



PARTNERSHIPS IN
EARLY CHILDHOOD
PROGRAM

FINAL EVALUATION REPORT

**PREPARED FOR THE BENEVOLENT
SOCIETY**

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Executive Summary

The Benevolent Society works in partnership with Wyong Shire Council, Campbelltown City Council, KU Children's Services and Lady Gowrie Child Centre to deliver Partnerships in Early Childhood (PIEC) in 14 long day centres and preschools (referred to hereafter as centre-based children's services). The PIEC program is funded under the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs, Stronger Families and Communities Strategy (SFCS), Invest to Grow Initiative. The Social Policy Research Centre has been contracted to evaluate the program.

PIEC builds on the existing strengths, skills and resources of major child care providers to promote strong, healthy relationships between children, child care centre staff, families and communities. It achieves this by placing a child and family worker in the child care and preschool setting to train and support staff to increase their understanding of children's behaviours. This, in turn, will improve their ability to support children and their families. The program fosters children's social-emotional development through a relationships approach to intervention. The child and family worker can also assist families with all aspects of parenting and act as a resource person and 'bridge' to support services and programs within the local community.

This report summarises the findings from the impact evaluation and the process evaluation. Outcomes data was collected from March 2006 through to November 2007 and interviews for the process evaluation were conducted in August 2006 and October 2007.

The PIEC model is based on research linking high quality interventions that focus on developing secure relationships between child care staff and children and improved outcomes for children, particularly high-risk children. Children who are securely attached to staff display more competent interaction with adults and more advanced peer play during child care years. Education and support for parents in fostering secure relationships with children is also conducted. Therefore the evaluation measures focus on changes in the quality of relationships between staff and children, and between parents and children, and follow the social-emotional development of children over the funding period.

Overall the evaluation findings show that changes relating to the Invest to Grow Priority Areas of 'early learning and care' and 'supporting families and parents' have occurred, in particular the relationships between children and staff and children and parents; the social-emotional development of children; and to some degree, community connectedness.

Impact evaluation

PIEC operates in three communities in New South Wales, referred to as Area 1, Area 2 and Area 3. Analysis in this report is broken down by area to take account of differences between these localities. From the demographic data it is evident that significant differences exist between the areas. Reflecting the characteristics of the area's population, Area 1 had the highest proportion of parents born overseas, who spoke a language other than English at home, and relied on a government pension or benefit as their main source of income, compared to the other areas.

The impact evaluation uses a pre-and post-test longitudinal design to examine changes in relationships between children and staff and children and parents; the social-emotional

development of children; and community connectedness. These areas relate to the Invest to Grow Priority Areas of ‘early learning and care’ and ‘supporting families and parents’.

Originally it was intended to collect data from a comparison group; however practical constraints, financial consideration and difficulties in matching family demographic and centre characteristics with other centres proved too difficult. The instruments used within this analysis are based on those used in the Longitudinal Study of Australian Children (LSAC) and whilst it was originally intended that the sample be compared to the broader population data available in LSAC, investigation revealed that the closest reference point would be a state level comparison.

Quantitative data was collected from staff and parents for the impact evaluation. Questionnaires included standardised instruments to assess the relationship between staff and children and the relationships between parents and children, and to assess any concerns in children’s social-emotional development and externalising behaviour problems. Demographic data was collected from parents. Other items related to parenting self-efficacy and community connectedness. Data from staff on training and experience was collected. From the second round of data collection both parents and staff were asked to rank the usefulness of the intervention. Bi-variate and multivariate analysis was used in the analysis.

Results: attachment relationships

The Student-Teacher Relationship Scale (STRS) is a self-reported assessment of staff’s perceptions of the quality of their relationship with the children. Parents complete the Child-Parent Relationship Scale (CPRS).

While the majority of staff started off with positive and effective relationships with the children, over time there was a significant increase in staffs’ ratings of the closeness of these relationships. At baseline, some parents indicated higher levels of dependency in their relationships with their children when compared with staff. ‘Dependency’ describes exaggerated, clingy dependence and reflects insecure attachments. Over time for parents there was a reduction in their ratings of dependency, which suggests that children have become more secure in their relationships with their parents.

The main changes as reported by staff over time, based on the bi-variate analysis, include:

- Across all areas staff’s ratings of levels of dependency has decreased.
- Staff’s ratings of closeness have increased in Areas 1 and 3 combined.

The main changes as reported by parents over time, based on the bi-variate analysis, include:

- Significantly lower levels of dependency across all areas.
- Overall there are movements in a positive direction across the remainder of subscales and total CPRS for all areas although not at a statistically significant level.

Multivariate analysis revealed an increase in staff’s ratings of closeness in Area 1 and Area 3.

Results: social-emotional development

Two scales are used to measure changes in children’s *social-emotional well-being*. These are age-dependent and the age of the child determines which scale is used at each time period. The Brief Infant Toddler Social Emotional Assessment (BITSEA) is completed by parents

and staff for children aged 12 to 36 months. The Strengths and Difficulties Questionnaire (SDQ) is completed by parents and staff for children aged three years and over. Although at baseline most children's social-emotional development was not problematic, over time staff indicated positive changes in the overall social-emotional development of children and the way children interact with their peers.

The main changes reported by staff over time include:

- Significant decrease in peer problems.
- Significant increase in prosocial behaviour.

For parents the reported changes over time include:

- Significant decrease peer problems.
- Significant decrease in conduct problems
- Significant decrease in total difficulties

Results: experience of early education and care settings

PIEC also aims to improve the quality of children's early learning experience. One way to assess this is by asking caregivers or teachers how comfortable the child is in the child care centre or preschool. The Leiden Inventory for the Child's Wellbeing in Day Care was used as a measure of quality of the centre-based children's services by looking at the child's interactions with staff, other children, and the play environment.

The main changes over time reported by staff include:

- Significant increase in the ratings of how comfortable the children were in centre-based children's service across all areas combined.
- Significant increase in the ratings of how comfortable the children were in centre-based children's service across in Area 2 and 3.

No significant changes were evident over time using multivariate analysis controlling for age.

Results: parenting and access to support

PIEC also provides support to parents via information, individual and group sessions and opportunities to meet other parents. Over time there was a significant increase in the number of parents accessing support from the PIEC workers. Parents also indicated changes in a positive direction in some areas of parenting including giving their children a reason why rules should be obeyed and enjoying doing things with their children.

Results: usefulness of PIEC

Overall, the evaluation shows the PIEC program was highly valued by partner organisations, staff and families, with the majority rating it as useful or very useful.

Over time there were significant changes in the numbers of staff rating playspaces useful or very useful. At T4 more than 80 per cent of staff indicated that the different aspects of the program were useful: including training in attachment and relationships, information on the child's social-emotional development, thinking and talking about children's development,

feedback from the PIEC worker and providing information and resources to staff. Some differences between the areas are evident, most particularly in relation to linking families to support and services.

Process Evaluation

The process evaluation was conducted in six sites, two in each of the three areas and involved interviews with key personnel from the partner organisations, the Benevolent Society, children's services staff and parents. The interviews focused on the development and implementation of the program.

Overall, we found a very high level of support for the program from each group of participants in this evaluation: parents, PIEC staff, children's services staff and partner organisations. Participants also described barriers to the effective implementation of the program, which included reservations about specific elements of the program, or were based in difficulties in relationships between specific individuals or organisations. An additional barrier, external to PIEC, comes from the challenges of working with young children in centre-based early education and care. Several centres experienced quite severe pressures during the implementation of PIEC. The success of the program and its support from staff is therefore significant.

Conclusion

The evaluation found changes in the primary domains in which they were predicted according to the project model logic: attachment relationships; social-emotional development; and parenting with the exception of community connectedness. Because most children showed 'normal' behaviour at baseline, it was not anticipated that dramatic differences in behaviours would be shown over the course of the study. However, positive changes, although small in some cases, are evident in some areas, and there are promising indicators in others. This is the case for reductions in conflict and dependency, as higher levels are predictive of problem behaviours and poor school achievement. Another positive change is in attachment relationships, increasing closeness, indicating more secure attachment between staff and children, a core area of the intervention. Although it is always difficult to differentiate between the impact of a program such as PIEC and other factors that may have influence outcomes, these changes appear to be confirmed over the short-term. However, further analysis over a longer period is required to ascertain whether these improvements are sustained.

1 Introduction

Partnerships in Early Childhood Project (PIEC) aims to build on the existing strengths, skills and resources of major child care providers to promote strong, healthy relationships between children, child care centre staff, families and communities. The Benevolent Society works in partnership with Wyong Shire Council, Campbelltown City Council, KU Children's Services and Lady Gowrie Child Centre to deliver PIEC in 14 centre-based children's services (including long day care centres and preschools) in three regions within NSW. Individual areas are not identified in this report.

The PIEC program is funded under the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), Stronger Families and Communities Strategy (SFCS), Invest to Grow initiative. The Social Policy Research Centre was contracted to evaluate PIEC.

1.1 Overview of PIEC

PIEC recognises the critical role that centre-based children's services play in the lives of children, families and communities. Centre-based children's services provide an ideal environment for engaging families with parenting issues and are often somewhere families turn to when they need assistance. PIEC builds on the existing strengths, skills and resources of major child care providers to promote strong, healthy relationships between children, child care centre staff, families and communities. PIEC is designed to benefit all children, families and staff at the participating centres. It builds on the existing strengths and relationships of universal services to improve the quality of early education and care provided to children and families, including disadvantaged children and families.

PIEC achieves this by placing a child and family worker in the centre-based children's services to train and support staff to increase their understanding of children's behaviours from an emotional needs perspective. This, in turn, improves the ability of staff to support all aspects of children's development and assist families with their parenting. PIEC is a preventative program with a strong focus on children's social-emotional development through fostering attachments between carers and children, parents and children and children with their peers. The child and family worker can also assist families with all aspects of parenting and act as a resource person and "bridge" to support services and programs within the local community.

Staff receive training and ongoing support from PIEC staff so children experience more predictable and supportive care. This occurs within an organisational change model. Staff are introduced to new concepts and language and supported to implement new practices, which transform relationships between staff and children. The PIEC program also extends the services provided to parents. Parents can access parent education sessions (mornings/evenings), informal parenting gatherings and individual support and counselling. These strategies are regarded as an important tool in increasing parenting confidence, reducing social isolation and developing their own informal social and support networks.

PIEC runs supported playgroups, open to all families in the local community and generally conducted in a community facility. The playgroups incorporate play-based learning and other activities that promote child development and positive parent/child interactions. Access to childcare services is enhanced for children not currently enrolled by establishing trust in the system.

PIEC relies on developing local partnerships with service providers and strengthening existing infrastructures. By partnering with childcare centres, local councils and other existing service providers, the program leads to better integration across community services in the future.

In summary the main activities of PIEC include:

- a family worker or psychologist to work with and support centre-based children's services staff, children and families including high-need children and families;
- providing staff with hands-on training and supervision to increase their understanding of children's behaviours and relationship needs;
- a focus on the important daily transition moments for children, parents and staff (the children's arrival at and departure from the centre);
- supported playgroups and Parents Connect groups in the local community open to families from the centre and also to families living locally whose children are not enrolled at the centre;
- individual support and counselling for parents;
- parenting mornings, focusing on the needs and strengths of parents (the Benevolent Society's program of PlayPower workshops for parents are incorporated into these activities); and
- links with other local services providers, connecting families to services and to other community supports.

1.2 Objectives of PIEC

The overall aim of PIEC is to promote strong, healthy relationships between children, staff, families and communities.

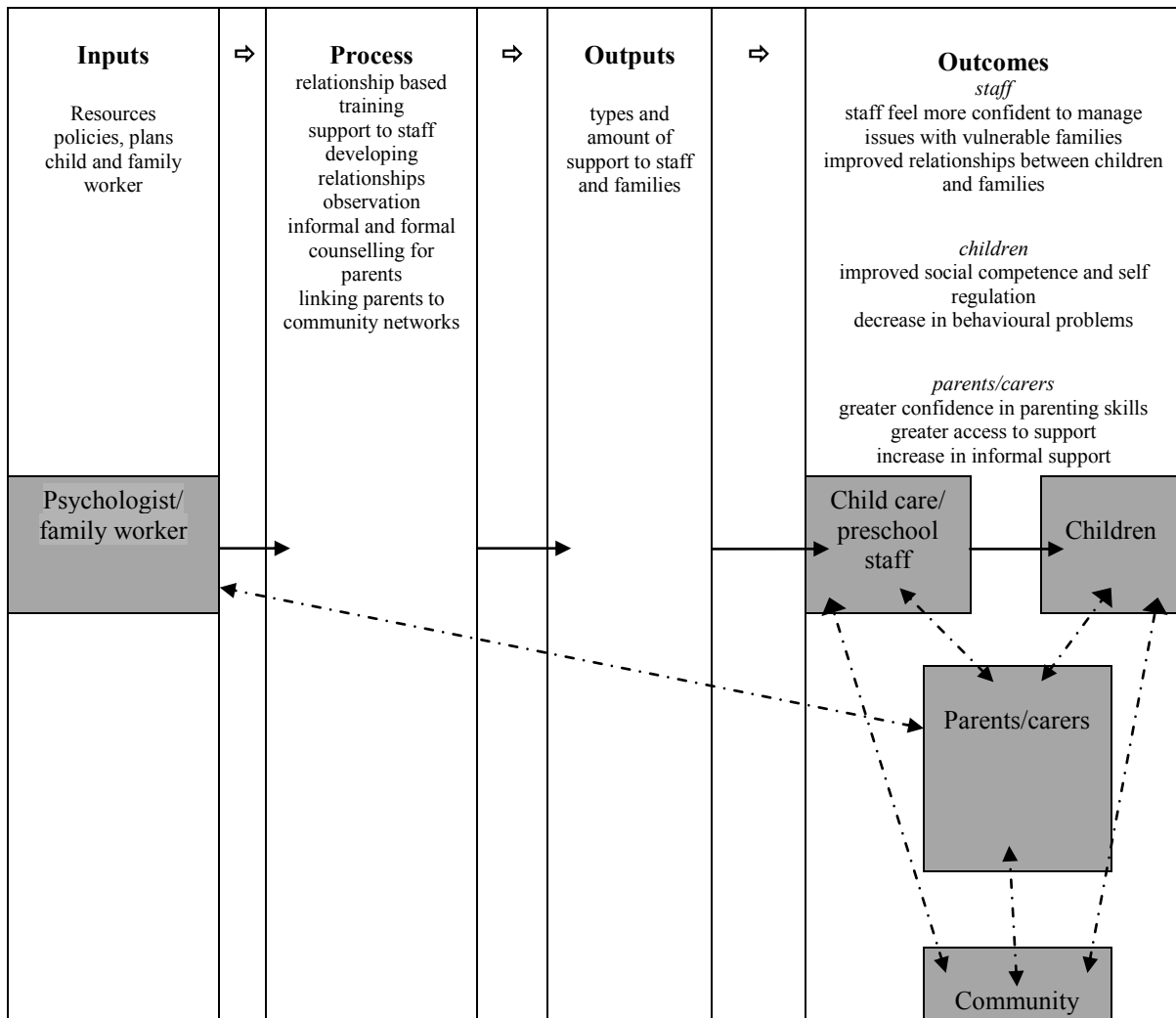
The objectives of PIEC are to:

- Promote children's healthy emotional and social development.
- Contribute to improved outcomes for young children through prevention and early intervention
- Improve the quality of children's early learning experiences.
- Increase social and community connection.
- Improve family relationships.
- Increase the expertise of early childhood staff working with families with complex needs.
- To build the Australian evidence-base about what works in prevention and early intervention in early childhood.
- To develop information and resources for parents, professionals and communities.
- Develop centre-based children's services as community hubs that are safe, non-threatening places to support vulnerable children and their families.

