducting such rigorous research in the ECEC sector, which have been taken into account in this present study (Delaney et al., 2019; Early et al., 2017; Toussaint et al., 2020; Xiong et al., 2019).

In its review and recommendations about early education and care, the Lifting our Game report (Pascoe & Brennan, 2017) recognizes that better parent support in the sector would be of substantial benefit. However, pre-service training available in this area of partnering with parents is minimal.

Our research aimed to address this gap by evaluating the effectiveness of a new practice support system, *Partnering with Parents*, designed to strengthen educators' skill and confidence in this area (see Petrovic et al., 2019). The *Partnering with Parents* practice support system is designed to be embedded in everyday service delivery and its purpose is to give educators essential and practical skills, tools and strategies for working with parents.

We aimed to evaluate the effectiveness of the *Partnering with Parents* practice support system by examining the following process information and intervention outcomes:

1. To what extent did educators, including practice coaches, find components of the practice support system useful and perceive improvement in their skills following intervention?
2. To what extent did educators and practice coaches use components of the practice support system? That is, which components were used, and by whom? (Practice coaches were experienced educators in every service selected to assist other staff with implementation – see 'Participants', below)
3. Following intervention, and compared with wait-list participants, to what extent were changes seen in educators' reports of: quality of parent-educator relationships, and skills and confidence in communicating with parents?
4. Following intervention, and compared with wait-list participants, to what extent were changes seen in parents': measures of quality of parent-educator relationships, satisfaction with communication at the service, perceptions of the relational environment at the service, help-seeking after advice from educators at the service, and parenting confidence and parenting stress?
5. What process or demographic factors mediated or moderated the results obtained?

Method

Study Design

To avoid contamination of individual participant randomization, a cRCT was designed for this study involving 19 ECEC services across Victoria, Australia, in 2019. Each service was considered one cluster, except for three small services which were combined because they operated in close proximity under the one organisation. Therefore, a total of 17 clusters were included in the trial (see Figure 1 for trial flowchart). Each cluster was paired according to like characteristics (see Petrovic et al., 2019) and randomly allocated to either an intervention or control group. During the initial intervention period the control group engaged in usual practice, then received the intervention after Time 2 data collection was completed. There were three timepoints: Time 1 = 0 weeks (before randomization to trial conditions), Time 2 after the intervention group had completed the intervention, and Time 3 = 3 months after the intervention group had completed the intervention and immediately after the control group had completed the intervention.

This trial was designed and is reported according to the Consolidated standards of Reporting Trials (CONSORT) reporting guidelines for cRCTs (Campbell et al., 2012). The trial was prospectively registered with the Australian New Zealand Clinical Trials Registry (reference ACTRN12619000488101). Approval to conduct the study was obtained from PRC Human Research Ethics Committee (App48) 11th February 2019 and the Victorian Department of Education and Training (Project ID 2019_003961) 7th March 2019.

Study design, measures and intervention details have been reported elsewhere (Petrovic et al., 2019).

Participants

Educators

Data were collected from 118 educators at Time 1, from 68 educators about 17 weeks later and from 60 educators after 3 months. Demographic data were missing for six of these people. Most of the remaining staff members (98% of 110) were female. Average age was 41.0 years ($SD = 11.25$ years) with a range of 19 to 68 years. On average they had worked in the ECEC sector for 12.3 years ($SD = 10.18$ with a range of 0 to 40 years), with an average of 5.1 years ($SD = 5.6$ years and a range of 0 to 26 years) at their current service. On average they worked 4 days per week ($SD = 1.09$ days) with 45.4% working 5 days, 25.9% working 4 days, 18.25 3 days, 7.4% 2 days and only 2.8% working just 1 day per week.

For most, (70.4%) English was the main language spoken at home. A diploma was the most common qualification (47.2%), followed by Certificate III (19.4%), a bachelor degree (16.7%), an advanced diploma (10.2%), and a masters degree (5.6%). Only one person had no qualification relevant to their role.

Only 106 of the 116 staff reported their current role at their centre, with 15.5% classifying themselves as assistant/relief staff, 6.0% as kindergarten teachers, 12.1% as management, 63.5% as educator/room leader/leader and 12.9% in some other capacity.

Most of the staff worked in a combined kindergarten and long day care service (88.2%), with 15.5% in a kindergarten only service and 4.3% in a long day care only service. Staff predominantly worked part-time (49.1%), with 43.5% in full-time employment and 7.4% in casual employment.

Parents

Data were received from 302 parents at Time 1; 231 of these parents about 17 weeks later; and 207 after 3 months follow-up. Demographic data were missing for nine of these people. Most of the remaining parents were female (90%). Most (83%) spoke English as their main language at home. Only 14% had more than one child attending the centre. The mean age of the child selected for the purposes of the survey questions was 2.98 years with a standard deviation of 1.34. On average the child had attended the centre for 2.42 years with a standard deviation of 1.33 years. Only 17% of the children were under the age of two, 42% were aged two and three, 40% were aged four and five, and one per cent was missing data. On average the children attended the centre for 2.83 days per week with a standard deviation of 0.92 days. Half the children attended the centre for 3 days a week with 34% attending only 1 or 2 days per week and 16% attending for 4 or 5 days per week.

The Partnering with Parents Intervention

Partnering with Parents as an enhancement to usual practice aims to create an environment welcoming of, and responsive to, parents. This forms a basis for strengthening educators' skills and confidence to interact with parents in a way that supports their parenting.

Every service identifies practice coaches to support implementation of the intervention through a 10-week schedule that introduces key concepts and strategies to all the educators in the service. Practice coaches are educational leaders, room leaders, managers or identified educators.

The three components of the intervention are introduced in sequence. The first,

Making Moments Matter, is creating a positive relational environment through educators' everyday interactions with parents. The second component, *More than Moments* assists educators to have constructive conversations with parents *Working on Concerns* the third component, addresses working collaboratively with parents on an issue requiring more intensive, and possibly longer-term, attention. Practice coaches support educators to do this with scheduled coaching sessions to plan approaches, demonstrate and role-play strategies and reflect on actions taken.

Measures

Information was collected online via a secure data capture system at the three time points. Each questionnaire took about 10-15 minutes to complete. Both educator and parent questionnaires included a number of demographic items, as detailed in the participant section of this paper.

