Skill acquisition in parents with an intellectual disability: The effectiveness of in-home behavioural parent training

A thesis submitted in partial fulfilment of the requirements for the degree of DOCTOR OF PHILOSOPHY

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and any editorial work, paid or unpaid, carried out by a third party is acknowledged.

Robyn Mildon

March 2008
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ABSTRACT

Little research has been conducted focusing on parent training strategies aimed at teaching parents with an intellectual disability to implement strategies to decrease their child’s problem behaviour and increase appropriate behaviours. This study aimed to do two things. First, to examine the effectiveness of an enhanced assessment-based BPT intervention that was implemented by parents with an intellectual disability with children with problem behaviour. Second, the current study also aimed to test the effectiveness of the parent training package used to teach parents to implement the intervention strategies. Importantly, in an attempt to identify the training condition, or combination of conditions, most needed to achieve behaviour change, individual conditions of a multi-condition parent training package were additively introduced during parent training based on the degree of intrusiveness in the target routine combined with the amount of structure required by the teaching strategy. Five parents were taught to implement a functional assessment driven intervention plan aimed at increasing their child’s appropriate behaviour and decreasing their problem behaviour during a valued family routine. In order to establish the combination of parent training strategies that were sufficient to teach parents to effectively implement the intervention plan, a series of parent training strategies were introduced in a planned way. The strategies included role-play, verbal instruction, verbal instruction plus feedback, coaching and video-feedback. Results showed that for all parents skill acquisition did not occur until the final phase, video-feedback. Successful implementation of the intervention resulted in a corresponding increase in child appropriate behaviour and decrease in child problem behaviour. In addition to that, parents rated the social validity and contextual fit of the intervention highly.
CHAPTER 1
INTRODUCTION

Providing support to families headed by a parent with an intellectual disability is a major challenge for family support practitioners, educators and health practitioners. In Australia and internationally, there are no exact figures on the number of families headed by a parent with an intellectual disability. However, there is an agreement in the international literature that the number of people with an intellectual disability becoming parents is increasing (Booth, 2000; Ray, Rubenstein, & Russo, 1994; Whitman & Accardo, 1993).

There are two ways to explain this apparent increase. More referrals of parents with an intellectual disability to agencies could mean there are more people with an intellectual disability becoming parents. On the other hand, the trend towards closer scrutiny of parents and their children may bring more families to the attention of the service sector (Booth, 2000).

Research in Australia has shown that parents with an intellectual disability are disproportionately represented in child protection services and care proceedings (McConnell, Llewellyn, & Ferronato, 2002). International research shows high rates (40–60 %) of child removal from the family home when a parent has an intellectual disability (Booth & Booth, 1996). Professionals in these service sectors report significant difficulties in meeting the needs of these families (Tymchuk, Llewellyn, & Feldman, 1999). Both generic and specialist service providers have reported feeling they do not have the skills, training or confidence to work effectively with parents with an
intellectual disability (Llewellyn, McConnell, & Bye, 1998; Llewellyn, Thompson, & Proctor, 1999; McConnell, Llewellyn, & Bye, 1997).

To address this, research over two decades has focused on developing and evaluating parent education programs for parents with an intellectual disability. This research has shown that parents with an intellectual disability do benefit from training in parenting skills. Parents have demonstrated improved parenting performance in a number of skill areas when they have participated in a parent training program that has used teaching methods matched to their learning needs (Feldman, 1994). These programs have usually involved multiple intensive, and primarily performance-based, behavioural interventions that have aimed to teach child care skills (e.g. Feldman et al., 1992a, 1992b), home safety and emergency skills (Llewellyn, McConnell, Honey, Mayes, & Russo, 2003), parent–child interactions (Feldman, Case, Rincover, Towns, & Betel, 1989), and decision making (Tymchuk, Andron, & Rahbar, 1988).