1.3 Project Logic

The PIEC model is based on evidence that the provision of training and layered supervision and support for staff, using a relationships approach, will increase their understanding of children’s behaviours and thereby improve their ability to support children, including high-need children, and their families. This will lead to improved relationships between children, parents, child care centre staff and communities; increased social competence and emotional regulation in children; and better quality care for children enrolled at the PIEC child care centres (see Figure 1.1).

Figure 1.1: Project Logic PIEC

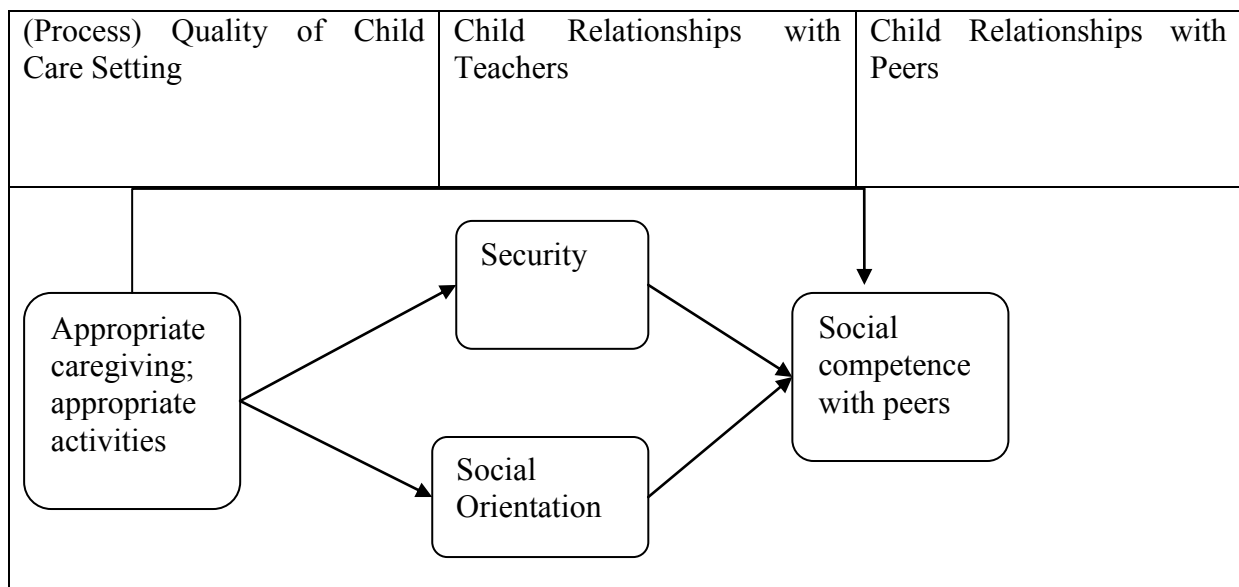


The PIEC program is developed from Bowlby’s theory of attachment and human development. According to attachment theory, people develop ‘mental representations’ of caregiving based on their early relationships. These representations have a long-term influence on expectations and interactions in other relationships, including parent-child relationships in the next generation (Bowlby, 1988; Suchman et al., 2006). Attachment relationships develop through warm, nurturing, responsive and consistent patterns of interaction between children and carers. Interventions based on attachment theory therefore focus on child-carer relationships, and are intended to change more than the behaviours of children and carers. In particular, they aim to build sensitivity in the responses of carers to

children’s behavioural cues signalling emotional distress, particularly during infant and toddler years. These interventions predict that increasing a carer’s capacity to reflect on the sensitivity of their response to children will enhance the child’s security and, in turn, reduce problems associated with the child’s externalising behaviour (Eagle, 2006).

Howes, Phillips and Whitebrook (1992) found that pathways move from the regulatable quality of child care settings (such as adult: child ratios) to the process quality of settings (such as appropriate caregiving and developmentally appropriate activities) to children’s relationships with teachers (securely attached) and peers (social competence). This is illustrated in Figure 1.2. The PIEC program intervenes in the *process quality* of child care settings to improve *relationships with teachers* and consequently *social-emotional regulation* of children.

Figure 1.2: (Simplified) model of pathway from child care quality to social-emotional regulation



(Howes et al., 1992)

In order to develop secure attachment relationships between carers and children, the PIEC program adopts training, resources and staff supervision from the Circle of Security protocol (Marvin et al., 2002). This program incorporates Ainsworth’s ideas of a Secure Base and a Haven of Safety (Ainsworth et al., 1978). The child and family worker provides training to staff in attachment concepts that relate to children’s exploratory and security needs. Through training and support staff learn how to be emotionally available when a child’s attachment system is activated. For example, the child and family worker can work with child care centre staff and parents to better support a child’s attachment needs at the difficult transition times of separation and reunion. This enables the staff to help children to experience a smooth transition into the child care centre and hence they are more ready to focus on their exploration and learning.

Attachment relationships are to be supported through changing staff knowledge and understanding (through supporting them to think about children’s behaviour in terms of need rather than control) and changing staff behaviour (through encouraging practices that make them more predictable and available to children). The long-term outcomes of PIEC are expected to be increased quality of the child care settings, due to increased responsiveness

and reflective capacity of caregivers, and children with secure attachment relationships and the capacity for emotional regulation.

In addition to fostering secure attachment relationships, PIEC aims to support families with all aspects of parenting. This was done through connecting isolated families and linking them to appropriate local services and programs. This will lead to improved family capacity and resources and an increase in social and community connectedness. In order to support parents and families in this way, groups such as supported playgroups and parent information and education sessions are run in some centres; and information and referral to services is offered to parents who need it.

The implementation of PIEC varies from site to site. Some have a stronger emphasis on attachment, and some on connecting families to services. In all sites, however, the PIEC worker supports staff in knowing about and responding to children's needs; supports changes in staff behaviour to build attachment relationships; and helps families connect to services and support as needed.

1.4 Anticipated PIEC Outcomes

Based on this model it is anticipated that PIEC will contribute to the following short to medium term outcomes for children, families and child care staff. These outcomes predominantly relate to the Invest to Grow Priority Area of 'early learning and care' and 'supporting families and parents'. These outcomes include:

- Improved relationships between children and their parents, children and other children, and children and child care staff.
- Child care and preschool staff will be better able to foster healthy emotional and social development for all children.
- Increased social competence and emotional self-regulation and a decrease in behavioural problems for children.
- Better quality care for children enrolled at the child care centres.
- Greater confidence in parents about their parenting skills.
- Greater access to support services for parents and informal support for their family.
- Child care centres established as a focal point for families in the community.

1.5 Outline of the Report

This report reviews the overall findings from both the summative or impact component and the formative or process component of the evaluation. The following sections describe the overall approach to the evaluation. Data collected at Time 1 through to Time 4 from staff and parents about attachment relationships and children's social-emotional development is outlined in Section 3. Information about parents and caregivers including perceptions of parenting skills, access to support and community connectedness, and changes in these domains over time, are outlined in Section 4. Section 5 reports on the perceived usefulness and effectiveness of implementation by staff and parents. Section 6 summarises the findings from the process evaluation of the evaluation. The final section of the report summarises the overall findings from the evaluation and their significance and then discusses the conclusions and recommendations relating to sustainability and future development of PIEC.

1.6 Overview of PIEC Evaluation

The overall aims of the evaluation include: to provide information that monitors, assists and supports the further development and refinement of the PIEC program (formative/process evaluation); and to assess effectiveness of the PIEC program by monitoring the achievement of positive outcomes for children and families (summative/impact evaluation).

Table 1.1 summarises the evaluation questions, methods, outcomes and data sources. The overall approach is to establish baseline outcome measures in the key Invest to Grow (ITG) priority areas of 'early learning and care' and 'supporting families and parents', in relation to child and family functioning and ratings of relationships between children, child care centre staff, families and communities. Changes in these dimensions will be measured over the funding period. The evaluation includes a number of components of data collection and analysis.

- The impact evaluation assesses whether the project has achieved positive outcomes for children, families, staff and key stakeholders in the Invest to Grow priority area of 'early learning and care' and 'supporting families and parents'. Data was collected at 4 points in time: March and November 2006, March 2007 and November 2007.

This component of the evaluation uses a pre-test post-test longitudinal design. Originally it was intended to collect data from a comparison group; however practical constraints, financial consideration and difficulties in matching family demographic and centre characteristics with other centres proved too difficult. The instruments used within this analysis are based on those used in the Stronger Families and Communities National Evaluation, Service User Questionnaire and the Longitudinal Study of Australian Children (LSAC).

- The formative or process component of the evaluation focuses on the development and implementation of the PIEC program. It reviews the extent to which services are delivered in the form envisaged by the Benevolent Society. Where the results of the project are not those envisaged, the evaluation design seeks to inform current and future developments of the PIEC program. Data for this component was collected twice: August 2006 and October 2007. This component also included a document review of project documentation including management guidelines, protocols relating to the orientation and induction process for staff, staff requirements and training manuals. More detailed information about the evaluation can be found in the PIEC Evaluation Framework Report (Thomson et al., 2005, see Appendix C).

Table 1.1: Evaluation Summary

Invest to Grow Priority Area	Evaluation Question	Evaluation Component	PIEC Program Outcomes	Data Sources
Early learning and care	Has PIEC achieved its objectives?	Impact Evaluation	Improved relationships between staff and children, children and children, child to parent	Pianta’s Reflective Functioning scale; Pianta’s Teacher-child relationship scale; staff interviews; Service data collected periodically
			Increase in children’s social competence and emotional regulation	BITSEA; Strengths and Difficulties Q
			Better quality care for children enrolled at the child care centres	Leiden Inventory for the Child’s Wellbeing in Day Care; Service Users Q parent interviews
Supporting families and parents	Has PIEC achieved its objectives?	Impact Evaluation	Greater confidence in parenting skills	Pianta’s parent-child relationship scale; Parent questionnaire; parent interviews
			Greater access to support services for parents and informal supports for their family	Parent questionnaire; parent interviews
			Child care centres established as a focal point for families in the community Better integrated services system	Parent questionnaire; parent interviews
Early learning and care; Supporting parents and families	What factors supported or impeded the achievement of these objectives?	Project Logic, Process Evaluation	All outcomes	Document analysis; Key personnel interviews; Child care staff interviews or focus groups; Family interviews; Case studies
	What factors facilitated and inhibited the project logic model being implemented?			
Early learning and care; Supporting parents and families	What are the most important factors which facilitate improved outcomes?	Impact Evaluation, Process Evaluation	All outcomes	Document analysis; Key personnel interviews; Child care staff interviews or focus groups; Family interviews Service data collected periodically; BITSEA; Strengths and Difficulties Q; Parent questionnaire
	Is the PIEC effective for all children and families?	Impact Evaluation		

2 Impact Evaluation: Overview

2.1 Evaluation questions

This component of the evaluation is designed to address the following questions:

- What were the short-term and medium-term outcomes of the project in the relevant Invest to Grow priority areas?
- What worked for whom and under what circumstances?
- Are further outcomes anticipated?
- In addition to PIEC what other factors were involved in achievement of outcomes?
- Have there been unanticipated outcomes, positive and negative?

2.2 Data Collection

The data collection instruments use standardised scales (summarised in Table 2.1) and appropriate sections of the questionnaires developed by the National Evaluators to collect data from child care staff and their parents/carers about themselves and the children for whom they care. These instruments were designed to be self-completed. PIEC staff were available to assist staff and families to complete the surveys if necessary (see Appendix A).

Standardised instruments

Standardised psychological scales were used in the surveys to measure anticipated changes in the relationship between children and staff, between children and parents, and in the social-emotional development of children.

Two scales were used to assess *the relationship between staff and children* and *the relationship between parents and children* and to measure any changes in the attitudes and perceptions of adults from limit setting and managing behaviour approach to a focus on developmental progression. Only staff who knew the children the best and parents completed these instruments. As these standardised scales required some familiarity with the child it was not possible to externally validate the scores.

The Pianta Student-Teacher Relationship Scale (STRS) was completed by staff. The STRS is a teacher-reported measure of the quality of the teacher's relationship with a child. It includes 28 statements concerning a teacher's feelings about his or her relationship with a child, the child's behaviours with a teacher, and the teacher's beliefs about the child's feelings toward the teacher. There is substantial evidence of associations between teachers' ratings of children's conflict, closeness, and dependency, and children's academic and social-emotional outcomes (Mashburn and Pianta, 2006).

The Pianta Child-Parent Relationship Scale (CPRS) is a modified STRS scale and completed by parents with three subscales of conflicts, positive aspects of relationship and dependence. It is designed to assess the parent's perception of the quality of the relationship with their child. The Pianta STRS and the CTRS both have a total scale which measures overall positivity in the relationship.

Two scales were used to measure changes in children's *social-emotional well-being* and the age of the child determines which scale is used at each time period.

The Strengths and Difficulties Questionnaire (SDQ) was completed by parents and staff for children aged three years and over. This is a UK measure that has been adapted for Australian use. It assesses a child's social-emotional well-being and emergent behavioural problems. It consists of 25 items completed by parents and teachers/carers. Items fall under five scales: emotional symptoms scale, conduct problems, hyperactivity scale, peer problems scale, and prosocial scale. These scales measure changes in children's cognitive development, social competence and emotional regulation. The SDQ is available in over 30 languages and is widely used in epidemiological, developmental and clinical research, as well as in routine clinical and educational practice (Goodman and Scott, 1999).