Educator questionnaire (collected at Time 1, Time 2, and Time 3)

Using a variety of response types (e.g., Likert scales, dichotomous and open text responses) educators reported on their relationships with parents, how they engage families, and confidence in communicating with families. Educators were also asked about their skills and confidence in their interactions, specifically where a concern was discussed. Items were derived from a variety of sources. Some items were devised by the project team, others were taken from the AusParenting in Schools Teacher Survey (Giallo et al., 2010) and from our earlier ECEC Exploratory Study (Parenting Research Centre, 2016).

Process questionnaire items collected at Time 2 and Time 3 only measured educator's confidence in, and intention to create, a positive relational environment using the *Making Moments Matter* component of the service support system and their confidence and intention to use the *More than Moment* strategies.

Parent questionnaire (collected at Time 1, Time 2, and Time 3)

At each time point we asked parents about their relationship with educators, how welcome they felt at the service, how satisfied they were with the way educators communicate with them. Some items were devised by the project team and some were adapted from the Parenting Today in Victoria survey (Wade et al., 2018) conducted by the PRC, the Me as a Parent Scale (Hamilton et al., 2015), and the ECEC Exploratory Study (Parenting Research Centre, 2016). Parents were asked whether they had raised a

concern with an educator and/or an educator had raised a concern with them, and how many times this occurred within the past 4 weeks. If this occurred, they were asked how satisfied they were with the interaction.

Procedure

See Petrovic et al. (2019) for eligibility and recruitment of services and participants.

Intervention Implementation

To embed *Partnering with Parents* within their service, practice coaches initially completed interactive e-learning tasks. This was followed by a face-to-face group training session, group and individual phone consultations, and webinars. There were several resources practice coaches were encouraged to use and share with all educators in their service, such as posters, information sheets, reflection guides, flowcharts, and a coaching manual. Resources were encouraged to be used flexibly in line with what the practice coach and the centre decide will best suit them. Practice coaches were supported to engage in *Partnering with Parents* activities by regular telephone contact with PRC project team members.

Statistical Methods

The following scales were calculated from individual items for the purposes of multi-level modelling. For educators, scales were created for three primary outcome measures, educator confidence and skills in working with parents (ConfidenceSkill), educator's perception of the centre's relational environment (Environment) and educator's perceptions of the quality of the educator-parent relationships at the centre (Relationship). These scales were calculated using the averages for item responses obtained on a discrete ordinal scale with 5 providing strong positive support and one providing strong lack of support. The number of items considered for the ConfidenceSkill, Environment and Relationship measures were 8, 3 and 3 respectively with these items (see Appendix A). A reliability analysis (Cronbach alpha) was used to justify the exclusion of one item for each of the Environment and Relationship measures. Summary statistics for these scales are provided in Appendix B.

For parents, scales were created for two primary outcome measures, satisfaction with parent-educator relationship (Communication) and parent's perception of the relational environment (RelEnv). A scale was also calculated for parenting self-efficacy (SelfEff) as a secondary measure. These scales were calculated using the averages for item responses obtained on a discrete ordinal scale with 5 providing strong positive support and one providing strong lack of support. The number of items considered for the Communication and RelEnv scales was 6, with four items for SelfEff. In addition, scales consisting of two single items measured on a five-point scale were developed for Parenting Stress (Stress) and Parenting Rewards (Rewards). A 10-point scale for satisfaction with interactions when there were concerns raised by the educator (SatEduConcern) and by the parent (SatParConcern) were also considered as primary outcome measures. Finally, two single items measures on a 5-point scale were collected, the first dealing with the ability of the centre to connect parents to helpful advice (Connect) and the second considering the confidence of the parent in finding such advice when needed (Confidence). The items used in these outcome measures can be found in Appendix C.

Statistical Analysis

We report descriptive statistics for the demographic data and Chi-square tests were used to test for significant differences between the groups in terms of staff perceptions of skill changes after intervention. The following statistical procedures relate to the multi-level analysis conducted to explore the effect of intervention. Severe skewness in the scale measures described above suggested appropriate transformations to make assumptions of normality more reasonable. In the final analysis one centre was excluded because it did not complete the intervention although it had consented to this allocation. This left a total of 18 services to consider.

Failure to complete the Time 2 and Time 3 questionnaires was a concern so drop-out rates were compared across centres and allocations at both times. In addition, nonparametric Mann-Whitney tests and chi-squared tests of association were conducted to establish whether drop-out could be related to any of the demographic or baseline variables. It was also important to compare the group allocations in terms of these variables using a similar approach, to establish the need for any control variables in the ensuing group comparisons.

An intention-to-treat multi-level model analysis (Raudenbush & Bryk, 2002) was conducted for each of the educator and parent outcome measures with level 1 data reflecting each assessment period, level 2 data reflecting individual educator or parent characteristics and level 3 data reflecting the centres described above. This analysis assumes that data are missing at random at assessment Times 2 and 3, with a normal distribution for the outcome measures. It allows for the lack of independence in the data by accounting for any similarity in the characteristics of educator or parent at the same centre over time. The initial random intercept models established the proportion of variance explained at each of the above levels. Next an analysis was run comparing only baseline and Time 2 results with the study group variable (control = 3, intervention = 9) included as a fixed effect at level 3 and a time variable (1 = baseline, 2 = Time 2) included as a random effect at level 1. Control variables were included at level 2 as required. A third model explored the effect of several other fixed effects for the level 2 educator or parent variables to determine if any demographic or process variables moderated the effects of the intervention. A final two models explored the significance of time 3 effects separately for the control and intervention group, evaluating the impact of the intervention for the control group and the longer-term effects of the intervention for the intervention group. Significant moderation effects were illustrated using appropriate plots. IBM SPSS version 26 and HLM version 7 software were used for the analysis.

Results

Following a summary of our attrition analysis, the results section first presents descriptive statistics about characteristics of educators and parents. Next, there are summaries of responses from educators and parents after educators received the intervention, illustrating what they thought of their experience of *Partnering with parents* and demonstrating the level of acceptability of the intervention. Following this we present the results of the multi-level modelling designed to reveal whether there was an intervention effect, taking into account cluster factors and other confounding effects.

Attrition Analysis

Attrition rates for educators did not differ significantly between the intervention and control groups, with drop-out rates of 44.6% and 57.1% for the intervention group at times 2 and 3, and 38.3% and 43.3% for the control group at times 2 and 3. No consistent demographic relationships with educator drop-out were found at times 2 and 3.