Despite this, many challenges to family support practice remain. First, little research, particularly recent research, has been conducted focusing on parent training strategies aimed at teaching parents with an intellectual disability to use positive child behaviour management strategies. What we know about the “essential” elements of effective parent education programs draws heavily on the research mentioned above. In a review of parenting education interventions for these parents, Feldman (1994) identified 20 published studies with adequate outcome data. Of these 20 studies, only 5 directly targeted child behaviour management strategies. A further five could be identified as indirectly targeting child behaviour management strategies by
focusing on increasing a child’s language through increasing positive parent–child interaction skills. Since this review was conducted, no empirical evaluations have been published that either directly or indirectly target child behaviour management strategies. To date, it is not known whether the parent training methods used to teach the parenting skills outlined above would be successful in helping parents with an intellectual disability to independently deliver and maintain a child behaviour management plan at home. In addition to this, it is not known what other parent training methods may be effective for this group. Chapter 2 of this thesis will build on the Feldman (1994) paper by reviewing all the studies evaluating parent education interventions published up to the end of 2005. The focus of that chapter will be on determining “promising parent training practices” from this research that in turn will inform the development of a parent training package to teach parents with an intellectual disability strategies to promote positive behaviour in their children.

Second, a considerable body of research supports the relationship between negative parenting practices and problem child behaviour (e.g. Chamberlain & Patterson, 1995; Kendziora & O’Leary, 1993; Patterson, Reid & Dishion, 1992; Rutter et al., 1996). Research has shown that parents with an intellectual disability can use negative parenting practices when interacting with their children (Crittenden & Bonvillian, 1984; Feldman, Case, Towns & Betel, 1985; Feldman et al., 1989; Feldman, Sparks & Case, 1993; Feldman et al., 1986). These interactions have been characterised as low in frequency, unstimulating, and lacking in warmth, sensitivity, responsiveness and positive reinforcement. Feldman (1997) makes the point that a parent with an intellectual disability may have limited knowledge, skills, and role models of
positive child behaviour management strategies and positive discipline strategies to draw on, therefore putting the child at risk for the development of problem behaviour and increasing the risk of the parent resorting to corporal forms of discipline.

Third, a higher incidence of problem behaviours has been reported in children of parents with an intellectual disability (Feldman & Walton-Allen, 1997; Gillberg & Geijer-Karlesson, 1983; O'Neill, 1985). Forms of problem behaviour can include aggression, non-compliance, tantrums and destruction of property. Research shows that children who engage in these behaviours are at risk of peer rejection (Coie & Dodge, 1998), mainly negative contacts with teachers (Strain, Lambert, Kerr, Stragg, & Lenker, 1983), negative family interaction patterns (Patterson & Fleishman, 1979), and school failure (Tremblay, 2000), and their adult lives can be characterised by violence, abuse, substance abuse, unemployment, isolation, and stress and anxiety (Coie & Dodge, 1998; McCord, 1978).

It is important to note that very few studies have been conducted that focus on the problem behaviours displayed by children of parents with an intellectual disability. In the main, studies have focused on the influences of a child’s cognitive and language development as it is related to the mother’s IQ score (e.g. Feldman et al., 1993; Slater, 1986).

A major problem with the research in this area is that, in order to document the effect of being raised by a parent with an intellectual disability, researchers must distinguish between the possible detrimental impact of the family’s living conditions and circumstances (e.g., poverty, high stress, low
social supports) and the possible parenting deficits related to their cognitive ability.

Feldman and Walton-Allen (1997) attempted to do this in a study simultaneously examining the intellectual, academic and behavioural status of school-age children raised by parents with an intellectual disability. To reduce selection bias, the researchers did not approach child welfare agencies for referrals of parents previously identified for child abuse or neglect (however, if they later found that child welfare agencies were involved they did not drop the family from the study). To control for the possible effects of poverty they compared a sample of school-age children (n = 27) whose mothers had an intellectual disability with similarly impoverished children (n = 25) whose mothers did not have an intellectual disability.

The study reported that, overall, children of parents with an intellectual disability had lower IQ scores and academic achievement, and significantly higher scores on the Canadian version of the Child Behavior Checklist (Statistics Canada, 1987) than the children whose parents had a low-income but did not have an intellectual disability. Researchers found that over 40% of the children of mothers with an intellectual disability had clinically significant behaviour difficulties. In the maternal-intellectual-disabilities group, boys had more behaviour problems than girls, and children with an average intelligence score (IQ > 85) were more likely to have multiple behaviour problems than the children with an IQ below 85. A correlational analysis of key variables revealed that, for the parents-with-an-intellectual-disability group, social isolation and the quality of the home environment were related to child behavioural, but not intellectual, outcomes.
The researchers concluded that the difficulties observed in children of parents with an intellectual disability could not be attributed to poverty alone as these children showed significantly more deficits than did similar-age children of parents without an intellectual disability from comparably impoverished families in the same geographic areas.