The Brief Infant Toddler Social Emotional Assessment (BITSEA) was completed by parents and staff for children aged 12 to 36 months. The BITSEA identifies emerging social-emotional problems in infants and toddlers. It has been shown to be a reliable and valid brief screener for infant-toddler social-emotional and behavioural problems and delays in competence (Briggs-Gowan et al., 2004).

One scale was used to assess the *child's experience of the child care setting*. The Leiden Inventory for the Child's Wellbeing in Day Care (LICW-D) is a Dutch measure developed to assess children's adjustment in their child care setting. It consists of 12 items rated on a 6-point Likert scale. Four aspects of well-being in day care are included in the Inventory: general well-being, well-being in the presence of caregivers, with group members, and within the physical care setting. As such, it provides a sensitive measure of the quality of the child's child care experience (DeSchipper et al., 2004). The LICW-D will be used to measure changes in adjustment over the course of the intervention. This scale is completed by staff only.

All of these scales can be used as continuous variables so that changes in the aggregate scores can be analysed over time. It is also possible to classify the scores according to critical cut off points.

Table 2.1: Summary of Standardised Instruments

Name	Age of child	Completed by	Domain	Data Collection Timeline
Pianta Child-Teacher Relationship Scale	All	Staff	Relationships and attachment	T1, T2, T3, T4
The Pianta Child-Parent Relationship Scale	All	Parents	Relationships and attachment	T1, T2, T3, T4
Strengths and Difficulties Questionnaire (SDQ)	36 months+	Parents and Staff	Social-emotional well-being	T1, T2, T3, T4
Brief Infant Toddler Social Emotional Assessment (BITSEA)	12-36 months	Parents and Staff	Social-emotional well-being	T1, T2, T3, T4
Leiden Inventory for the Child's Wellbeing in Day Care (LICW-D)	All	Staff	Quality of child care experience	T1, T2, T3, T4

Other information

Demographic information was collected from parents and staff. Staff were asked about their qualifications, level of education, how long they had been employed at the child care centre or preschool. Parents were asked country of birth, education, current work status and household income, questions about their parenting self-efficacy, perceptions of the local neighbourhood and access to services and support.

Questions on parenting and relationships were adapted from the National Evaluation of the Stronger Families and Communities Strategy Service Users Questionnaire and the Longitudinal Study of Australian Children (LSAC). These questions elicit information on family functioning.

Questions on community connectedness and access to services were adapted from the National Evaluation of the Stronger Families and Communities Strategy Service Users Questionnaire and LSAC. These questions elicit information on social capital. This information also gives important contextual information on the environment in which PIEC is being implemented. Subjective usefulness and satisfaction ratings for the PIEC were collected from staff and parents from T2 and T4.

3 Impact Evaluation Findings: Attachment and Social-Emotional Development

This section reports on the impact of the PIEC program on attachment relationships and social-emotional well-being. These relate to the ITG Priority Area of ‘early learning and care’ and ‘supporting families and parents’ and five PIEC objectives:

- To promote strong, healthy relationships between children, staff, families and communities.
- To promote children’s healthy emotional and social development.
- To increase child care and preschool staff ability to foster healthy emotional and social development for all children.
- To increase social competence and emotional self-regulation and a decrease in behavioural problems for children.
- To increase quality care for children enrolled at the child care centres.

This section of the analysis reports on data collected from staff and parents to test the following hypotheses, which relate to the PIEC program’s objectives

1. Due to being part of the PIEC program, ratings of relationships between children and staff (as reported by staff) and between parents and children (as reported by parents) will improve. Specifically, scores in the conflict and dependency subscales of the Student Teacher Relationship Scale (STRS) and the Child Parent Relationship Scale (CPRS) will decrease over time, and scores in the closeness subscale will increase over time.
2. Due to being part of the PIEC program, children’s social-emotional development as rated by staff and parents will improve. Specifically, the total difficulties score of the Strengths and Difficulties Questionnaire will decrease over time for children aged over 3; and for children aged under 3, scores in the problem subscale of the Brief Infant Toddler Social Emotional Assessment will decrease over time and scores in the competence subscale will increase over time.
3. The quality of interactions between staff and children, a key measure of processual quality in early childhood education and care, will improve.
4. Positive changes will remain when control variables (such as age) are introduced, making it more likely that these changes are not the result of other factors.

3.1 Sample

Data was collected from staff and parents in the fourteen centre-based children’s services involved in the PIEC program. The potential sample for the evaluation was every child aged 12 months and over, who attended a centre two days or more a week. Data was only collected for children whose parents had given written consent. Data for the evaluation was collected at four points in time: March 2006 (T1), November 2006 (T2), March 2007 (T3) and November 2007 (T4). Originally the intention was to collect T3 data for the total sample, however to minimise data collection burden only those children who joined the centres at the beginning of 2007 were included. This report focuses on the analysis of a balanced sample (participants for whom data was collected at T1 through to T4) to examine changes over the evaluation period.

Detailed information on the total sample for the study is included in the Round 1 Data Collection Report (Thomson, Longden et al., 2007). Table 3.1 shows the number of parents and staff included in the balanced sample.

Table 3.1 Balanced Panel Staff and Parent by Area

	No. children	%	No. Parents	%
Area 1	70	32	51	39
Area 2	92	42	59	45
Area 3	56	26	20	15
Total	218		130	

3.2 Changes in attachment relationships: Child-Staff

The primary focus of the PIEC program is the development of secure relationships. The Student-Teacher Relationship Scale (STRS) was used to capture changes in this outcome. The STRS is a self-reported assessment of staff's perceptions of the quality of their relationship with the children. The STRS can be used for children of preschool age up to eight years. Child-teacher relationships in the STRS are defined in terms of conflict, closeness and dependency subscales and overall quality of the relationship.

Table 3.2 shows the mean scores for the three subscales of the STRS as reported by staff at T1 and T4. The results of paired samples t-tests analysis show that over time, staff ratings of closeness increased across all areas combined, most noticeably in Area 3. Across all areas combined staff ratings of dependency have decreased. In Area 1 staff ratings of conflict and dependency have decreased. Staff in Area 3 reported higher levels of closeness and total STRS over time. Overall there is a positive trend in the expected direction across the remainder of the subscales and total STRS for all areas, although not at a statistically significant level with the exception of Area 2 where conflict has increased.

Overall these results support the first hypothesis that as a result of exposure to the PIEC program relationships between children and staff have improved. The importance of these results lie at the core of the PIEC program as securely attached children are better equipped to understand and regulate their emotional state thereby promoting social-emotional development.

Table 3.2: Pianta Student-Teacher Relationship Scale: Changes in overall mean score¹

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All areas</i>										
Conflict	218	19.08	19.10	6.43	8.15	11	11	44	51	NS
Closeness	216	42.91	44.05	5.92	6.43	22	23	55	55	*
Dependency	218	9.39	8.52	3.26	2.80	5	5	21	19	**
Total STRS	216	116.45	118.44	11.35	13.14	83	68	140	140	*
<i>Area 1 CC</i>										
Conflict	70	18.67	16.67	6.22	6.16	12	12	39	39	*
Closeness	70	43.50	43.70	6.12	7.16	22	23	55	55	NS
Dependency	70	8.76	7.54	3.28	2.76	5	5	18	18	**
Total STRS	70	118.07	121.49	12.10	11.58	89	80	140	140	NS
<i>Area 2 E</i>										
Conflict	92	18.67	20.39	6.45	9.65	11	11	44	51	NS
Closeness	92	42.97	43.14	6.06	6.48	24	30	55	55	NS
Dependency	92	9.57	8.93	3.16	2.72	5	5	20	19	NS
Total STRS	92	116.73	115.82	11.45	14.90	83	68	138	140	NS
<i>Area 3 SW</i>										
Conflict	56	20.27	20.00	6.62	7.05	12	12	39	44	NS
Closeness	54	42.06	46.04	5.41	4.79	29	32	53	54	***
Dependency	56	9.88	9.05	3.34	2.71	5	5	132	135	NS
Total STRS	54	113.87	118.98	9.81	10.94	88	95	132	135	**
Paired sample t-test		P< .001*** P< .01** P< .05*								

3.3 Attachment Relationships: Child-Parent

The PIEC program also aims to change relationships between children and parents. The Pianta Child-Parent Relationship Scale (CPRS) assesses the parent's perception of the quality of the relationship with their child. It is interesting to note that at T1 parents reported higher conflict with their children and higher dependency levels in their relationship with their children than staff. No significant differences between the areas were evident in any of the subscales or the Total CPRS scores at T1. Table 3.3

¹ Descriptive statistics for STRS scale and subscales for total normative sample (Pianta, 2001).

	Mean	SD	Min	Max
Conflict	24.4	8.93	15	57
Closeness	42.01	6.22	19	55
Dependency	10.74	3.54	5	24
Total STRS	114.23	15.47	55	140

n=1,535. Mean age 5 years

shows that over time parents reported significantly lower levels of dependency in their relationships with their children across all areas combined and most particularly in Area 1. These results support the first hypothesis that as a result of exposure to the PIEC program relationships between children and parents have improved.

Table 3.3: Pianta Child-Parent Relationship Scale: Changes over time, by area

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All areas</i>										
Conflict	130	26.48	26.72	7.31	8.10	11	13	50	51	NS
Closeness	128	43.94	44.35	4.40	4.01	29	31	50	50	NS
Dependency	129	12.40	11.88	2.51	2.51	8	6	18	18	*
Total PCRS	130	107.18	108.11	9.24	10.11	80	78	129	128	NS
<i>Area 1 CC</i>										
Conflict	51	26.31	25.53	7.87	9.08	12	13	50	51	NS
Closeness	51	43.49	44.67	4.58	3.79	31	33	50	50	*
Dependency	51	12.27	11.39	2.29	2.08	8	8	18	17	**
Total PCRS	51	107.00	109.33	9.82	10.89	80	81	129	127	*
<i>Area 2 E</i>										
Conflict	59	26.66	27.25	6.50	7.03	14	15	45	47	NS
Closeness	59	43.98	43.86	4.25	4.01	29	31	49	49	NS
Dependency	59	12.15	11.93	2.57	2.74	8	6	18	18	NS
Total PCRS	59	107.31	107.46	8.29	9.17	81	78	120	122	NS
<i>Area 3 SW</i>										
Conflict	20	26.40	28.15	8.43	8.41	11	15	42	43	NS
Closeness	18	45.06	45.06	4.39	4.60	32	36	50	50	NS
Dependency	19	13.53	13.00	2.76	2.56	9	8	18	17	NS
Total PCRS	20	107.25	106.90	10.74	10.86	81	81	123	128	NS
Paired sample t-test		P< .001***								
		P< .01**								
		P< .05*								

3.4 Social-Emotional Development

The PIEC program also aims to promote children’s healthy emotional and social development. Evidence suggests that securely attached children are better equipped to understand and regulate their emotional state thereby promoting social-emotional development. Two standardised scales were used to capture the social-emotional development of the children. The SDQ is used for children aged 3 years and above and the BITSEA is used for children aged from 12 to 36 months. Staff and parents completed these instruments.

BITSEA

The Brief Infant Toddler Social Emotional Assessment (BITSEA) is designed as a screening instrument to identify children less than 3 years of age who may be experiencing problems in the social-emotional and behavioural domains of

development. It has two subscales: problem and competency. Data presented here in Table 3.4 and Table 3.5 is restricted to T1 and T2 as the number of children at T4 within the age range was too small for robust analysis.

Staff-reported scores

Table 3.4 shows the means scores at T1 and T2 in the problem and competency domains of the BITSEA. Over time a significant increase in the mean scores for the competence subscale across all areas combined was found. A significant increase in the mean scores for competence and decrease in problems scores was evident in Area 2. At time T2 there was a significant increase in conflict in Area 3.

Table 3.4: BITSEA Mean Scores Reported by Staff: Changes over time, by area²

	N	Mean T1	Mean T2	SD T1	SD T2	Min T1	Min T2	Max T1	Max T2	Sig
<i>All areas</i>										
Problem	83	7.40	6.80	5.19	6.66	0	0	28	29	NS
Competency	82	14.29	15.80	3.93	4.01	6	4	22	22	**
<i>Area 1 CC</i>										
Problem	23	5.65	5.26	3.20	4.59	0	1	13	20	NS
Competency	22	14.68	14.91	4.19	3.96	7	4	22	21	NS
<i>Area 2 E</i>										
Problem	36	9.83	6.50	5.95	6.85	1	0	28	29	**
Competency	36	14.11	16.69	3.44	3.54	7	4	21	22	**
<i>Area 3 SW</i>										
Problem	24	5.42	8.71	3.98	7.77	0	1	15	29	*
Competency	24	14.21	15.29	4.49	4.56	6	6	22	22	NS
Paired sample t-test		P< .001***								
		P< .01**								
		P< .05*								

Table 3.5 shows the means scores for parents from T1 to T2. No significant changes were evident over time. However as the PIEC program focuses on developing secure attachments predominantly with staff, but also with parents, it is to be expected that evidence of change in social-emotional development may take some time to emerge.

² Scoring for the BITSEA has cut off scores for problem and competency domains. No cut-off scores are provided for the BITSEA childcare provider form. Norms for the parent forms are: *Problem* domain: a score higher than 15 is of concern for boys aged 12-23 months and girls aged 18-23 months, and a score higher than 13 is of concern for girls aged 12-23 months. *Competency* domain: a score lower than 12 is of concern for girls and boys aged 12-17 months, and lower than 14 is of concern for boys and girls aged 18-23 months.

Table 3.5: BITSEA Mean Scores Reported by Parents: Changes over time, by area³

	N	Mean T1	Mean T2	SD T1	SD T2	Min T1	Min T2	Max T1	Max T2	Sig
<i>All areas</i>										
Problem	37	7.78	7.81	5.50	6.22	1	1	29	33	NS
Competency	37	16.97	17.65	2.33	2.80	12	11	21	22	NS
<i>Area 1 CC</i>										
Problem	13	7.08	6.46	7.35	8.66	1	1	29	33	NS
Competency	13	17.15	17.54	2.48	3.41	12	11	20	22	NS
<i>Area 2 E</i>										
Problem	15	8.13	8.00	4.24	4.00	3	2	19	17	NS
Competency	15	17.00	17.40	2.00	2.13	13	13	20	20	NS
<i>Area 3 SW</i>										
Problem	9	8.22	9.44	4.74	5.27	4	4	19	19	NS
Competency	9	16.67	18.22	2.83	3.07	13	14	21	22	NS
Paired sample t-test		P< .001*** P< .01** P< .05*								

SDQ

The *Strengths and Difficulties Questionnaire* (SDQ) is a brief behavioural screening questionnaire that asks about 25 attributes, some positive and others negative. There are four negative subscales: emotional symptoms, conduct problems, hyperactivity and peer problems. There is one positive, prosocial scale. Scores are normally used as continuous variables but can be classified for convenience as ‘normal’, ‘borderline’ and ‘abnormal’. In this analysis the scores are used as a continuous variable.