Similarly, attrition rates for the parents did not differ significantly between the intervention and control groups with drop-out rates of 29.5% and 32.6% for the intervention group at times 2 and 3, and 17.0% and 25.7% for the control group at times 2 and 3. No consistent demographic relationships with parent drop-out were found at times 2 and 3.

Educators' Perceptions of Skills Change

This is about the extent to which educators, including practice coaches, perceived they changed the way they worked with parents and the extent of their skill improvement having received the intervention. These data are not included in the multi-level modelling.

Following the initial intervention period at Time 2, both the intervention and control groups were asked whether they had changed the way they interacted with parents from Time 1 to Time 2. At that time the control group had not yet received the intervention. More than three quarters of the intervention group (77.4%) and 27% of the control group said they had changed the way they interacted with parents. This difference was statistically significant, $\chi^2(1, N = 68) = 17.13, p < .001$. When the control group had completed the intervention at Time 3, 83% said they had changed the way they interacted with parents.

Combining responses of the intervention and control groups at Time 2, there was a significant finding for staff years of experience, with staff who had more years of experience more likely to say they had not changed the way they interacted with parents. The mean number of years' service for those who said 'Yes' – they had changed the way they interacted with parents – was 10.21 years. The mean years of experience for those who said 'No' was 17.97 years, $F(1, 65) = 8.82, p = .004, \eta^2 = .12$.

At Time 2 participants in the intervention and control groups rated the extent to which they felt their skills in working with parents, and the skills of other staff at the centre, had improved since Time 1 (Table 1). Ratings were on a 5-point scale from 1 (*much better*) to 5 (*much worse*). At Time 2, 100% of practice coaches in the intervention group said they had changed the way they interacted with parents since Time 1. This compared with 61.1% of non-coaches and the difference was statistically significant

$\chi^2 (1, N = 24) = 6.53, p = .011$. One hundred percent of practice coaches also perceived their skills were 'much better' or 'somewhat better' and thought the skills of other staff in the centre were 'much better' or 'somewhat better'.

At Time 2, differences between the intervention groups rating of their own skills compared to the control group were statistically significant, $\chi^2 (2, N = 68) = 10.33, p = .006$. There were also significant differences between the intervention and control groups in the extent to which they rated improvement in the skills of the staff at the centre as a whole, $\chi^2 (2, N = 68) = 13.50, p = .001$.

At Time 3, which was immediately after the control group completed the intervention, participants in the control group were asked to rate their skills in working with parents compared with when they commenced the intervention. More than 90% (91.4%) rated their skills as 'much better' or 'somewhat better' and 8.6% 'the same'. Control group participants also rated the extent to which the staff at their centre had improved their skills in working with parents since receiving the intervention. More than 90% (94.3%) said 'much better' or 'somewhat better'.

Parent data showed, at Time 2, intervention parents rated their interactions with their child's educator more positively after the intervention period; 43.7 % said 'much better' or 'somewhat better' compared with 31.9% of the control group. This difference was statistically significant $\chi^2 (3, N = 237) = 9.999, p = .019$.

Use of Resources

This addresses questions about the extent to which practice coaches and educators used resources and found components of the practice support system useful.

Table 2 shows the percentage of practice coaches who indicated they had used the program resources for *Making Moments Matter* and *More than Moments* at Time 2 (intervention group only) and Time 3 (intervention and control groups).

At Time 2, the intervention group educators who were not practice coaches also indicated which of the resources they had used for *Making Moments Matter* and *More than Moments* in the previous 10 weeks. At Time 3 the control group non-coaches indicated which resources they had used in the 10 weeks before filling in the survey. Though not mandated to do so, many of these educators reported using *Making Moments Matter* resources. For example, at Time 2, information sheets were used by 65.5% of non-coaches, and more than 50% had used the posters and weekly reflection guides. The least used resources were online materials (29%) and the practice coaching manual (29%). Similar, but slightly higher percentages were found for the control group non-coaches at Time 3. For example, 38.9% used the online materials, 44.4% used the practice coaching manual, 69.4% used the weekly reflection guides and 63.9% used posters.

For *More than Moments*, 38.7% of the non-coaches in the intervention group at Time 2 had used the reflection guides and 32.1% the interactive videos. Just above 20% had used the consultation guide and flowcharts. More than a quarter (25.8%) had used the practice coaching manual. More of the control group educators at Time 3 reported using the resources. For example, of the non-coaches, 61.1% had used the reflection guides and 44.4% the interactive videos. Fifty percent had used the practice coaching manual, 41.7% the flowcharts and 41.7% the consultation guide.

Educator Satisfaction

There were three aspects to our analysis of educator satisfaction: Intention to use the strategies; feeling they were doing something positive when using the strategies; and how easy the strategies were to use. These questions were asked about *Making Moments Matter* and *More than Moments*.

Intention to use

Following intervention, both intervention and control group participants were asked if they planned to use the strategies with families in future. These items were rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Table 3 shows percentages of responses for the intervention and control groups at times 2 and 3 for *Making Moments Matter* and *More than Moments*. None of the participants responded 'disagree' or 'strongly disagree' for these items.

At Time 3, there was a statistically significant difference between control group coaches and non-coaches on intention to use the *More than Moments* strategies $\chi^2 (1, N = 31) = 5.427, p = .02$. Seventy

five percent of coaches 'strongly agreed' they planned to use these strategies compared with 33.3% of non-coaches. Non-coaches were more likely to say they 'agreed' (66.7%).

Doing Something Positive

Educators rated the extent they agreed they were doing something positive if they used *Making Moments Matter* and *More than Moments*. Participants responded on a 5-point agreement scale. At time 2, 42.3% of the intervention group agreed and 53.8% strongly agreed they felt they were doing something positive when using *Making Moments Matter*. Similar results were found with the control group; 29% agreed and 67.7% strongly agreed. In the intervention group 3.8% strongly disagreed and 3.2% of the control group strongly disagreed. For *More than Moments*, none of the educators disagreed or strongly disagreed, 48% of the intervention group agreed and 48% strongly agreed they felt they were doing something positive. All of the control group either agreed (45.2%) or strongly agreed 54.8%.

Although coach and non-coach responses were all in the 'agree/strongly agree' range, coaches were more likely to 'strongly agree' they were doing something positive when using both strategies. At Time 3, the control group coaches had higher agreement scores than non-coaches for *Making Moments Matter*. More than 80% (87.5%) of coaches 'strongly agreed' compared with 46.7% of non-coaches, $\chi^2(2, N = 31) = 6.085, p = .048$. For *More than Moments*, 93.8% of coaches 'strongly agreed' compared with 26.7% of non-coaches, $\chi^2(1, N = 31) = 14.685, p = .000$.