Finally, parents with an intellectual disability experience many of the circumstances and that may act as barriers to effective Behavioural Parent Training (BPT). Research with parents of children with problem behaviour repeatedly shows that parents who benefit the least from behavioural parent training often struggle with one or more of the following issues: poverty, low socioeconomic status (SES), limited social support, high stress and depression (Lutzker & Campbell, 1994; Sanders, 1996; Singer & Powers, 1993; Webster-Stratton, 1998). Many families headed by a parent with an intellectual disability who come into contact with the service system tend to live in circumstances made chaotic by the issues mentioned above: poverty, unemployment and substandard housing (Tymchuk, 1999). They often have limited supports available to them. They experience depression and poor self-esteem and have high stress levels, and they had little exposure to day-to-day family life in their childhood (Booth & Booth, 1993; Feldman, 1997; Kelley, Sikka, & Venkatesan, 1997). So, despite the existence of evidence-based parent educational technology for this group, parents with an intellectual disability may not participate in these programs under the best possible conditions and therefore may fail to implement strategies in their home setting.

One promising approach, which grew out of the BPT literature, comes from the Positive Behaviour Support (PBS) literature on helping families of
children with developmental disabilities and problem behaviour. PBS is a collaborative, assessment-based approach to defining effective, individualised interventions for individuals with problem behaviours (Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002). Researchers have demonstrated that providing PBS has positive effects on children’s behaviour and examined strategies to teach parents to independently conduct assessments and implement positive child behaviour management strategies with their children (e.g., Clarke, Dunlap, & Vaughn, 1999; Fox, Vaughn, Dunlap, & Bucy, 1997; Lucyshyn, Albin, & Nixon, 1997; Moes & Frea, 2000). To date, the strategies and resources commonly used teach parents to independently implement PBS have not been adapted to cater for the different learning styles of parents with an intellectual disability. For example, instructions for implementation of the interventions may rely on reasonably complex verbal instructions and written material, plus very brief demonstration with minimal practice. Research suggests that these traditional methods are not effective with parents with an intellectual disability (Feldman, 1997).

This study aims to address these challenges by beginning to integrate the empirical literature of parent training programs for parents with an intellectual disability with critical features of the emerging technology of PBS. Both areas have emerged from the behavioural parent training literature in response to the need for adaptations and extensions of BPT for use with families facing high levels of family adversity.

This study will address the gap in current knowledge in two key areas: first, research that empirically verifies effective parent training strategies aimed at teaching parents with intellectual disability to use positive-based
noncorporal strategies to increase appropriate child behaviour and decrease problem behaviour; and second, research that empirically verifies the effectiveness of combining key elements of PBS with key elements of effective parent training practices for parents with an intellectual disability.
CHAPTER 2
PARENT TRAINING FOR PARENTS WITH AN INTELLECTUAL DISABILITY

2.1 Overview

The purpose of this chapter is to provide an overview of the published studies evaluating parent training interventions with parents who have an intellectual disability. As mentioned in Chapter 1, Feldman (1994) critically reviewed the parent training literature to determine if parents with an intellectual disability benefited from parent training. Feldman’s work showed that an effective parent education technology, specifically designed for parents with an intellectual disability, was emerging. This chapter builds on the Feldman (1994) paper by reviewing all the studies published in this area up to the end of 2005. Although this chapter will look critically at the research, the focus will be on determining “promising parent training practices” from this research that in turn will inform the development of a parent training package to teach parents with an intellectual disability strategies to promote positive behaviour in their children.

This review focuses on four areas of training for parents with an intellectual disability. These are (a) parent training interventions that target basic infant and child care, health and safety skills; (b) parent training interventions that target parent decision-making skills; (c) parent training interventions that target child behaviour management skills; and (d) parent training interventions that target positive parent–child interactions and communication skills.
Prior to an in-depth review of the literature, it is useful to briefly discuss the general limitations of the studies conducted with families headed by a parent with an intellectual disability, and the context in which this research occurs.