Staff-reported scores

Table 3.6 shows the mean scores for the SDQ subscales and total problem scores at T1 and T4 as reported by staff. As mentioned earlier as the primary focus of the PIEC program on the development of secure attachment and relationships to support social-emotional development, it was expected that changes in these domains would take some time to emerge. Table 3.6 shows that significant changes have occurred in all areas combined and within areas. Across all areas combined there was a significant decrease in total difficulties, hyperactivity, peer problems and conduct problems. Prosocial behaviour has increased across all areas combined and within areas. More specifically there was a significant decrease in peer problems, hyperactivity and total problems in Area 2 and 3. Like the other areas, Area 1 also showed a significant decrease in peer problems and hyperactivity but also in the total difficulties score.

³ Scoring for the BITSEA has cut off scores for problem and competency domains. *Problem domain*: a score higher than 15 is of concern for boys aged 12-23 months and girls aged 18-23 months, and a score higher than 13 is of concern for girls aged 12-23 months. *Competency domain*: a score lower than 12 is of concern for girls and boys aged 12-17 months, and lower than 14 is of concern for boys and girls aged 18-23 months. (Carter and Briggs-Gowan, 2005)

Overall these results indicated that due to being part of the PIEC program children's social-emotional development as rated by staff has improved.

Table 3.6: SDQ Mean Scores Reported by Staff: Changes over time, by area⁴

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All areas</i>										
Emotion	98	1.43	1.31	1.67	1.68	0	0	7	7	NS
Conduct	99	1.26	0.91	1.58	1.44	0	0	7	6	*
Peer	100	2.59	1.23	2.22	1.66	0	0	9	7	***
Hyperactivity	100	3.78	2.25	2.85	2.68	0	0	10	10	***
Prosocial	97	5.95	7.64	2.67	2.49	0	1	10	10	***
TEBDTOT	98	9.00	5.65	5.86	5.49	0	0	24	22	***
<i>Area 1 CC</i>										
Emotion	40	1.20	1.05	1.49	1.50	0	0	5	6	NS
Conduct	40	1.00	0.93	1.40	1.54	0	0	6	6	NS
Peer	40	1.95	1.13	2.23	1.62	0	0	9	6	*
Hyperactivity	40	3.43	2.45	2.84	3.00	0	0	9	10	**
Prosocial	40	6.20	7.85	2.53	2.80	0	1	10	10	**
TEBDTOT	40	7.58	5.55	5.41	6.01	0	0	19	22	*
<i>Area 2 E</i>										
Emotion	38	1.55	1.32	1.90	1.82	0	0	7	7	NS
Conduct	39	1.23	0.79	1.37	1.26	0	0	6	5	NS
Peer	40	2.95	1.13	2.06	1.76	0	0	8	7	***
Hyperactivity	40	3.83	1.73	2.88	2.23	0	0	10	9	***
Prosocial	37	5.78	7.41	2.71	2.20	0	2	10	10	**
TEBDTOT	38	9.42	4.82	5.64	4.11	1	0	22	16	***
<i>Area 3 SW</i>										
Emotion	20	1.65	1.80	1.60	1.74	0	0	5	5	NS
Conduct	20	1.85	1.10	2.13	1.59	0	0	7	5	NS
Peer	20	3.15	1.65	2.30	1.57	0	0	8	5	**
Hyperactivity	20	4.40	2.90	2.84	2.73	0	0	9	9	*
Prosocial	20	5.75	7.65	2.97	2.41	1	3	10	10	*
TEBDTOT	20	11.05	7.45	6.66	6.46	3	0	24	20	*
Paired sample t-test		P< .001*** P< .01** P< .05*								

⁴ Scoring for the SDQ places scores in three domains of normal, borderline and abnormal. For the subscales and total difficulties score the ranges are: (1) Emotion: normal 0-15; borderline 16-19; abnormal 20-40. (2) Conduct: normal 0-5; borderline 6; abnormal 7-10 (3) Peer problems: normal 0-3; borderline 4; abnormal 5-10. (4) Hyperactivity: normal 0-5; borderline 6; abnormal 7-10. (5) Prosocial: normal 6-10; borderline 6; abnormal 0-4. (6) Total difficulties: normal 0-15; borderline 16-19; abnormal 20-40. Available from <http://www.sdqinfo.com/b1.html>

Table 3.7 shows the changes in means scores for the SQD as reported by parents at T1 and T4. Across all areas combined there was a decrease in total difficulties, conduct problems and peer problems and an increase in prosocial behaviour. In Areas 1 and 2 there was a significant decrease in conduct and total difficulties scores. In addition parents in Area 1 reported an increase in prosocial behaviour and in Area 2 parents reported a decrease in conduct problems. These results support the hypothesis that due to being part of the program children's social-emotional development as rated by parents will improve, although to a lesser degree than as rated by parents.

Table 3.7: SDQ Mean Scores Reported by Parents: Changes over time, by area

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All areas</i>										
Emotion	60	1.38	1.23	1.24	1.17	0	0	5	5	NS
Conduct	60	2.18	1.18	1.82	1.23	0	0	6	5	***
Peer	60	1.80	1.25	1.54	1.30	0	0	5	5	**
Hyperactivity	60	3.55	2.78	2.35	2.25	0	0	9	9	*
Prosocial	60	7.35	8.02	1.64	1.85	2	4	10	10	**
TEBDTOT	60	8.92	6.45	4.38	4.34	2	0	20	21	***
<i>Area 1 CC</i>										
Emotion	25	1.60	1.20	1.32	0.87	0	0	5	3	NS
Conduct	25	2.16	1.40	1.77	1.29	0	0	6	5	*
Peer	25	1.60	1.40	1.53	1.29	0	0	5	4	NS
Hyperactivity	25	3.72	2.80	2.46	2.71	1	0	9	9	NS
Prosocial	25	7.24	8.28	1.51	1.81	5	4	9	10	*
TEBDTOT	25	9.08	6.80	4.20	4.73	2	2	17	17	**
<i>Area 2 E</i>										
Emotion	28	1.07	1.11	0.98	1.29	0	0	4	5	NS
Conduct	28	1.79	0.86	1.60	1.01	0	0	5	4	**
Peer	28	1.96	1.07	1.37	1.25	0	0	5	5	**
Hyperactivity	28	3.21	2.46	2.20	1.75	0	0	8	6	NS
Prosocial	28	7.54	7.75	1.50	1.86	3	4	10	10	NS
TEBDTOT	28	8.04	5.50	4.27	3.38	2	0	17	14	**
<i>Area 3 SW</i>										
Emotion	7	1.86	1.86	1.68	1.57	0	0	5	4	NS
Conduct	7	3.86	1.71	2.12	1.60	1	0	6	5	NS
Peer	7	1.86	1.43	2.27	1.62	0	0	5	4	NS
Hyperactivity	7	4.29	4.00	2.69	2.08	1	2	9	8	NS
Prosocial	7	7.00	8.14	2.65	2.12	2	4	10	10	*
TEBDTOT	7	11.86	9.00	4.67	5.69	6	4	20	21	NS
Paired sample t-test		P< .001***								
		P< .01**								
		P< .05*								

3.5 Experience of the Child Care Setting

The PIEC program also aims to improve the quality of care provided. The Leiden Inventory for the Child’s Well-being in Day Care assesses caregivers’ or teachers’ perceptions of how comfortable the child is in the child care centre or preschool, using a 6-point scale. Questions rate the child’s feelings and behaviours, in general, and as seen in their interactions with staff, other children, and with the play environment. A total scale score is formed by summing ratings for each of the 12 items. Table 3.8 shows that for most children at T1, staff ratings of wellbeing were good to high. Scores differed by area, being significantly higher for centres in Area 1. There was no difference in scores for the other two areas at T1.

At T4 the ratings of wellbeing significantly increased across all areas combined and Areas 2 and 3. It is important to note that at T1 Area 1 had consistently higher ratings than Areas 2 and 3 and therefore it would be extremely difficult for the score to improve significantly over time. These results indicated that as a result of the implementation of PIEC, processual quality of centre-based children’s services and interactions between staff and children have improved.

Table 3.8: Leiden Inventory for the Child’s Well-being in Day Care: Changes over time, by area

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All areas</i>	218	56.84	60.00	8.77	8.52	30	30	72	72	***
<i>Area 1 CC</i>	70	60.29	60.99	8.26	8.59	38	40	72	72	NS
<i>Area 2 E</i>	92	54.46	58.91	8.16	9.33	33	30	72	72	***
<i>Area 3 SW</i>	56	56.46	60.54	9.12	6.78	30	43	71	72	**

Paired sample t-test P< .001***
 P< .01**
 P< .05*

Poor overall wellbeing (total score falls below 48 , equivalent to less than 4 on the 6-point scale)

Good to high overall wellbeing (total score of 48 or above, equivalent to 4 and above on the 6-point scale)

3.6 Regression analysis

Multivariate regression analysis, using a random effects model, was undertaken to examine whether changes in the key domains such as relationships and social-emotional development remained once other factors such as age, which might account for these changes, were controlled for. This investigation is exploratory, as little empirical data exists in Australia using these outcomes measures longitudinally. However, in the future further analysis will be possible once the longitudinal LSAC data using these measures becomes available.

The regression formula used in the model is below:

$$y_{it} = \alpha + \beta T_{it} + \gamma A_{it} + v_i + u_{it}$$

where,

$i = 1$ to N

$t = 1, 4$ time periods

y_{it} = score on test/scale? for child i at period t

T_{it} = 1 if $t = 4$, 0 otherwise,

A_{it} = age (in months) of child i at time t ,

v_i and u_{it} are identically normally distributed random error terms, independent across children, and across children and time respectively.

Three different models were estimated:

Models 1: includes a single dummy variable indicating if the observation is at T4

Models 2: as above and also includes age (in months)

Models 2*: as above for Model 2 but excludes Area 2

Table 3.9 shows the regression results for staff ratings of their relationships with children over time. Model 1 examines changes over time in the results for each of the STRS subscales of conflict, closeness and dependency. These results reflect those in the bi-variate paired t-test analysis outlined in Section 3.2.

These results reflect those in the bi-variate paired t-test analysis outlined in Section 3.2. Model 2 also controls for age. Conflict, in particular, tends to fall with age (0.2 units per extra month of age). Hence, when we control for age, the negligible difference in conflict scores shown in the first column, becomes a significant increase (because we should have expected conflict to decrease over the 18 months rather than show no change).

However, further investigations revealed that increased conflict was driven by Area 2 rather than across all areas combined. Model 2* therefore excluded Area 2 from the sample, while controlling for age. The association with age in this reduced sample is only half as strong, which in turn implies a non-significant increase in conflict. Further investigation is required (such as calibration against future LSAC data releases) to more firmly establish how much the bivariate results should be adjusted to take account of the ageing of the sample.

Table 3.9: Pianta Student-Teacher Relationship Scale: Regression Models

Pianta, STRS	Conflict			Closeness			Dependency			Total STRS		
	Model 1	Model 2	Model 2*	Model 1	Model 2	Model 2*	Model 1	Model 2	Model 1	Model 2	Model 2*	
T4	0.3	3.8***	1.7	1.4*	0.7	2.6*	-0.7*	0.6	1.9	-3.7**	0.0	
Age	-	-0.2***	-0.1**	-	0.0	0.0	-	-0.1	-	0.3***	0.2**	
Intercept	18.8	24.0***	23.0***	42.8***	41.7	42.6***	9.2***	11.1***	116.7***	108.5***	109.9***	
N	383	383	203	382	382	202	383	383	382	382	202	
R2	0.00	0.07	0.05	0.01	0.02	0.05	0.02	0.07	0.01	0.07	0.09	
Chi	0.16	27.05	11.51	5.07	6.79	9.4	5.83	28.84	2.23	27.29	19.12	
SIG	0.687	0.000	0.003	0.024	0.034	0.009	0.016	0.000	0.136	0.000	0.000	

* Excludes area 2 P< .001***

P< .01**

P< .05*

Table 3.10 shows the regression results for staff ratings of the social-emotional development for children less than 3 years of age based on BITSEA scores. After controlling for age (Model 2) significant increases are evident in staff ratings of problems but this effect is no longer evident once Area 2 is excluded from the sample (Model 2*). These findings reflect the results in the regression analysis for the SDQ and further analysis is required to determine how the bivariate results should be adjusted due to the ageing of the sample.

Table 3.10: BITSEA Scores Reported by Staff: Regression Models

SDQ	Problem			Competence		
	Model 1	Model 2	Model 2*	Model 1	Model 2	Model 2*
T4	5.4**	6.6***	-0.5	0.2	-0.9	1.8
Age	-	-0.2*	-0.1	-	0.2***	0.3***
Intercept	6.9***	11.7***	7.0**	14.7***	9.8***	7.7***
N	118	118	60	118	118	60
R2	0.07	0.12	0.01	0.00	0.13	0.22
Chi	9.05	15.92	0.61	0.04	17.78	16.07
SIG	0.003	0.000	0.736	0.848	0.000	0.000

* Excludes area 2 P< .001***

P< .01**

P< .05*

Table 3.11 and Table 3.4 shows the regression results for the social-emotional development for children aged 3 years and above based on SDQ scores. As previously described, Model 1 results reflect the bivariate analysis reported in Section 3.4 and indicate a decrease in peer problems, hyperactivity and total emotional and behaviour scores and an increase in prosocial behaviour over time. If age is included in the model (Model 2) all results hold with the exception of the decrease in hyperactivity scores and there is slight increase in conduct scores. If area two is excluded there were no changes in the results for emotion, hyperactivity, peer problems and prosocial behaviour. However, this significant increase in conduct disappears when Area 2 is

excluded from the sample (so perhaps in this case results from area 2 were responsible for the significant change and there was no significant change in areas 1 and 3). The results provide some evidence that there were significant decreases in peer problems and significant increases in prosocial behaviour as a result of the PIEC program.