Ease of use

Educators rated on a 5-point scale from 'very easy' to 'very difficult' how easy *Making Moments Matter* was to use. No participants rated it 'difficult' or 'very difficult'. Using the same scale, participants rated how easy *More than Moments* was to use (intervention group at Time 2, control group at Time 3).

At Time 2, the intervention group rated *Making Moments Matter* easy to use (50%) or very easy to use (15.4%). More than a third (34.6%) found it neither easy nor difficult. At Time 3, the control group rated the strategies easy to use (36.7%) and very easy to use (43.3%); 20% found them neither easy nor difficult. For *More than Moments*, the intervention group rated it easy to use (58.3%), very easy to use (16.7%) or neither easy nor difficult (25%). The control group at Time 3 rated it easy (54.8%), very easy (28.8%) and neither easy nor difficult (19.4%).

For the intervention group at Time 2, there was a difference between coaches' and non-coaches' ratings of how easy *More than Moments* was to use. Of coaches, 81.3% thought it was 'very easy' compared with 25% of non-coaches $\chi^2(2, N = 24) = 6.238, p = .044$.

At Time 3, there was a significant difference between control group coaches and non-coaches for how easy *Making Moment Matter* was to use. All coaches rated it either 'easy' or 'very easy' compared with 57.2% of non-coaches, $\chi^2(2, N = 30) = 8.646, p = .013$. Similarly, 100% of control group coaches found *More than Moments* 'very easy' or 'easy' to use compared with 60% of non-coaches $\chi^2(2, N = 31) = 8.506, p = .014$.

Next, educators rated their level of agreement that *Making Moments Matter* improved their own and the centre's work with parents (see Table 4).

Table 5 shows the agreement ratings for participants' perceptions that *More than Moments* had improved their own work and the work of their centre.

This table shows most of the intervention and control group educators were in high agreement that *Making Moments Matter* and *More than Moments* had improved their own work and the work of their centre. There were small percentages who had mixed feelings and one who selected 'strongly disagree' (control group Time 3) regarding improvement in their own work.

The remainder of the results present findings related to the multi-level modelling, addressing research questions 3, 4, & 5, establishing whether there is an intervention effect and whether there were any moderation effects.

Baseline Comparison of Groups

To establish whether control variables were needed in the multi-level analysis, comparison of control and intervention group variables was undertaken.

The only educator variable that differed significantly between the groups at baseline was age ($t(107) = 3.092, p = .003, d = 0.59$). The mean age for the control group educators was 44.0 years ($SD = 11.31$

years) and the mean age for the intervention group educators was 37.5 years ($SD = 10.25$ years). This variable was therefore controlled for in the ensuing multi-level group comparison for the educator scales.

However, significant differences between the groups were detected for the mean age of the child ($F(1,284) = 14.82, p < .001, \eta^2 = 0.05$), resulting in significant differences in terms of the type of service ($\chi^2(2, N = 303) = 73.36, p < .001$) and years at the centre ($\chi^2(6, N = 303) = 22.7, p < .001$). The mean age of the child for the control group was 3.28 years ($SD = 1.19$ years) and the mean age for the intervention group was 2.67 years ($SD = 1.45$ years). For the intervention group 68% of children were in long day care compared with only 31% of the control group; 60% of the control group were in kindergarten compared with 11.5% of the intervention group. Finally, 20.6% of the intervention group was in a combined kindergarten and long day care centre as opposed to only 9.3% for the control group. No other significant differences were observed for the two groups at baseline. For this reason, only child age and type of service were considered as control variables in the ensuing multi-level modelling group comparison for the parent scales.

Multi-level Analysis for Percentage Variation Explained

As shown in Table 6, although the percentage of variation explained by the centres for the educator and parent outcome measures was relatively low, for several of the measures it exceeded 5%, indicating that a 3-level multi-level modelling analysis was required. For several of the outcome measures the variation in the responses of parents and educators exceed the variation in responses at times 1, 2 and 3, indicating the importance of individual differences in respondents.

Multi-level Analysis for Groups at Time 1 and 2

As shown in Table 7, although educators in the intervention group experienced greater improvements in their outcome measures between times 1 and 2 these changes were not significantly greater than for the control group. Similarly, for the parent outcome measures, the change scores were not significantly better for the intervention than the control group; indeed, the intervention group of parents saw a significantly greater increase in stress than the control group.

Moderation Test Results for Time 1 and 2

As illustrated in Figure 2, the effectiveness of the intervention in growing confidence and skills of educators in working with parents depended on how many days they worked at the centre. The effect of the intervention was negative for those working only one day per week at a centre.

As illustrated in Figure 3 it was found the effectiveness of the intervention in terms of parenting reward depended on how many days children attended their centre. For the control group there was a significant decline in parenting reward for children who attended their centre for 5 days per week. The effect of the intervention was to effectively remove this effect, with negligible change in parenting reward regardless of the number of days the child attended the centre.

What follows is an analysis of results for the control group at times 2 and 3, before and after they received the intervention (see Table 8). A multi-level approach was used, as in the previous analyses, taking into account centre and individual factors as well as time.

Separate Multi-Level Analysis for Control Group at Times 2 and 3

Improvements were obtained from the educator outcome measures with no significant results for the parent outcome measures.

Discussion

This trial evaluated the effectiveness of the *Partnering with Parents* practice support system by examining both educator and parent self-report data in several ways. First, following intervention, we looked at whether educators reported skill change for themselves and their fellow educators. We also examined whether parents rated their interactions with their child's educator more positively after the intervention period. Second, we addressed intervention acceptability using educators' reports on which components of *Partnering with Parents* they used, ease of use and intention to use in future, and whether they felt they were doing something positive if they implemented the strategies. Third, we

tested the effectiveness of the intervention relative to an active control group using multi-level analysis followed by an examination of factors which moderated these effects.

The strengths of the design include the cluster randomization of services rather than individuals, which avoided contamination bias. We also decided to report an analysis of the effect of the intervention on the control group, which received the intervention after the intervention group. Although it is unusual to report intervention findings for a control group, other RCTs have found merit in doing so (e.g., Kyrios et al., 2018). Further strengths were employment of a voluntary and anonymous online survey method which meant data collection was not dependent on participants being present at a particular time or day, cited as a limitation by others (Toussaint et al., 2020). Flexibility in time and place to respond to questionnaires has the potential to reach more participants. Finally, our recruitment process involved broad sampling methodology where an initial invitation to express interest in participation was offered to all long day-care and kindergarten services in the state of Victoria. All who responded to the initial call for expressions of interest were considered for inclusion.