2.2 Preliminary comments on the research

Previous researchers, including Feldman (1997, 1998), outline a number of important points to keep in mind when reviewing the research literature. First, readers of the research in this area are plagued by inconsistent terminology (Feldman, 1997; Mildon, Matthews, & Gavidia-Payne, 2003). “Intellectual disability”, “mental retardation”, “developmental disabilities”, “learning disabilities” and “learning difficulties” are all terms used to describe individuals with below average intellectual functioning. There is a lack of consensus about what is the most appropriate terminology, and a universally accepted definition of “intellectual disability” is yet to be reached. For the purposes of this research, the broad terms “learning difficulties” and “intellectual disability” will be used interchangeably. These terms will include parents who have either (a) met the criteria for intellectual disability according to the standard classification system set out by the American Association of Mental Retardation (AAMR) (American Association of Mental Retardation, 2002); (b) reported that they attended a special education school; or (c) been identified by service organisations as having cognitive limitations that result in learning difficulties (Honey, 2000).

Second, the research is also plagued by inconsistent applications of the diagnosis (Feldman, 1997). Many studies label parents as having
intellectual disability when their IQ score was less than 80 while others accept the cut-off for intellectual disability as an IQ score of less than 70. Recent studies (e.g., Llewellyn et al., 2003) have taken a more inclusive approach to the definition by using a “social system” definition (Mercer, 1973) where individuals are labelled as having an intellectual disability if they are eligible for, and need, services and supports specifically set up for people with an intellectual disability.

Third, the families sampled in research studies have not been representative of all families with a parent or parents with an intellectual disability (Booth & Booth, 1993; Feldman, 1997). We do not know to what extent the findings are representative of the total population of these families, as virtually all research has focused on the families who have come to the attention of the welfare system. It is common for parents to become known to services because they are experiencing a significant amount of difficulty. Parents with an intellectual disability whose parenting skills are adequate may never come to the attention of, or be of concern to, the service system (Feldman, 1997).

Fourth, almost all of the information currently available about parents with an intellectual disability refers to mothers only (Booth & Booth, 1993; Feldman, 1998); the role of fathers has not yet been explored.

Finally, most research in this area has focused on the difficulties and failing of parents (Booth & Booth, 1993) and the deficits experienced by the children, while the competencies and positive aspects of their lives have remained largely ignored.
2.3 Living conditions and experiences

Research has shown that parents with an intellectual disability may lack critical knowledge and skills in providing adequate child care such as bathing, changing nappies, feeding and nutrition, first aid (Feldman, 1998; Feldman, Case, & Sparks, 1992b; Feldman, Garrick, & Case, 1997; Sarber, Halasz, Messmer, Bickett, & Lutzker, 1983), a safe home environment (Feldman & Case, 1999; Tymchuk, Hamada, Andron, & Anderson, 1990c; Watson-Perczel, Lutzker, Greene, & McGimpsey, 1988), and nurturing, stimulating and warm interactions (Crittenden & Bonvillian, 1984; Feldman et al., 1985; Feldman et al., 1989; Feldman et al., 1993; Slater, 1986; Tymchuk & Andron, 1992). Parents with an intellectual disability may also have difficulties in problem solving (Tymchuk, Yokota, & Rahbar, 1990d), recognising and treating medical emergencies (Feldman & Case, 1999; Tymchuk, Hamada, Andron, & Anderson, 1990b), understanding basic child development information and responding to their child’s needs (Tymchuk, Andron, & Tymchuk, 1990a).

While some professionals in the community still believe it is the parents’ low IQ that causes these difficulties, research has found no clear relationship between parental competence and intelligence — research shows that being a parent and having an intellectual disability does not result in incompetent parenting and does not inevitably lead to child abuse or child neglect (Booth & Booth, 1993; Feldman, 1994; Haavik & Menninger, 1981; Schilling, Schinke, Blythe, & Barth, 1982). Instead, adverse circumstances exist outside the parents that can affect their parenting abilities. In addition to their difficulties with learning, these parents share the same problems as other
families involved in the child protection and welfare system (Booth & Booth, 1993; Glaun & Brown, 1999). Parents with an intellectual disability who have been identified by the service system tend to live in chaotic circumstances (Tymchuk, 1999). These circumstances can include poverty; unemployment; substandard housing; insufficient social supports; high stress levels; a history of maltreatment, depression and poor self-esteem; and little exposure to day-to-day family life in their childhood (Booth & Booth, 1993; Feldman, 1997; Kelley et al., 1997). Many of these factors are related to negative child and parenting outcomes (Forehand, Lautenschlager, Faust, & Graziano, 1986; Hops et al., 1987; Webster-Stratton, 1998). Parents with an intellectual disability may experience problems similar to those encountered by other parents of the same socioeconomic status (Unger & Howes, 1986).