Table 3.11: SDQ Emotion, Conduct and Hyperactivity Subscales Scores Reported by Staff: Regression Models

SDQ	Emotion		Conduct			Hyper	
	Model 1	Model 2	Model 1	Model 2	Model 2*	Model 1	Model 2
T4	-0.1	0.2	0.3	0.9**	0.6	-1.1**	-0.2
Age	-	0.0*	-	-0.1***	0.0*	-	-0.1
Intercept	1.4***	2.5***	1.1***	3.0***	2.5***	3.8***	6.8
N	262	262	263	263	143	264	264
R2	0.00	0.02	0.01	0.05	0.04	0.04	0.09
Chi	0.08	4.57	1.63	14.73	5.61	9.77	26.74
SIG	0.779	0.102	0.202	0.001	0.061	0.002	0.000

* Excludes area 2 P< .001***

P< .01**

P< .05*

Table 3.12: SDQ Peer Problems, Prosocial and Total Difficulties Scores Reported by Staff: Regression Models

SDQ	Peer		Prosoc		EBD		
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 2*
T4	-1.3***	-0.8**	1.4***	1.0*	-2.0*	0.2	-0.5
Age	-	0.0**	-	0.0*	-	-0.2***	-0.1*
Intercept	2.6***	3.9***	5.9***	4.5***	8.8***	16.1***	13.9***
N	264	264	261	261	262	262	143
R2	0.09	0.11	0.06	0.08	0.02	0.09	0.07
Chi	25.77	33.25	17.23	21.43	6.4	26.45	10.73
SIG	0.000	0.000	0.000	0.000	0.000	0.000	0.000

* Excludes area 2 P< .001***

P< .01**

P< .05*

Model 1 in Table 3.13 below mirrors the results of the bivariate analysis showing a significant increase in staff ratings of how comfortable children were within the childcare centre or preschool. Once age is accounted (Model 2), although there is still an increase in staff rating over time, it is not statistically significant. This could be a by-product of the significantly high rating in Area 1 at T1 compared to other areas, making changes over time unlikely.

Table 3.13: Leiden Inventory for the Child’s Well-being in Day Care: Regression Models

	Leiden	
	Model 1	Model 2
T4	3.5***	1.6
Age	-	0.1*
Intercept	56.6***	53.9***
N	383	383
R2	0.04	0.05
Chi	15.69	21.42
SIG	0.000	0.000

* Excludes area 2 P< .001***

P< .01**

P< .05*

Regression analysis was also undertaken to investigate whether changes in parents’ relationships and their ratings of the social-emotional development of their children changed over time once age was controlled for. It is not surprising given parents’ overall positive ratings of their relationships with their children at T1 that significant changes in the CPRS subscales of conflict, closeness and dependency were not evident over time (see Table 3.14).

Table 3.14: Pianta Child-Parent Relationship Scale: Regression Models

Pianta CPRS	Conflict		Closeness		Dependency		CPRS Total	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
T4	0.5	0.9	0.4	-1.1	-0.5	-0.3	0.0	-2.0
Age	-	0.0	-	0.1***	-	0.0	-	0.1
Intercept	26.3***	27.1***	43.9***	40.4***	12.4***	13.0***	107.6	102.9
N	220	220	219	219	220	220	220	220
R2	0.00	0.00	0.00	0.07	0.01	0.02	0.00	0.03
Chi	0.24	0.53	0.38	16.13	2.39	3.59	0	5.91
SIG	0.623	0.767	0.539	0.000	0.122	0.166	0.989	0.052

P< .001***

P< .01**

P< .05*

Table 3.15 shows the results of the regression analysis of changes in parents’ ratings of the social-emotional development for children under 3 years of age. Although the direction of change for both the problems and competency subscales are in the expected directions no significant changes are evident over time.

Table 3.15: BITSEA Scores Reported by Parents: Regression Models

BITSEA	Problem		Competency	
	Model 1	Model 2	Model 1	Model 2
T4	-0.9	-0.8	0.5	0.4
Age	-	-0.1	-	0.0
Intercept	9.1***	12.4***	16.9	15.8***
N	67	67	67	67
R2	0.00	0.03	0.00	0.02
Chi	0.14	1.67	0.17	0.97
SIG	0.709	0.434	0.677	0.614

P < .001***

P < .01**

P < .05*

Table 3.16 and Table 3.17 show the regression results for parents' ratings of the social-emotional development of children aged 3 years and over. Once age is controlled for (Model 2) significant decreases are evident in conduct and peer problems and also total emotional and behavioural problem scores. These results reflect those of the staff suggesting that PIEC has some impact on decreasing peer problems and promoting prosocial behaviour for children involved in the program.

Table 3.16: SDQ Emotion, Conduct and Hyperactivity Subscales Scores Reported by Parents: Regression Models

	Emotion		Conduct		Hyper	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
T4	0.0	0.0	-0.4	-0.7***	-0.4	-0.7
Age	-	-0.1	-	-0.5**	-	-0.6*
Intercept	1.4***	1.6*	2.0***	4.3***	3.5*	6.4***
N	153	153	153	153	152	152
R2	0.00	0.00	0.01	0.06	0.01	0.05
Chi	0	0.21	1.99	9.41	0.88	7.56
SIG	0.964	0.901	0.158	0.009	0.347	0.023

Table 3.17: SDQ Peer Problems, Prosocial and Total Difficulties Scores Reported by Staff: Regression Models

SDQ	Peer		Prosoc		EBD	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
T4	-0.5*	-0.6*	0.2	0.5	-1.3	-1.9*
Age	-	0.1	-	0.7***	-	-1.3**
Intercept	1.9	2.5**	7.3***	4.1***	8.8***	14.9***
N	153	153	153	153	152	152
R2	0.03	0.03	0.00	0.09	0.02	0.02
Chi	4.04	4.68	0.48	14.41	2.6	9.93
SIG	0.044	0.096	0.488	0.001	0.107	0.007

P < .001***

P < .01**

3.7 Summary and Discussion

There are positive changes reported by staff and parents in the two primary domains of attachment relationships and social-emotional well being.

While the majority of staff started off with positive and effective relationships with the children, over time the bi-variate analysis showed there was a significant increase in staffs' ratings of the closeness of these relationships and a decrease in reported dependency levels. Parents report significantly lower levels of dependency in the bi-variate analysis across all areas.

The main changes reported by staff over time in terms of social-emotional well-being are a significant decrease in peer problems and a significant increase in prosocial behaviour. The main changes reported by staff over time in terms of social-emotional well-being are a significant decrease peer problems; significant decrease in conduct problems; and significant decrease in total difficulties.

Staff-reported quality of child care using the Leiden inventory improved based on the bi-variate analysis. There was a significant increase in the ratings of how comfortable the children were in the service across all areas combined.

These results provide evidence that significant changes have occurred in three of the primary domains in which they were predicted according to the PIEC project model logic: attachment relationships; social-emotional development and processual quality in child care based on the bi-variate analysis. However, it is possible that these changes could have come about due to other factors, such as age. Multivariate regression analysis was therefore used, to test whether or not the changes were still evident when these factors were introduced as control variables. Using multivariate analysis and controlling for age, positive changes in attachment relationships is evidenced by increasing closeness in two areas, indicating more secure attachment between staff and children. These results add weight to the hypothesis that these changes happened as a result of participation in the program and not as the result of growing older. The significance of these changes is discussed in Section 7.

Although most changes to the subscales of each of the instruments were in the direction predicted by the project logic, multivariate regression analysis shows an increase in the conflict subscale of the SPRS scores and in the problem domain of the BITSEA, used for younger children, when age is used as a control variable in one Area. An increase in conflict in itself is not necessarily a negative result. Staff can experience conflict in their relationship with a child but still report having a close relationship with that child. Further analysis is required to establish how the bi-variate analysis should be adjusted to take account of the changes in age of the sample.

Overall there were positive changes in attachment relationships in the closeness domain in two areas, after controlling for age. The second domain of child outcomes relates to emergent social-emotional development problems, as identified by the SDQ and BITSEA. Because staff and parents rated most children in the 'normal' range using these scales at T1, dramatic differences in behaviours over the course of the study were not anticipated. However, the multivariate analysis showed positive changes are evident in prosocial behaviour and peer problems.

4 Impact Evaluation Findings: Parenting and Community Connectedness

This section reports on the impact of the PIEC program on parenting self-efficacy and linking families to support and the community. These relate to the ITG Priority Area of ‘supporting children and families’ and three PIEC objectives:

- Greater confidence in parenting skills
- Greater access to support services for parents and informal supports for their family
- Child care centres established as a focal point for families in the community

4.1 Family relationships and functioning

The PIEC program aims to improve the parent-child relationship by providing parents with information and support so they gain greater confidence in their parenting skills. PIEC provides support to parents via printed information, informal gatherings such as morning teas, playgroups, parenting sessions and individual support and counselling. All PIEC workers involved in the process evaluation (see Section 6) reported that contact with parents was often difficult to organise due to time pressures within families. Attendance at parent information sessions was often poor with some sessions cancelled. Individual support was also provided to some families by the PIEC workers. Parents involved in the process evaluation who accessed this support reported that it helped them to understand their child’s behaviour better and to change their parenting style. Given the limited number of parents accessing intensive support, it is not surprising that when asked to rate themselves as a parent on a scale of 1 (‘not very good at being a parent’) to 5 (‘a very good parent’) that over time no significant difference was found, particularly given that at T1 most parents rated themselves as a better than average parent (Table 4.1). These results are similar to the findings in the LSAC data Wave 1 on parenting self-efficacy where the majority rated themselves as an average parent or above (Australian Institute of Family Studies, 2004).

Table 4.1: Overall rating as a parent over time

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All Areas</i>	132	4.07	4.09	0.78	0.81	2	2	5	5	NS
<i>Area 1</i>	52	4.08	4.06	0.81	0.89	2	2	5	5	NS
<i>Area 2</i>	59	3.97	4.07	0.72	0.76	3	2	5	5	NS
<i>Area 3</i>	21	4.33	4.24	0.86	0.77	3	3	5	5	NS
Paired sample t-test		P< .001*** P< .01** P< .05*								

Parents were also asked a series of questions to examine changes in parenting interactions over time. Parents were asked to indicate on a five-point scale (1= ‘never/almost never’ to 5= ‘always or almost always’) how often they gave affection to or showed their feelings towards their child. Table 4.2 shows that overwhelmingly the majority of parents in the sample indicated they had an affectionate relationship

with their child, felt close to their child and enjoyed listening and doing things with them.

At T4 there were no significant differences, compared to T1, in parents' average ratings of most aspects of parenting including: hugging or holding their child, talking things over with their child or reasoning with them when they misbehaved; telling their child how happy they made them; having warm close times together with their child; enjoyed listening to their child and doing things with them and felt close to their child. However, Table 4.2 shows there was a significant difference in some aspects of parenting across all areas combined and within areas between T1 and T4. Across all areas combined and in Area 2, at T4 the average rating of how often parents explained to their children why they were being corrected had increased. At T4 across all areas combined and in Area 1 there was a significant increase in the average rating of how often parents gave their child reasons why rules should be obeyed, which is a positive change.

Table 4.2: Parenting Self-Efficacy: Changes over time, by area

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All Areas</i>										
Thinking about your child over the last 6 months, how often did you...										
..hug or hold your child	134	4.79	4.75	0.49	0.53	2	2	5	5	NS
...talk it over, reason	132	4.35	4.43	0.72	0.69	2	1	5	5	NS
..how happy child makes you	135	4.47	4.48	0.74	0.61	2	2	5	5	NS
..reason why rules obeyed	134	4.16	4.36	0.81	0.63	1	3	5	5	*
..explain why being corrected	132	4.15	4.31	0.83	0.68	1	2	5	5	< .1
..warm close time with child	134	4.50	4.52	0.62	0.63	2	2	5	5	NS
..enjoy listening/doing things	134	4.58	4.54	0.57	0.61	2	2	5	5	NS
..feel close when happy/upset	134	4.64	4.60	0.55	0.60	2	2	5	5	NS
..hug, kiss and hold your child	134	4.86	4.80	0.41	0.46	2	3	5	5	NS
<i>Area 1</i>										
explain why being corrected	52	4.00	4.31	0.89	0.61	1	3	5	5	*
<i>Area 2</i>										
..reasons why rules obeyed	61	4.20	4.43	0.75	0.59	2	3	5	5	*
Paired sample t-test	P< .001*** NB only significant difference within areas is presented here. P< .01** P< .05*									

4.2 Access to support and community connectedness

Another aim of PIEC focuses on increasing parents' social capacity and community connectedness. To examine changes over time in these outcomes, parents were asked a number of questions about access to informal and formal support and links to the community.

4.3 Access to informal support

Table 4.3 shows parents reports of frequency of contact (email, telephone or in person) with informal support. Answered ranged from 1= 'no contact' to 6 = 'every day'. On average parents had reasonably frequent contact with informal support. Over time the average contact with other family members increased across all areas combined and within Area 3 suggesting that there was little change in the other areas. There were no other significant changes over time.

Table 4.3 Parents' links to informal support

	N	Mean	Mean	SD	SD	Min	Min	Max	Max	Sig
All Areas		T1	T4	T1	T4	T1	T4	T1	T4	
How often do you see, talk email with the following....										
Parents	127	5.00	5.12	1.00	1.00	1	6	6	6	NS
Partner's parents	109	4.21	4.17	1.14	1.20	1	6	6	6	NS
Other family members	133	4.37	4.54	0.87	0.79	1	2	6	6	*
Friends	133	4.95	5.01	0.81	0.75	1	3	6	6	NS
Neighbours	130	4.31	4.48	1.37	1.37	1	6	6	6	NS
<i>Area 3 SW</i>										
Other family members	21	3.81	4.57	1.12	0.87	1	2	6	6	**
Paired sample t-test										
				P< .001***						NB only significant difference within areas is presented here.
				P< .01**						
				P< .05*						

The PIEC program aims to connect families to information and support. Parents were asked to nominate the kinds of services they had used in the last 12 months. It was anticipated that PIEC would increase access to services and support for families who need it.

Table 4.4 shows that parents accessed a range of services most particularly GP services, dental services, other medical specialists, hospital emergency wards and church or religious groups. Over time there was a significant decline in the use of playgroups (all areas combined and Area 1, 2) and maternal and child health nurses (all areas combined and Area 2), most likely due to less need for these services as children grow older. Over time there was a significant decrease in the use of hospital emergency wards in Area 2 and GP services in Area 3.

Table 4.4 shows that in Area 1, where connecting families to formal support was a particular focus within the PIEC program, there was a significant change in use of speech therapy and dental services.