Educators' Perceptions of Skills Change

After intervention, before the control group received *Partnering with Parents*, significantly more educators in the intervention group than the control group reported they had changed the way they interacted with parents. All practice coaches reported they changed the way they interacted with parents, significantly more than the approximately two-thirds of those who were non-coaches who said they had changed. This finding shows that although the intervention is designed to have an impact on the skills and confidence of all educators in a service, change is likely to be greater for those educators with roles such as room leaders and educational leaders. Educators in these roles are most likely to be raising and responding to parent concerns and working with parents on issues together – the target areas of the intervention.

Examination of skills in working with parents among all educators in the trial revealed, at Time 2, those in the intervention group rated their own skills, as well as the skills of all staff at their centre, as improved more than the control group did; this was statistically significant. Consistent with this was the difference between the ratings of intervention group and control group parents at Time 2. A significantly greater proportion of intervention parents rated their interactions with educators more positively than control group parents did. Of relevance is that parents were not informed of their trial allocation and both groups completed exactly the same questionnaires at the same time.

Control group educators' skill ratings also increased somewhat during this time despite them not receiving the intervention. This is likely associated with influences other than the intervention, such as having the same opportunity as the intervention group to build relationships with the parents from Time 1 to Time 2. This speaks to the known importance for working with parents of building relationships (Owen et al., 2000).

Acceptability of Intervention

We examined acceptability in a number of ways – use of resources, intention to use strategies in future, ease of use, extent to which participants felt they were doing something positive when using the strategies, finding high levels of acceptability. Practice coaches were not mandated to use *Partnering with Parents* resources and were encouraged to use them flexibly. Despite this, high numbers of practice coaches reported using both *Making Moments Matter* and *More than Moments* resources. Further, educators who were not practice coaches, who received resources through their practice coaches, reported moderate use, suggesting the intervention resources were acceptable to them. Interestingly, the analysis of control group use of resources once they received the intervention revealed significantly higher use of resources among this group compared with the intervention group. The higher use of resources among the control group could also contribute to the significant effects shown via the multi-level modelling on the impact of the intervention on this group. It also suggests that not all resources need to be used to achieve an intervention effect.

Effect of Intervention Using Multi-Level Analysis

There were minimal changes observed in outcome measures for the intervention group educators between times 1 and 2, and there was no significant difference between intervention and control groups. So it is clear there was no demonstration of an intervention effect when this was tested with such a robust research design.

Similarly, for the parent outcome measures, the change scores were not significantly better for the intervention than the control group. Indeed the intervention group of parents saw a significantly greater increase in stress than the control group from Time 1 to Time 2. As parents were unaware of their trial allocation, it is possible this was associated with factors other than the intervention, such as time of year. Further, this significant increase in parenting stress did not occur when the control group received the intervention, suggesting parental stress was not associated with the intervention. However, investigations about the effects on parent stress when service supports are in place is warranted in future research.

Failure to find significance in educator outcomes can be explained in part by a ceiling effect, that is, insufficient room at the upper end of the score scale to enable a difference to be measured (Ho & Yu, 2015). In our study, educators rated themselves highly on measures before they received the intervention, which may have been an overestimation of their skills and confidence (Kostons et al., 2009; Zell et al., 2020).

After receiving the intervention, it is possible educators redefined their standards, resulting in intervention outcomes being understated. Research has shown it is difficult to obtain accurate self-assessment of skill, particularly before respondents know what the intervention aims to achieve or what standards are being applied (Dunning et al., 2003; Kostons et al., 2009). Educators in our study reported positive change in their skills and confidence post-intervention, which supports an argument that they re-assessed their skills and confidence according to the standards in the intervention.

Another possible reason for the ceiling effect is that most educators held a diploma or more advanced qualification. These are likely to be educators with more confidence or skill in general, which may translate to their work with parents.

Our study was an effectiveness trial under 'real-world' conditions. Effectiveness studies often produce smaller effects than efficacy studies conducted under strictly controlled conditions (Curtis et al., 2004; Lösel & Beelmann, 2003). Failure to find an intervention effect could also be accounted for by the fact our intervention was an enhancement to usual practice in ECEC settings and these services are required, by accreditation standards, to work collaboratively with families under normal circumstances.

The active control group engaged in usual practice while waiting for the intervention. Thus this control group was not a passive condition but an active comparator. According to Freedland et al. (2011) trials with active control groups can be affected by post-randomization confounding. Thus, there may be different effects on the non-intervention condition resulting in differential intensification or differential abatement of 'nonstudy care'. Although unintentional, these effects can bias trial outcomes. Because of variability in practice across services, others have stated it is reasonable to assume this design will generally produce smaller effects (Freedland et al., 2011; Löfholm et al., 2013).

Despite the complication of a ceiling effect, significant differences were shown in multi-level analysis of the control group intervention outcomes.

Control Group Intervention Effects

Although the intervention group showed no significant differences in outcome measures at Time 2 compared with the control group, there was a statistically significant increase in control group educator outcome measures when they received the intervention. A possible reason relates to the notion of 'dosage'. As an enhancement to usual practice we can consider the intervention to be a combination of usual practice plus service enhancement. The intervention group had 10 weeks of usual practice including the service enhancement at the beginning of the service year. The control group received the intervention after this time so by the end of their intervention period had engaged in 20 weeks of usual practice including a 10-week service enhancement.

Moderation

Only two of the variables tested for moderation of outcomes showed statistically significant findings. The first related to the time fraction of the educators in their service. Results showed better effects occurred when educators worked 2 or more days per week, with the best results for 3 and 5 days. Our intervention was not successful with staff employed on very small time fractions. Therefore, it would be incumbent on services to pay particular attention to the increased training and supervision needs of these staff. The second moderation effect was seen in parents' ratings of how enjoyable and rewarding they found parenting (parenting rewards variable). In the control group the more days their child was at the centre the less parenting enjoyment and reward was reported. However, the intervention countered

this effect with stable reporting of parenting rewards, regardless of the number of days their child attended the centre. Regardless of whether this finding is associated with our intervention, it would be helpful for services to enquire how parents are faring and provide additional support, particularly to parents who may be working outside the home full time.