Table 4.4: Receipt of Services for Child or Family Members in the Last 12 months: Changes over time, by area

	N	Yes (%)	Yes (%)	McNemar Chi	Sig
		T1	T4		
<i>All Areas</i>					
Playgroup or parent-child group	143	42.7	24.5	14.881	***
Parenting education courses or parent support groups	143	13.3	14.7	0.036	NS
Maternal and child health nurse	143	30.8	16.1	7.547	**
Hospital emergency ward	143	51	44.8	1.085	NS
Hospital outpatient clinic	143	21.7	18.2	0.485	NS
GP services	143	90.2	80.4	6.036	*
Adult mental health services	143	4.2	2.8	-	-
Migrant/ethnic resource services	143	0.7	0	-	-
Speech therapy	143	13.3	21	3.226	P < .1
Dental services	143	42.7	48.3	1.289	NS
Paediatrician	143	25.2	18.9	1.641	NS
Other medical specialists	143	34.3	30.1	0.543	NS
Other medical services	143	17.5	12.6	-	-
Disability services	143	2.1	2.1	-	-
Church or religious groups	143	20.3	20.3	-	-
Drug or alcohol services	143	1.4	0	-	-
Counselling services	143	12.6	11.2	-	-
Psychiatric services	143	4.2	4.9	-	-
Housing services	143	2.8	1.4	-	-
Charities (e.g. Salvation Army)	143	3.5	3.5	-	-
Other child/family service	143	4.2	1.4	-	-
<i>Area 1</i>					
Playgroup or parent-child group	52	40.4	23.1	-	*
Speech therapy	52	19.2	34.6	-	P < .1
Dental services	52	28.8	51.9	-	**
<i>Area 2</i>					
Playgroup or parent-child group	61	57.4	34.4	-	**
Maternal and child health nurse	61	37.7	13.1	-	**
Hospital emergency ward	61	57.4	41	-	P < .1
<i>Area 3</i>					
Hospital outpatient clinic	30	23.3	3.3	-	*
GP services	30	80	56.7	-	P < .1

P < .05* The McNemar's test is a non-parametric applied to dichotomous variables using a paired sample.

One of the aims of PIEC focuses on increasing parents' social capacity and community connectedness. Parents were asked about their attitudes towards their local neighbourhood and links to the community to gain some measure of their community connectedness.

Access to support can be a crucial factor in reducing isolation for families and building resilience within families and communities. Table 4.5 shows that difficulties

in getting support when needed ‘often’ or ‘very often’ on average were highest in Area 3 and lowest in the Area 1 at T1. There are no consistent patterns in the results at T4. Across all areas the number of parents there were no significant difference over time.

Parents were also asked how they felt about their neighbourhood as a place to bring up children on a scale of 1 (poor) to 4 (very good). On average parents felt about their neighbourhood was a good place to bring up children at T1. Over time there were no significant differences in this rating.

Table 4.5: Neighbourhood and access to support: Changes over time, by area

	N	Mean T1	Mean T4	SD T1	SD T4	Min T1	Min T4	Max T1	Max T4	Sig
<i>All Areas</i>										
How often you need support or help but can’t get it	130	3.42	3.37	0.61	0.66	2	4	1	4	NS
Feelings about neighbourhood as a place to bring up children	134	3.13	3.25	0.66	0.53	1	1	4	4	NS
<i>Area 1</i>										
How often you need support or help but can’t get it	50	3.52	3.40	0.61	0.57	2	2	4	4	NS
Feelings about neighbourhood as a place to bring up children	52	3.27	3.25	0.45	0.44	3	3	4	4	NS
<i>Area 2</i>										
How often you need support or help but can’t get it	60	3.32	3.32	0.60	0.72	2	1	4	4	NS
Feelings about neighbourhood as a place to bring up children	61	3.08	3.30	0.69	0.56	1	1	4	4	P < .1
<i>Area 3</i>										
How often you need support or help but can’t get it	20	3.45	3.45	0.60	0.69	2	2	4	4	NS
Feelings about neighbourhood as a place to bring up children	21	2.95	3.10	0.92	0.62	1	1	4	4	NS
Paired sample t-test		P< .001*** P< .01** P< .05*								

Participation in community service activities can indicate connectedness to the local community, shown in Table 4.6. It is interesting to note that the majority of parents are not involved in these activities, perhaps reflecting the amount of time required to care for young children and to participate in paid work. At T4 there was a significant increase compared to T1 in the percentage of parents participating in ongoing community service activities across all areas combined. Within Areas there were no significant differences over time although the percentages have increased, especially in Areas 1 and 3.

The final question in this table relates to community cohesion. Response to the question ‘would you like to move away from your neighbourhood?’ provides an indication of attitudes towards living in a particular area. At T1 the highest ‘yes’ response was from Area 3, where over a third said that they would move if they could.

At T4 there were no significant differences across all areas combined and within areas.

Table 4.6: Community Connections

	N	Yes (%)	Yes (%)
<i>All Areas</i>		T1	T4
Participates in community activities	134	23.9	31.3
Would like to move	135	20	24.4
<i>Area 1</i>			
Participates in community activities	52	26.9	38.5
Would like to move	52	7.7	21.2
<i>Area 2</i>			
Participates in community activities	60	23.3	26.7
Would like to move	61	24.6	24.6
<i>Area 3</i>			
Participates in community activities	22	18.2	27.3
Would like to move	22	36.4	31.8

NcNemar Chi test was conducted on these responses but could not be calculated due to small cell size.

4.4 Summary

PIEC aims to support parents in their parenting and to linking families to the community more broadly via information, individual and group parenting sessions and opportunities to meet other parents and helping parents to access other services. Over time, parents indicated changes in a positive direction in some areas of parenting including giving their children a reason why rules should be obeyed and how often parents explained to their children why they were being corrected. As these changes were not part of a consistent change in parent-reported efficacy it is not possible to attribute them with any confidence to PIEC. Nonetheless, these changes suggest that parents have more responsive and consistent patterns of interaction with their children, which will promote children's security and thereby reduce problem behaviours.

Evidence of changes in families' community connectedness is weak, although parents across all areas combined indicated increased contact with other family members over time and there were some increases in service use in two areas. Overall, attitudes toward the local neighbourhood did not change over time. The relative lack of impact of PIEC on community connectedness is probably due to the emphasis of the program on staff-child relationships during its first two years of implementation.

5 Implementation and Perceived Usefulness of PIEC

This section reviews the data collected from parents and staff on how useful each component of the intervention was perceived to be, and on the overall usefulness of PIEC. Staff were also asked to assess the extent to which the different program elements had been implemented.

5.1 Parents rating of usefulness

At T4 parents were asked to rate the overall usefulness of PIEC and the individual program components on a scale of 1 to 10, with 1 'being not useful at all and 10 being extremely useful. The mean rating was 7 or above in terms of usefulness. These high ratings are also reflected in Table 5.1 which shows parents' overall ratings of the various components of PIEC on a scale of 1 'not at all useful' to 5 'very useful'. In most instances with the exception information about community events on average parents rated the components of PIEC as useful or very useful across all areas combined.

Table 5.1 Parents' Rating of Usefulness of PIEC Program Components: T4

	N	Mean	SD	Min	Max
<i>All Areas</i>	T4	T4	T4	T4	T4
Parent information sessions	113	3.88	1.12	1	5
Individual support from PIEC worker	124	3.90	1.12	1	5
Information about services	153	3.65	1.05	1	5
Support to access services	122	3.54	1.08	1	5
Information about community events	135	3.44	1.12	1	5
Opportunities for contact with other parents	127	3.60	1.02	1	5
Printed information and handouts from PIEC worker	180	3.91	1.11	1	5

5.2 Parents access to PIEC

As outlined previously, PIEC comprises a number of different components. Parents were asked if they had received information or support from the PIEC worker in relation to the different parenting components, including aspects of parenting, child development, opportunities to meet other parents, and accessing services. Table 5.2 shows that on average parents' access to support from the PIEC worker in all program areas, except helping parents feel good about themselves, had increased between T1 and T4. Most noticeably, in Area 1 there was a significant increase in the percentage of parents who had been helped by the PIEC worker in relation to all but one of the items listed in Table 5.2. In Area 3 there was a significant increase in the percentage of parents indicating that PIEC had helped them with parenting their child and information about services. There was an increase, across all areas combined between T1 and T4, in the number of parents who had gained skills from the PIEC worker about how to play with their child and how to improve their child's development.

Table 5.2 Parents' Receipt of PIEC Components: Changes over time, by area

	N	Yes (%)	Yes (%)	McNemar Chi	Sig
<i>All Areas</i>		T1	T4		
Helped you in your parenting	119	20.2	41.2	37.5	***
Helped you learn about your child's learning and development	117	29.1	54.7	15.018	***
Teach you the skills about how to play with and teach your child	110	14.5	43.6	24.025	***
Support and respect your families culture	107	13.1	27.1	6.759	**
Help you find support by talking with other parents	107	8.4	30.8	16.531	***
Help to improve your child's development or behaviour	112	25	57.1	22.685	***
Help you in your relationship with partner	107	3.7	8.4	-	-
Hep you feel good about yourself	108	11.1	16.7	-	-
Tell you about other services to help your child	111	22.5	44.1	11.021	**
Tell you about other services to help your family	110	14.5	37.3	14.049	***
Provide an opportunity to meet other parents	110	25.5	49.1	14.58	***
<i>Area 1</i>					
Helped you in your parenting	44	31.8	59.1	-	**
Helped you learn about your child's learning and development?	45	40	48.9	-	-
Teach you the skills about how to play with and teach your child	40	25	52.5	-	**
Help you find support by talking with other parents	41	14.6	36.6	-	*
Help to improve your child's development or behaviour	42	33.3	57.1	-	*
<i>Area 2</i>					
Helped you in your parenting	57	14	56.9	22.321	***
Helped you learn about your child's learning and development	56	19.6	57.1	14.815	***
Teach you the skills about how to play with and teach your child	55	9.1	34.5	-	**
Support and respect your families culture	53	11.3	18.9	-	-
Help you find support by talking with other parents	50	6	24	-	*
Help to improve your child's development or behaviour	55	18.2	56.4	14.815	***
Tell you about other services to help your child	53	9.4	30.2	-	*
Tell you about other services to help your family	54	5.6	29.6	-	**
Provide an opportunity to meet other parents	54	22.2	51.9	8.036	**
<i>Area 3</i>					
Helped you in your parenting	18	11.1	55.6	-	**
Helped you learn about your child's learning and development	16	31.3	32.5	-	-
Teach you the skills about how to play with and teach your child	15	6.7	53.3	-	*
Support and respect your families culture	15	6.7	46.7	-	*
Help you find support by talking with other parents	16	0	37.5	-	*
Tell you about other services to help your family	14	14.3	57.1	-	*
Provide an opportunity to meet other parents	16	18.8	68.8	-	**

P< .001*** NB only significant difference within areas is presented here.

P< .01**

P< .05*

5.3 Staff rating of usefulness

Table 5.3 Staff rating of usefulness T4

	N	Mean	SD	Min	Max
		<i>T4</i>	<i>T4</i>	<i>T4</i>	<i>T4</i>
<i>All Areas</i>					
Playspaces	96	4.43	0.64	2	5
Training in attachment and relationships	97	4.46	0.63	2	5
Information on child's social-emotional development	96	4.55	0.60	3	5
Linking families to services, information and support	96	4.28	0.82	2	5
Thinking/talking about children's development	98	4.69	0.48	3	5
Feedback and support from PIEC worker	97	4.64	0.58	3	5
Providing information and resources to staff	98	4.41	0.57	3	5
Parent sessions	85	4.01	0.88	2	5
Supporting relationships between children and staffs	97	4.56	0.61	3	5
Supporting relationships between staff and parents	97	4.35	0.74	2	5
Supporting relationships between children and parents	97	4.35	0.72	2	5
Overall improvement to the centre	96	4.48	0.62	3	5
<i>Area 1</i>					
Playspaces	29	4.21	0.77	2	5
Training in attachment and relationships	29	4.66	0.48	4	5
Information on child's social-emotional development	28	4.57	0.50	4	5
Linking families to services, information and support	29	4.62	0.49	4	5
Thinking/talking about children's development	29	4.76	0.44	4	5
Feedback and support from PIEC worker	29	4.72	0.45	4	5
Providing information and resources to staff	29	4.59	0.50	4	5
Parent sessions	29	4.41	0.78	3	5
Supporting relationships between children and staffs	29	4.62	0.49	4	5
Supporting relationships between staff and parents	29	4.52	0.63	3	5
Supporting relationships between children and parents	29	4.52	0.63	3	5
Overall improvement to the centre	29	4.52	0.51	4	5
<i>Area 2</i>					
Playspaces	37	4.51	0.61	3	5
Training in attachment and relationships	38	4.34	0.75	2	5
Information on child's social-emotional development	37	4.70	0.46	4	5
Linking families to services, information and support	36	4.03	0.94	2	5
Thinking/talking about children's development	38	4.71	0.46	4	5
Feedback and support from PIEC worker	38	4.66	0.58	3	5
Providing information and resources to staff	38	4.42	0.55	3	5
Parent sessions	35	4.00	0.80	3	5
Supporting relationships between children and staffs	37	4.76	0.49	3	5
Supporting relationships between staff and parents	38	4.50	0.60	3	5
Supporting relationships between children and parents	38	4.47	0.60	3	5
Overall improvement to the centre	37	4.57	0.55	3	5

Table 5.3 (cont.)

	N	Mean	SD	Min	Max
		T4	T4	T4	T4
<i>Area 3</i>					
Playspaces	30	4.53	0.51	4	5
Information on child's social-emotional development	31	4.35	0.75	3	5
Linking families to services, information and support	31	4.26	0.82	2	5
Thinking/talking about children's development	31	4.61	0.56	3	5
Feedback and support from PIEC worker	30	4.53	0.68	3	5
Providing information and resources to staff	31	4.23	0.62	3	5
Parent sessions	21	3.48	0.87	2	5
Supporting relationships between children and staffs	31	4.26	0.73	3	5
Supporting relationships between staff and parents	30	4.00	0.87	2	5
Supporting relationships between children and parents	30	4.03	0.85	2	5
Overall improvement to the centre	30	4.33	0.76	3	5

Staff were asked to rate the usefulness of the various components of PIEC including playspaces, training in attachment and relationships, the provision of information and linking families to other support services on a scale of 1 'not at all useful' to 5 'very useful'. Table 5.3 shows that the majority of staff rated all components of PIEC as useful or very useful at T4. At T4 staff on average indicated that the different aspects of the program were useful: including training in attachment and relationships, information on the child's social-emotional development, thinking and talking about children's development, feedback from the PIEC worker and providing information and resources to staff. Few differences in the average rating between the areas are evident, with the exception of parent information sessions in Area 3.

5.4 Staff Implementation Rating

PIEC consists of a number of components. At T4 staff were asked to rate to what extent the centre had implemented each component on a scale of 1 'not at all' and 5 'fully', shown in Table 5.4. The implementation score is based on the average score out of five that staff allocated to specific components of the program and is intended to act as a proxy for the differences in the overall level of program implementation across the three different areas. The process evaluation found differences between the centres, at least in the initial stages of the implementation of PIEC, in the emphasis placed on these components. Some centres focused more on supporting families and children and linking them to services, while others focused on attachment training and the introduction of playspaces. This result is consistent with findings from the process evaluation, outlined in Section 6.

Table 5.4: Implementation rating by staff by area

	N	Mean	SD	Min	Max
<i>All areas</i>		T4	T4	T4	T4
Playspaces	97	3.99	0.93	2	5
Training in attachment and relationships for staff	97	4.39	0.80	1	5
Parenting information sessions	87	3.87	1.28	1	5
Linking families to services, information and support	96	4.30	0.81	2	5
Linking families to the community	96	4.07	0.91	1	5
<i>Area 1</i>					
Playspaces	29	3.48	0.99	2	5
Training in attachment and relationships for staff	29	4.62	0.62	3	5
Parenting information sessions	29	4.52	0.63	3	5
Linking families to services, information and support	29	4.79	0.41	4	5
Linking families to the community	29	4.62	0.62	3	5
<i>Area 2</i>					
Playspaces	37	4.46	0.73	3	5
Training in attachment and relationships for staff	37	4.43	0.83	1	5
Parenting information sessions	37	4.22	1.08	1	5
Linking families to services, information and support	36	4.39	0.73	3	5
Linking families to the community	36	3.92	0.97	1	5
<i>Area 3</i>					
Playspaces	31	3.90	0.83	2	5
Training in attachment and relationships for staff	31	4.13	0.85	2	5
Parenting information sessions	21	2.38	1.12	1	4
Linking families to services, information and support	31	3.74	0.86	2	5
Linking families to the community	31	3.74	0.86	2	5

5.5 Summary

The evaluation findings indicate that PIEC has supported parents in their parenting role. Over time there has been a significant increase in the number of parents accessing support from the PIEC worker and overall ratings of the usefulness of the program by parents and staff were high.

6 Process Evaluation

The formative or process component of the evaluation focuses on the development and implementation of the PIEC program. It aims to monitor the extent to which services are delivered in the form envisaged by the Benevolent Society. Where the results of the program are not those envisaged by the Benevolent Society, the evaluation design, based on the principles of action research, seeks to inform current and future developments of the PIEC program (Wadsworth, 1993).

6.1 Process Evaluation Questions

The overall aim of the process evaluation is to determine whether and how the PIEC program has improved outcomes for children. It also aimed to determine the extent to which the model has contributed to improvements in these outcomes. The following questions were investigated in the process evaluation:

- To what extent is the implementation of the PIEC program consistent with the Project Logic?
- What factors supported or impeded the implementation of the PIEC program internally and externally?
- Was the implementation of the model effective and efficient?
- What have been the key changes implemented in the PIEC program as a result of the implementation?
- What were the strengths and key challenges?
- Are the project delivery documentation, including project management guidelines, quality assurance systems and staff training programs proving to be adequate, appropriate and supporting effective project operations? If not, what action is planned to refine them?

6.2 Data Sources

This section describes the data collection methods and instruments used in the process evaluation component. A triangulated methodology is employed to explore the process of development and implementation and the experiences of stakeholders from a number of perspectives. This component of the evaluation consisted of interviews with key personnel, children's services staff interviews and parents/carers.

The process evaluation was conducted in six sites, two in each of the three areas. Table 6.1 summarises the data collection for this first round, which took place between August and December 2006. Child care/preschool and parent interviews were held in August and key personnel interviews in November and December. In person interviews were conducted with children's services staff and telephone interviews were conducted with key personnel from partner organisations. PIEC workers and parents were interviewed in person and via the telephone. The second round of data collection took place in October and November 2007. Where possible the same participants were interviewed in the second round.

Table 6.1 Interview Participants

	All areas		Area 1		Area 2		Area 3	
	Aug 06	Oct 07	Aug 06	Oct 07	Aug 06	Oct 07	Aug 06	Oct 07
Key Personnel (partner organisations, Benevolent Society, PIEC staff)	11	8						
Directors	6	7	2	2	2	2	2	3
Centre-based children's services staff	16	14	4	5	8	4	4	5
Families	10	11	3	3	5	6	2	2
Total	43	40	9	13	15	14	8	13

Key personnel interviews

A number of face-to-face interviews in each site involving key personnel from the Program including the representatives from the partner organisations involved in PIEC, PIEC's program staff and Directors were conducted to gain the management level perspective on the implementation process.

Topics discussed in the interviews included:

- Implementation process of the PIEC program
- Perceived impact of the PIEC program
- Barriers and difficulties

Children's services staff

Up to 5 interviews were conducted with children's services staff in each site to examine the differences between process goals and practice.

Topics discussed in the interviews included:

- Knowledge of aims and objectives of the PIEC program
- Changes in processes as a result of the PIEC program
- Barriers and difficulties
- Perceived impact of the PIEC program

Family interviews

A sample of parents/carers were interviewed about their experience with the PIEC program and perceived impact. The sample included parents who have participated in the different types of interventions within the program.

Topics discussed in the interviews included:

- Access to information/support via the PIEC program
- Parents/carers contact with the psychologist/family worker

- Relationships with children’s services staff
- Perceived impact of the PIEC program on children’s behaviour
- What has been of most help
- Connection to the community outside the centre or preschool

Review of project documentation

Project documentation was collected as part of the second round of data collection. These included: project delivery documents, management guidelines and protocols, implementation documentation, staff requirements and training modules. These documents were reviewed and are contained in Appendix B.

6.3 Summary of findings from the first round of fieldwork

The first process report describes the early experience of implementation, operation of the PIEC program in the different areas, and barriers and facilitators in change in the first year of the program. The main findings, as summarised in the interim evaluation report, were the following.

- Differences in family demographics, emergent social-emotional difficulties of children and type of setting have all had an impact on the implementation of the program. There is variation on the emphasis being placed on the different activities of the PIEC program between settings.
- Commitment from the partner organisations and directors has been vital to the successful implementation of the program as is an understanding of the theoretical and practical components of the program.
- There is a need to balance the requirement to implement the program as designed with the requirement that the PIEC program be context-responsive and sensitive to the requirements of individual settings.
- It is important that the PIEC program is introduced gradually, while accommodating the particularities of individual sites, staff and relationships.
- There is a high administrative burden imposed on directors through their involvement in meetings and planning.
- There were a number of characteristics of *settings* that fostered openness to change and ready acceptance of what the PIEC program entails. These include a respectful workplace environment; gradual implementation; and support for all staff in changing practice.
- PIEC worker characteristics were also important. The introduction of the PIEC program ran more smoothly when the PIEC worker was familiar with early childhood settings and PIEC’s theoretical basis; adopted the usual practices for the centres or the preschools; and worked as part of the team.
- Some resistance to changing practice occurred when there was a disconnection between staff practice knowledge of ‘what works’ and the model of care proposed by the PIEC program

- Limited time available for PIEC workers to talk to staff, and for staff to step back and reflect on the information provided by PIEC workers, were common issues raised in the interviews.
- Many families across the regions have difficulties and needs that are not readily addressed by any one intervention. It is important that the PIEC program connect parents to services and provide information and training to parents, but this type of intervention is known to be very difficult, time and resource intensive, and with difficult-to-measure effects.
- Establishing connections with families is difficult when PIEC staff are only in the centres or preschools part-time and parents are usually rushing to either drop off or pick up their children.
- Considerable changes seem to have resulted from the implementation of PIEC, although it varies from site to site depending on the length of time it has been operating and the emphasis placed on the different components of the program.
- In most sites the introduction of the PIEC program has led to an increase in staff's reflective capacity and the language used in relation to children's social-emotional development.
- In the area where the PIEC program has focused more directly on linking families with the service system staff noted that they now were more aware of the range of services available to support families in the local area.
- Parents who attended the information and parenting sessions found them very informative and useful.
- The principles of the PIEC program are being incorporated into the centres and preschools, to varying degrees within and across regions, but the program cannot be sustained without resources specifically earmarked for its implementation. (Thomson, valentine et al., 2007: vi-vii)

6.4 Summary of findings from the second round of fieldwork

Detailed findings from the second round of fieldwork are contained in the final process evaluation report (Thomson and valentine, forthcoming). Overall, PIEC had been implemented in each centre that participated in the process evaluation. In the first report we noted that there was variation between and within areas in the focus on the various components within PIEC for example some centre had implemented playspaces completely while others had focused their activities more closely on linking families with services. By the second round of fieldwork, all centres had implemented them, although variations in the way playspaces operated within centres was evident. All interview participants who discussed them were supportive, but also highlighted the challenges posed in implementing them within a long day care setting with fairly high child to staff ratios. Playspaces were described as allowing staff some time to reflect and observe, as bringing about changes to the interactions between children, and making centres or rooms calmer than they had been. They were also described as a big change in some respects. Centre staff described playspaces as counter-intuitive initially, because centre-based children's services are so busy and active and staff are used to moving around. In some cases it seemed that staff still struggled with the practice of playspaces, even though they support them, because of the challenge of sitting down while others were 'working'. Minimum staffing ratios, and difficulties with linking the theory of playspaces to the practical operation within

centres, also represented challenges for some staff. Participants acknowledged these difficulties but were also committed to incorporating them into the regular operation of their centres.

The extent to which playspaces were discussed in interviews is very encouraging as it indicates both engagement with playspaces as a component of PIEC, and adaptation of the program to meet local needs. Both of these suggest that staff at all levels have taken on PIEC as part of their work and that centres are adapting the program to make it work for them, rather than trying to force a new and foreign activity into their practice. There are a few possible risks with this that should be monitored: first, that the rationale behind playspaces is lost in the efforts expended to implement them; and second, that there are so many adaptations and changes made to playspaces that they do not have the desired outcome of fostering a predictable environment.

Another major component of PIEC is providing support to families through playgroups, parent information sessions, informal events such as parent mornings and individual support and counselling. The implementation of this component of PIEC, which involves the provision of information and support to families as well as staff, does not require the significant change in practice that playspaces do. In some settings this component of PIEC was introduced first. This allowed staff to develop relationships and trust with staff and families, before attempting to introduce changes in practice in the centre. Connecting to parents within the centres was, as noted by many PIEC workers, initially quite difficult because of the time needed to develop relationships and trust. However, once these relationships were established PIEC staff reported that parents would approach them for information, to discuss issues of concerns about their children or to help them to organise assessments and contact other services.

An important component of PIEC is providing staff with hands-on training and supervision to increase their understanding of children's behaviours and relationship needs. All centres reported positive changes brought about by this aspect of the program, describing benefits such as having an extra pair of eyes and ears, extra knowledge and different perspectives, opportunities to debrief and strategise, and support and validation of existing practices.

Changing practice through increasing staff understanding of children's behaviours means challenging their knowledge and practices, and this is probably one of the most challenging tasks for PIEC workers. There are several reasons for this. Changing practice is always difficult, and individual staff in centres were not always well-prepared for PIEC in that they did not always know that practice change is a component of it. Because of the challenges of early education and care, especially in centres that are facing resource constraints and/or work intensification, there are relatively few 'teachable moments' for staff in day-to-day activities. As a relationships-based intervention, PIEC relies very heavily on relationships between staff, and where there were difficulties in personal relationships these tended to create difficulties in communicating about the program. PIEC staff occupy a particular position within centres, employed by the Benevolent Society and in the centres for relatively few hours each week. As the program developed, PIEC and other staff developed a range of strategies to deal with each of these issues.

6.5 Summary of process evaluation questions

This section draws on the findings from the first and second rounds of data collection for the process evaluation conducted in August 2006 and October 2007, in response to the process evaluation questions.

1. To what extent is the implementation of the PIEC program consistent with the Project Logic?

The project logic of PIEC is that the program elements of PIEC will lead to improved staff-child relationships, improved relationships between staff, parents, and communities; and improved quality of care, with long-term benefits for children's social-emotional development. The implementation of PIEC was consistent with that logic as specific efforts were directed, as summarised above, on each of the program elements of playspaces; training for staff; provision of information and resources to parents; and social/support groups for parents.

2. What factors supported or impeded the implementation of the PIEC program internally and externally?

The following factors were critical in supporting allow successful *establishment* of PIEC:

- Clear definition of the aims and objectives of the program (including its focus on practice change) to partner organisations, centre directors and staff.
- Development of Memorandums of Understanding specifying the commitment and support from partner organisations.
- Confirm directors' and staff's commitment to the program as part of selection of centres at outset.
- Time to explain the program and allow for gradual introduction of changes.
- Clear definition of the roles and responsibilities of PIEC within the centre.

The following factors were critical in supporting the ongoing *operations* of PIEC:

- Support of partner organisation and directors for the program.
- Clear understanding of the philosophy underpinning PIEC and the resulting practice change.
- Staff involved in planning for changes.
- Staff attendance at training on attachment and Circle of Security early in the implementation process.
- Ongoing training on attachment and Circle of Security, relating theory to experience and practice.
- Continuity of staff (centre and PIEC).
- Time to establish relationships of trust between PIEC worker, staff, children and parents.

The following factors are critical in establishing the ongoing *sustainability* of PIEC:

- Difficult to sustain practices without support of PIEC worker.
- It takes time to embed PIEC principles into day-to-day routines.

3. What have been the key changes implemented in PIEC projects as a result of the implementation?

This section summarises the key changes brought about by PIEC for staff, children and families.

Staff:

- Staff seem more confident and happy just being with the children.
- Staff have a greater understanding what PIEC is trying to achieve.
- Staff are empathetic and have a greater capacity to see things from the children's perspective.
- Staff feel more supported and valued.
- Staff feel more confident in their practice.
- Staff work more as a team.

Children:

- Children feel more secure that staff are there and can be more adventurous.
- Children are supported with transition of the day—settling in and transition back home.
- Children feel more confident to expose their emotions.
- Children seem happier because staff are more predictable and focused on them rather than routine care and administration tasks.
- Centre seems calmer.

Parents/families:

- Families have a different understanding of children's behaviour.
- Some families with multiple or complex needs have received intensive support.
- Families are supported and linked to information and services.