Limitations

To our best knowledge, this is the first published report of a cRCT of an intervention designed to increase the skills and confidence of early childhood educators in their work with parents. There are several limitations to note for any future cRCTs of this nature. We did not clarify what practice was occurring in the different services in the control condition while they were waiting for the intervention. Even though we employed strict randomization processes, there may have been some post-randomization confounding (Freedland et al., 2011). It may be the case, compared with services in the intervention group, that some control services were already engaging in exemplary practice. If we had collected information on typical practice within the various centres, we may have been better placed to understand the non-significant effect at Time 2. Future research on this practice support system should gather this information or implement the intervention in services that demonstrate less than optimal practice in this area.

Another limitation of note is use of self-report measures, as well as the voluntary nature of participation in the evaluation, which may lead to social desirability bias. Although we attempted to guard against social desirability bias by stating that management would not be informed of individual participant results, there is a possibility that this influenced responses.

Conclusions

We failed to demonstrate an intervention effect using a cluster randomised control design and multi-level modelling. However, there was a strong indication of intervention acceptability, and intervention effects were seen in the control group. Thus, there is potential for further investigation of this intervention, using measures that are less amenable to ceiling effects and which assess performance as well as perception.

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Table 1

Intervention (n = 31) and control (n = 37) groups' ratings at Time 2 of improvement in their skill and in the skills of centre staff (%)

Rating	Own skills		Skills of other staff	
	Intervention	Control	Intervention	Control
Much better	32.3%	24.3%	35.5%	21.6%
Somewhat better	54.8%	27.0%	54.8%	27.0%
The same	12.9%	48.6%	9.7%	51.4%
Somewhat worse	0%	0%	0%	0%
Much worse	0%	0%	0%	0%

Table 2

Practice coaches' use of resources at Time 2 & Time 3

Resource	Time 2	Time 3	Resource	Time 2	Time 3
	Intervention	Control		Intervention	Control
	(n = 13)	(n = 16)		(n = 13)	(n = 16)
<i>Making Moments Matter</i>			<i>More than Moments</i>		
Online materials	53.8%	75.0%	Interactive videos	69.2%	81.3%
Information sheets	92.3%	81.3%	Reflection guides	53.8%	87.5%
Posters	100.0%	87.5%	Webinar	69.2%	81.3%
Weekly reflection guides	76.9%	87.5%	Flowcharts	38.5%	68.8%
Practice coaching manual	53.8%	87.5%	Consultation guide	38.5%	68.8%
			Practice coaching manual	46.2%	87.5%
Not sure	0.0%	0.0%	Not sure	7.7%	6.3%
Haven't used	0.0%	0.0%	Haven't used	7.7%	0.0%

Table 3*Intention to use Making Moments Matter and More than Moments in the future (%)*

Rating	<i>Making Moments Matter</i>		<i>More than Moments</i>	
	Time 2	Time 3	Time 2	Time 3
	Intervention (<i>n</i> = 25)	Control (<i>n</i> = 32)	Intervention (<i>n</i> = 25)	Control (<i>n</i> = 31)
Strongly agree	40.0%	56.3%	40.0%	54.8%
Agree	44.0%	34.4%	44.0%	45.2%
Mixed feelings	16.0%	3.1%	16.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Strongly disagree	0.0%	6.3%	0.0%	0.0%

Table 4

Making Moments Matter & improvement of own and centre's work at Time 2 & Time 3 (%)

Rating	My own work improved		My centre's work improved	
	Time 2 Intervention (n = 25)	Time 3 Control (n = 30)	Time 2 Intervention (n = 25)	Time 3 Control (n = 30)
Strongly agree	36.0%	60.0%	36.0%	60.0%
Agree	44.0%	30.0%	60.0%	26.7%
Mixed feelings	16.0%	6.7%	4.0%	10.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Strongly disagree	4.0%	3.3%	0.0%	3.3%

Table 5

More than Moments & improvement of own work & centre's work at Time 2 & Time 3 (%)

Rating	My own work improved		My centre's work improved	
	Time 2	Time 3	Time 2	Time 3
	Intervention (<i>n</i> = 24)	Control (<i>n</i> = 29)	Intervention (<i>n</i> = 24)	Control (<i>n</i> = 30)
Strongly agree	37.5%	58.6%	29.2%	53.3%
Agree	54.2%	34.5%	58.3%	33.3%
Mixed feelings	8.3%	3.4%	12.5%	13.3%
Disagree	0.0%	0.0%	0.0%	0.0%
Strongly disagree	0.0%	3.4%	0.0%	0.0%

Table 6

Percentage variation explained by each of the levels

Outcome Measures	Percentage Variation Explained by Level (%)		
	Time	Respondent	Centre
Educator			
Confidence and skills in working with parents (ConfidenceSkill)	30.2	66.6	3.3
Perception of the centre's relational environment (Environment)	41.1	46.5	12.4
Perceptions of the quality of the educator-parent relationships (Relationship)	59.7	32.5	7.9
Parent			
Centre will connect with help (Connect)	51.46	38.86	9.68
I know where to seek help (Confidence)	47.18	52.08	0.75
Satisfaction with interactions when educator raised a concern with you (SatEduConcern)	23.22	63.68	13.10
Satisfaction with interactions when you raised a concern with educator (SatParConcern)	48.35	43.26	8.39
Parent self-efficacy (SelfEff)	26.99	71.27	1.74
Parenting stress (Stress)	27.32	72.66	0.02
Parent-educator relationship satisfaction (Communication)	32.83	58.73	8.44
Parent's perception of the relational environment (RelEnv)	41.64	51.59	6.77
Parenting reward (Reward)	25.77	74.22	0.01

Table 7

Multi-level analysis for testing efficacy of intervention relative to controls

Outcome Measures	Coefficient (SE ¹)	Time*Group Interaction Fixed Effect		
		t-ratio	df	p
Educator				
Confidence and skills in working with parents (ConfidenceSkill)	3.57 (4.44)	0.804	44	.436
Perception of the centre's relational environment (Environment)	6.52 (6.86)	0.950	44	.347
Perceptions of the quality of the educator-parent relationships (Relationships)	4.08 (7.90)	0.517	44	.608
Parent				
Centre will connect with help (Connect)	0.07 (.10)	0.733	197	.464
I know where to seek help (Confidence)	-2.11 (5.14)	-0.410	197	.682
Satisfaction with interactions when educator raised a concern with you (SatEduConcern)	-8.94 (85.05)	-0.105	83	.917
Parent self-efficacy (SelfEff)	0.04 (0.06)	0.561	201	.576
Parenting stress (Stress)	1.54 (.56)	2.768	201	.006
Parent-educator relationship satisfaction (Communication)	0.13 (3.39)	0.040	197	.968
Parent's perception of the relational environment (RelEnv)	0.47 (3.60)	0.132	197	.895
Parenting reward (Reward)	1.92 (3.49)	0.549	201	.584
Satisfaction with interactions when you raised a concern with educator (SatParConcern)	-102.42 (69.95)	-1.464	191	.145

Note. ¹SE = standard error.

Table 8*Control group intervention effects (Time 3 versus Time 2)*

Outcome Measures	Coefficient (SE ¹)	Improvement from Time 2 to Time 3		
		<i>t</i> -ratio	df	<i>p</i>
Educator				
Confidence and skills in working with parents	13.91 (3.81)	3.648	54	<.001
Perception of the centre's relational environment	17.62 (5.00)	3.525	54	<.001
Perceptions of the quality of the educator-parent relationships	13.37 (5.12)	2.611	54	.012

Note. ¹SE = standard error.

Figure 1

Trial flowchart

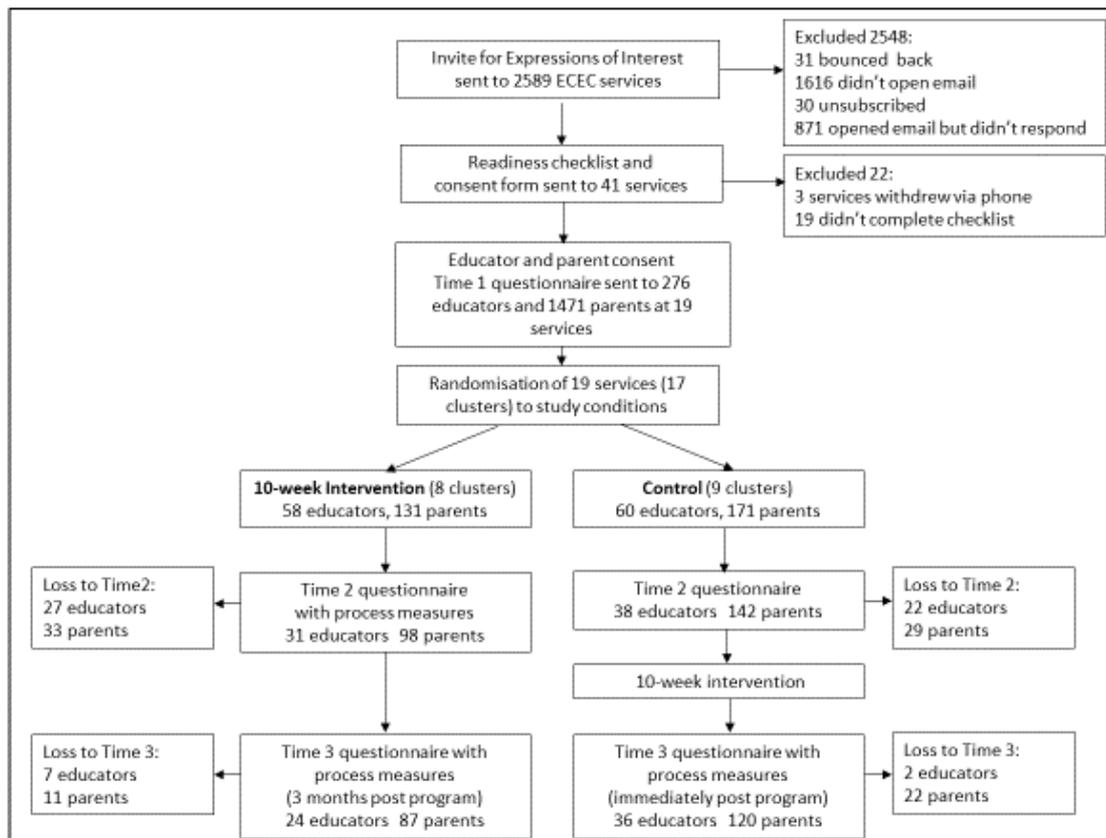


Figure 2

Moderation effect of days worked per week for confidence and skill in working with parents ($p=0.002$)