The key challenges in implementing the program were:

- Staff may be reluctant to think about children's emotions at cost of managing behaviour.
- Difficulties associated with being emotionally available to children with high staff to child ratios.
- Resources are required from staff and directors to attend training, supervision, meetings and participate in the evaluation.

- Increasing numbers of casual staff in centres.
 - Difficulties relating theory to practice.
 - Difficulties associated with implementing Playspaces in different settings.
 - Playspaces require constant support and development
 - A flexible approach to Playspaces is required for each centre to make it work.
- 4. Are the project delivery documentation, including project management guidelines, quality assurance systems and staff training programs proving to be adequate, appropriate and supporting effective project operations? If not, what action is planned to refine them?**

Over time PIEC staff reported that the program had become more focused and clear about what was to be achieved. Evidence of this can be found in the development and documentation of the project model and requirements. In the initial stages of the implementation process there was little documentation outlining policies and procedures. Over time protocols and guidelines for the orientation and induction of both PIEC staff and children's services staff, definitions of the role of the PIEC worker and appropriate tasks associated with the position, communication and record keeping and instruction manuals for practice change were developed (see attached documentation in Appendix B). This project delivery documentation is important in standardising the implementation of the program across areas but has also assisted the implementation of PIEC in other centres that became involved in the project more recently.

Overall, we found a very high level of support for the program from each group of participants in this evaluation: parents, PIEC staff, children's services staff and partner organisations. Participants also described barriers to the effective implementation of the program, which included reservations about specific elements of the program, or were based in difficulties in relationships between specific individuals or organisations. An additional barrier, external to PIEC, comes from the challenges of working with young children in centre-based early education and care. Several centres experienced quite severe pressures during the implementation of PIEC. The success of the program and its support from staff is therefore significant, as was the report from several participants that the biggest obstacle to implementing PIEC is workload (Thomson and valentine, 2008).

7 Summary and Conclusions

7.1 Summary of the evaluation findings

The PIEC program uses generalist centre-based children's services to foster attachment relationships between children and caregivers (parents and teachers), to enhance children's social-emotional development. The program also provides support to parents including access to information and services to reduce social isolation.

National and international research shows that providing a range of early childhood interventions delivers positive outcomes, in particular for disadvantaged children.

The PIEC model is based on the importance of high quality early childhood interventions, and its premises are:

- Childcare settings play a significant role in family and community life – often they are the first place families turn to when they need help
- Early childhood staff have considerable expertise in working with families, but often need extra support and assistance to work with parents around sensitive issues.
- Families often need support to build community connections and networks with other families to reduce isolation.
- Early intervention in a childcare setting can help vulnerable children to form positive attachments with peers and significant adults, paving the way for a successful transition to school.
- Quality early childhood programs can reduce the effects of disadvantage for disadvantaged communities

Overall the evaluation findings show that changes relating to the Invest to Grow Priority Areas of 'early learning and care' and 'supporting families and parents' have occurred in particular the relationships between children and staff and children and parents; the social-emotional development of children; and to some degree, community connectedness.

Attachment Relationships

While the majority of staff started off with positive and effective relationships with the children, over time there was a significant increase in staffs' ratings of the closeness of these relationships. At baseline, some parents indicated higher levels of dependency in their relationships with their children when compared with staff. Over time for parents there was a reduction in their ratings of dependency at the bivariate level, which suggests that children have become more secure in their relationships with parents. 'Dependency' describes exaggerated, clingy dependence and reflects insecure attachments.

The main changes as reported by staff over time, based on the bi-variate analysis, include:

- Across all areas staff's ratings of levels of dependency has decreased.

- Staff's ratings of closeness have increased in Areas 1 and 3 combined.

The main changes as reported by parents over time, based on the bi-variate analysis, include:

- Significantly lower levels of dependency across all areas.
- Overall there are movements in a positive direction across the remainder of subscales and total CPRS for all areas although not at a statistically significant level.

Multivariate analysis revealed an increase in staff's ratings of closeness in Area 1 and Area 3.

Children's social-emotional development

PIEC focuses on the development of secure relationships, which it is anticipated over time, will influence the social-emotional development of children. Although at baseline most children's social-emotional development was not problematic, over time staff indicated positive changes in the overall social-emotional development of children and the way children interact with their peers.

The main changes reported by staff over time include:

- Significant decrease in peer problems.
- Significant increase in prosocial behaviour.

For parents the reported changes over time include:

- Significant decrease peer problems.
- Significant decrease in conduct problems
- Significant decrease in total difficulties

Experience of childcare or preschools setting

PIEC also aims to improve the quality of children's early learning experience. One way to assess this is by asking caregivers or teachers how comfortable the child is in the child care centre or preschool. Over time there was an increase in the staff's overall rating of how comfortable the children were in the child care setting but not at a significant level after controlling for age.

Access to information and support

PIEC also provides support to parents via information, individual and group sessions and opportunities to meet other parents. Over time there was a significant increase in the number of parents accessing support from the PIEC workers. Parents also indicated changes in a positive direction in some areas of parenting including giving their children a reason why rules should be obeyed and enjoying doing things with their children.

Overall usefulness of PIEC

Overall, the evaluation shows the PIEC program was highly valued by partner organisations, staff and families, with the majority rating it as useful or very useful.

At T4 on average staff indicated that the different aspects of the program were useful: including training in attachment and relationships, information on the child's social-emotional development, thinking and talking about children's development, feedback from the PIEC worker and providing information and resources to staff were useful. Some differences between the areas are evident, most particularly in relation to linking families to support and services.

7.2 Discussion

A number of limitations of the evaluation method need to be considered in the interpretation of these findings and the extent to which they are generalisable to the broader population. The evaluation method used a pre-test/post-test design to examine changes over time. The intent had been to use a comparison group so that changes in the various domains over time could be more confidently attributed to the intervention. Although a number of options were investigated it proved too difficult and costly to recruit centres not involved in PIEC to participate in the evaluation. Also it is important to note that changes in outcomes over the evaluation period can not be measures against improvement as a result of the experience of being in a childcare setting. Also the evaluation could not collect information about other factors that may influence outcomes including turnover of families in the centres and the reasons staff changes.

Overall the evaluation found changes in the primary domains in which they were predicted according to the project model logic: attachment relationships; social-emotional development; and parenting with the exception of community connectedness. Because most children showed 'normal' behaviour at baseline, it was not anticipated that dramatic differences in behaviours would be shown over the course of the study. However, positive changes, although small in some cases, are evident in some areas, and there are promising indicators in others. This is the case for reductions in conflict and dependency in two areas, as higher levels are predicative of problem behaviours and poor school achievement. Another positive change is in attachment relationships, indicated by decreasing dependency, signifying more secure attachment between staff and children, a core area of the intervention. Also research has shown that attachment scores tend not to change in the absence of an intervention. Changes to attachment relationships in the study groups may then be attributed to the PIEC with some confidence. Although it is always difficult to differentiate between the impact of a program such as PIEC and other factors that may have influence outcomes, these changes appear to be confirmed over the short-term. However, further analysis over a longer period is required to ascertain whether these improvements are sustained over the long-term.

7.3 Conclusions and Recommendations

The PIEC model is contributing to building the Australian evidence base for early intervention in an early childhood setting. At present evidence is largely drawn from overseas research of the impact of quality early childhood intervention programs (such as Perry Preschool High/Scope study, Abercedarian, Chicago Parent-Child

centres and now the latest research from the EPPE (3-11) project and Sure Start Children's Centre's in the UK. The overall evaluation of PIEC program has demonstrated that it is showing promising results in improving attachment relationships, improving children's social-emotional development, improving children's experience of childcare, supporting parents with parenting and high satisfaction rates from participating partners, staff and families.

The theoretical evidence for PIEC is based on the importance of attachment relationships to young children and their caregivers. Securely attached children feel confident in the availability of their carer when needed, and so develop a sense of self-competence. Secure attachment relationships have been shown to be predictors of social competence, better relationships with teachers and less likelihood of behaviour problems (Wartner et al., 1994). Research indicates that attachment quality has an important influence on the success of a child's developmental pathway toward self-reliant adulthood (Hoffman and Marvin, 2006). If children do not feel secure in their relationships with the adults in their environment, their ability to understand and regulate their own emotional state, and to relate to adults and their peers, will be hindered. This can lead to delayed or underdeveloped emotional and social development (Hughes, 1998). While some clinical interventions based on diagnoses of attachment disorders have been criticised (Barth et al., 2005), therapeutic programs based on reducing the risk of insecure and disorganised attachment have been shown to be promising (Hoffman and Marvin, 2006; Suchman et al., 2006).

In the absence of interventions, attachment patterns tend not to change, but interventions can increase the sensitivity of caregivers in child care settings, and increased sensitivity is associated with increases in the attachment security of children (Bakermans-Kranenburg et al., 2005; Howes et al., 1998). One intervention, based on a simplified attachment protocol called the Circle of Security, suggested a 'significant positive impact on the attachment-caregiving patterns of high-risk toddlers, preschoolers, and their primary caregivers' (Hoffman and Marvin, 2006; Suchman et al., 2006). Children with secure attachments to nonparental carers are more socially competent with peers, and longitudinally have more positive relationships with teachers (Howes, 1999; Howes and Shivers, 2006; Pianta et al., 2002). Conversely, poor attachment relationships between children starting school and their teachers have been shown to predict problems in behaviour and test scores in school (Hamre and Pianta, 2001). Attachment security is associated with positive teacher interaction and cognitive activity in child care settings, and low security scores are seen as a cause for concern (Howes and Smith, 1995). Children who have secure relationships with their carers display more competent interaction with staff and more advanced peer play during the early childhood years. These outcomes are sustained well into the second grade (Howes, 2000; Ladd and Burgess, 1999).

An overall objective of PIEC is to improve the quality of care provided in early education and care services. Process quality (appropriate caregiving and developmentally appropriate activities) and structural quality (such as adult: child ratios and the educational qualifications of carers) are both important (Howes and Smith, 1995; NICHD Early Child Care Research Network, 2000; Vandell and Wolfe, 2000; Zenah et al., 2005). Research has found that that children

appear happier, have closer and more secure attachments to caregivers, and perform better on standardized cognitive and

language tests in settings with higher process quality, that is, settings with developmentally appropriate activities and caregivers who are emotionally supportive and responsive to their needs (Vandell and Wolfe, 2000).

Specifically, the development of the PIEC model is based on research showing that high quality interventions focusing on the development of secure relationships between child care staff and children are linked to improved outcomes for high risk children (Shonkoff and Phillips, 2000; Swan and Dolby, 2003; Watson, 2005; Vandell and Hewitt, 1995).

In addition to fostering secure attachment relationships, PIEC aims to support families with all aspects of parenting, through connecting isolated families and linking them to other parents at the centre and appropriate local services. This will lead to improved family capacity and resources and an increase in social and community connectedness. In order to support parents and families in this way, groups such as supported playgroups and parent information and education sessions are run in some centres; and information and referral to services is offered to parents who need it. Early childhood services are emerging in the research literature as having a positive impact on family members other than the child attending, and an impact on building family resilience through the provision of processes, opportunities and relationships (Duncan et al., 2005)

The implementation experience of PIEC included several challenges. In common with the implementation of Sure Start in the UK, Families First in NSW and Best Start in Victoria, it took time for PIEC to be implemented and in some cases more resources than had been anticipated to ensure the capacity of organisations and staff to make the changes to practice involved in PIEC (Fisher et al., 2004; National Evaluation of Sure Start, 2002; Raban et al., 2006). As with any new program, structures and processes are clarified, refined and strengthened throughout the implementation period. Most new and innovative programs take time to be established and it is often towards the end of the funding period that programs are running most effectively. However, there are usually some aspects of the program that would benefit from further refinement to facilitate a more streamlined implementation and PIEC is no exception to this. This should not detract from the achievements of the program to date but rather support the subsequent implementation of the program in other early education and care centres. These include the management of partnerships, project documentation and processes to support the introduction of PIEC within centres. Recommendations from participants involved in the process evaluation to address these issues included:

Management of partnerships

- Provision of clear explanations of the program's aims and objectives and how these are to be achieved.
- Outline the Benevolent Society's expectations of the roles and responsibilities of partner organisations.
- Formulation of written agreements or memorandums of understanding between the Benevolent Society and partner organisations specifying contributions of both parties to the project.

- Strong commitment from partner organisations and centre staff of willingness to participate in the project.
- Provision of clear definitions of role and responsibilities of PIEC workers.

Centre-based children's services

- Providing an orientation package for centres prior to the introduction of PIEC.
- Ensuring all staff are committed to the project.
- Open and ongoing communication between staff.
- Dedicated time for training and reflection.
- Strong leadership to drive change in practice and reinforce the rationale behind proposed changes.
- Providing staff with practical applications of the theoretical approach.
- Ensure children's services staff receive adequate training.

PIEC staff

- The PIEC worker should be familiar with early education and care environments.
- Provide intensive training prior to starting work in the children's services.
- Mentoring or buddy system for PIEC workers in children's services.
- Open processes of feedback between PIEC staff and children's services staff.
- Gradual introduction of changes in practice.
- Build a strong relationship with the director.
- Ensure any concerns and anxieties of children's services staff are addressed to allay fears of being judged (Thomson and valentine, 2008).

In 2005 PIEC was implemented in 14 child care and preschool centres in three separate geographical areas of NSW. Additional centres and preschools, auspiced by a variety of organisation, have come on board since baseline data was collected for the study and hence are not included in the evaluation, demonstrating that the practice is replicable within varied settings and locations.

Overall, PIEC recognises the critical role that early education and care services play in the lives of children, families and communities. Centre-based children's services provide an ideal environment for engaging and supporting families with parenting issues and are often somewhere families turn to when they need assistance. PIEC builds on the existing strengths, skills and resources to provide a universal service designed to support disadvantaged communities. The PIEC model draws on evidence showing that high quality interventions focusing on the development of secure relationships between centre-based staff, parents and children are related to improved outcomes for high risk children. PIEC improves the quality of early education and care services provided to children and families, which is linked to positive outcomes for children's lifetime development.

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Appendix A Instruments:

Seven instruments are used for each wave:

Parent completed for children under 3
Parent completed for children aged 3-4
Parent completed for children aged 4+

Staff completed for children aged under 3
Staff completed for children aged 3-4
Staff completed for children aged 4+

Satisfaction and usefulness ratings have been collected since T2. Some demographic data collected from parents was not collected in subsequent waves.

Surveys for children under 3 incorporate the BISEA; surveys for children older than 3 incorporate two age-specific forms of the SDQ. T4 parent forms for children under 3 and aged 3-4 are included here.

Appendix B: Project Documentation

Attached

Appendix C: Evaluation Framework

Attached