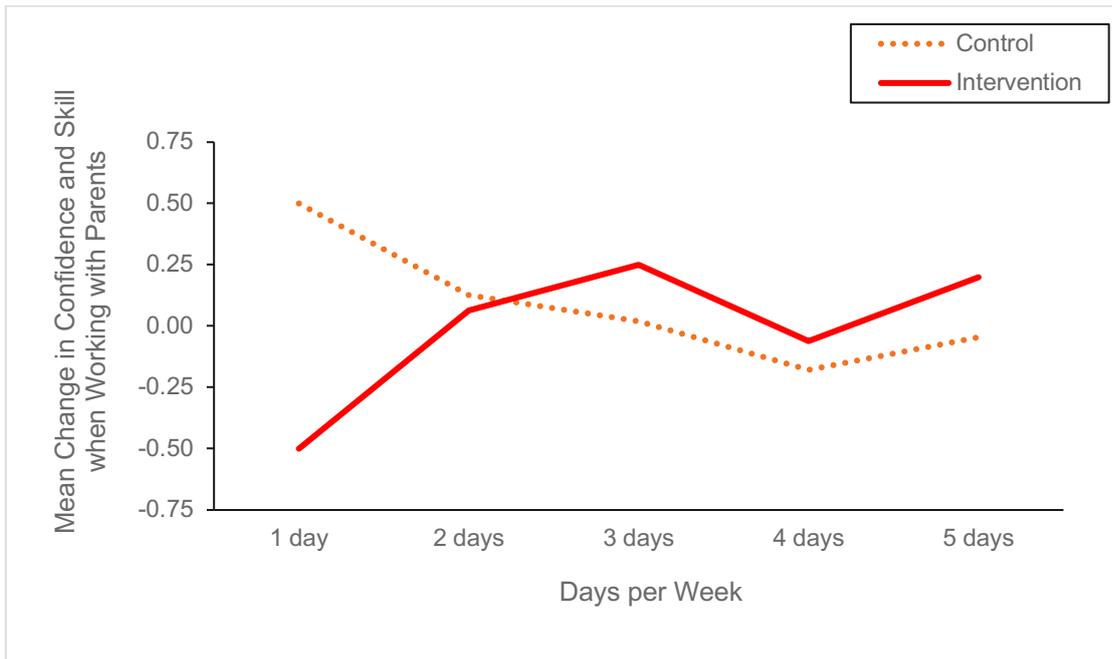
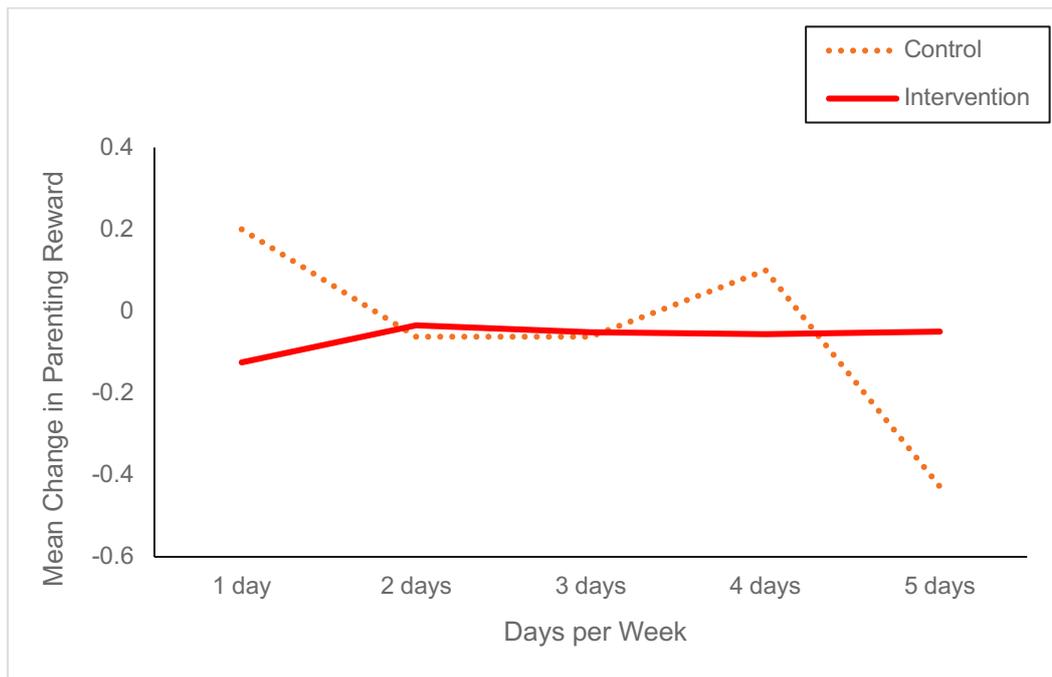


Figure 3

Effect of days per week attendance on parenting reward/enjoyment ($p = 0.048$)



Appendix A

Educator Measures

Confidence Skill (Educator's Confidence and Skills in Working with Parents)

- I make all parents feel welcome and valued
- How confident are you to raise a concern with a parent about their child?
- How confident are you to greet parents by name?
- How confident are you to respond to a parent's concerns about their child?
- How confident are you to communicate with a parent from a different culture?
- How confident are you to get parents involved in the activities at the centre?
- How confident are you to talk with parents about children's successes and achievements
- I am confident to partner with parents to work on issues together

Environment (Educators' Perceptions of the Centre's Relational Environment)

- The centre management demonstrates a collaborative attitude to working with parents
- The centre places a high value on parental involvement
- The centre supports me to develop meaningful relationships with parents

Relationship (Educators' Perceptions of Quality of Educator-parent relationships at the centre)

- Educator-parent interactions at this centre are frequent enough to meet families' needs
- The quality of educator-parent interactions at this centre meets families' needs
- The children's needs are managed collaboratively between parents and educators

Appendix B

Descriptive Statistics for Educator Outcome Scales (T1=Time 1, T2=Time 2, T3=Time 3)

Outcome Measures	Control group			Intervention group			
	N	M (SD)	Skew ¹	N	M (SD)	Skew ¹	α^2
T1ConfidenceSkill	60	4.11 (0.54)	-0.661	56	4.20 (0.58)	-1.202	0.842
T2ConfidenceSkill	37	4.11 (0.50)	-0.627	31	4.17 (0.54)	-1.183	0.841
T3ConfidenceSkill	34	4.40 (0.48)	-1.435	24	4.24 (0.63)	-0.865	0.842
T1Environment	60	4.37 (0.62)	-0.552	56	4.43 (0.53)	-0.772	0.838
T2Environment	37	4.31 (0.57)	-0.385	31	4.41 (0.61)	-0.562	0.839
T3Environment	34	4.67 (0.49)	-1.188	24	4.32 (0.64)	-0.497	0.854
T1Relationship	60	4.17 (0.69)	-0.840	56	4.36 (0.52)	-0.332	0.703
T2Relationship	37	4.22 (0.59)	-0.398	31	4.32 (0.56)	-1.336	0.736
T3Relationship	34	4.41 (0.63)	-1.330	24	4.40 (0.55)	-0.428	0.780

Note. ¹Skew = skewness coefficient, ² α = Cronbach's alpha.

Appendix C

Parent Measures

Parent-educator relationship: Satisfaction with interactions/communication with their child's educator & quality of the relationship (Communication)

I am satisfied with the way the educators communicate with me in general

The quality of educator-parent interactions at this centre meet my family's needs

Educator-parent interactions at this centre are frequent enough to meet my family's needs

I receive positive feedback and encouragement from educators at this centre

I can trust educators at this centre

I feel comfortable talking with my child's educator about my child

Parents' perceptions of the relational environment at their centre (RelEnv).

I am always made to feel welcome by staff at this centre

Educators are available when I need to talk to them at this centre

Management at this centre are available when I need to talk to them

I am seen as the expert on my child at this centre

I feel like a real contributor to my child's learning and care at this centre

I feel that I can participate in decisions that affect my child at this centre

Me as a Parent short form scale (SelfEff)

I have confidence in myself as a parent

I know I am doing a good job as a parent

I have all the skills necessary to be a good parent to my child

I can stay focused on the things I need to do as a parent even when I've had an upsetting experience

Parenting Stress (Stress)

Parenting is stressful

Parenting is demanding

Parenting Rewards (Rewards)

Parenting is enjoyable

Parenting is rewarding