The cumulative effect of such difficulties can lead to multiple obstacles for parents with an intellectual disability trying to access supports and services. Dealing with the demands of parenting may be hindered by the complex issues of everyday living. Feldman (1997) hypothesised that the problems seen in parents with an intellectual disability may be related to stressors parents face in addition to possible parenting deficits related to their cognitive ability. Examples include unemployment, limited work skills, money shortages, single parenting, isolation from extended family, and insufficient social supports. Parents with an intellectual disability may also have a limited knowledge base of personal and child health care, safety and wellbeing to draw from (Tymchuk, 1999); they may have difficulty understanding information in complex English (Tymchuk, Groen, & Dolynick, 1997); and they may have fewer skills in information acquisition and application (Feldman,
Instead of focusing on problems, service providers must be able to look for strengths, help reduce day-to-day pressures, respond to early signs of stress, and ensure access to suitable supports. Skills training is a partial solution. Research has shown that when parents with an intellectual disability participate in an intervention that utilises teaching methods that match their learning needs, they demonstrate improved parenting performance in a number of skill areas (Feldman, 1994). As discussed in Chapter 1, interventions have successfully improved parenting skills for these parents in areas of basic child care such as cleaning baby bottles (Feldman & Case, 1999), home safety and emergencies (Llewellyn et al., 2003), parent–child interactions (Feldman et al., 1989), and decision making (Tymchuk et al., 1990d).

### 2.4 Parent training interventions for parents with an intellectual disability

Over the past two decades, research has focused on developing and evaluating parent training interventions for parents with an intellectual disability. This research has shown that parents with an intellectual disability do benefit from training in parent skills. However, little research, particularly recent research, has been conducted focusing on parent training strategies aimed at teaching parents with an intellectual disability to use positive child behaviour management strategies. What we know about the “essential” elements of effective parent training programs draws heavily on the research aimed at teaching child care skills (e.g. Feldman & Case, 1999; Feldman et al., 1992b) and home safety and emergency skills (e.g. Llewellyn et al., 2003; Tymchuk, Andron, & Hagelstein, 1992), parent–child interactions (e.g.
Feldman et al., 1989; Feldman et al., 1993) and decision making (e.g., Tymchuk et al., 1990d).

The remainder of this chapter will review and summarise this seminal research. To develop a picture of what the most promising parent training techniques are for parents with an intellectual disability, studies will be discussed in reference to the participants and experimental design, skills trained, teaching strategies used, mode of training, dependent measures and intervention outcomes.

2.4.1 Basic infant and child care, health and safety

Children of parents with an intellectual disability who come to the attention of the welfare and child protection services are often reported to be at risk for physical neglect due to the parents’ limited knowledge and skills in providing adequate child care and home safety (Feldman, 1998). Despite this, before 1990, only two studies had been conducted in this area. To date, as shown in Table 1, the literature focusing on teaching parents with an intellectual disability basic infant and child care, health and safety consists of 14 studies.

Table 1

Summary of Research on Parent Training Interventions that Focus on Basic Infant and Child Care, Health and Safety.

<table>
<thead>
<tr>
<th>Author(s) (Year)</th>
<th>Participants</th>
<th>Experimental design</th>
<th>Skills trained</th>
<th>Training location</th>
<th>Parent training strategies</th>
<th>Dependent measures</th>
<th>Intervention outcome</th>
</tr>
</thead>
</table>
| Sarber et al. (1983) | 1 mother with intellectual disability (ID)  
1 child, 4 years old (in foster placement, not living with mother) | **Menu planning**  
Nonexperimental pre-test, post-test design  
**Grocery shopping**  
Multiple baseline across food | Plan nutritious meals and make a grocery list from menu plan (menu planning), select items in the grocery store (grocery shopping) | Individual training sessions at home and local supermarket | Pictorial cues, verbal instruction, modelling, rehearsal, praise, and performance criteria | Direct observation of number of correctly completed food columns in the menu planning  
Direct observation of number of items correctly obtained during grocery shopping | Once training was complete, participant demonstrated 100% success on planning nutritious meals and grocery shopping. This was |
<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Number of Participants</th>
<th>Participant Details</th>
<th>Training Method</th>
<th>Maintenance</th>
<th>Additional Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watson-Percezel et al. (1988)</td>
<td>1 mother with ID, 2 children, 6 years and 4 years old (youngest child had been removed from parent's care)</td>
<td>Multiple baseline across rooms (bathroom and kitchen) with a changing criterion design</td>
<td>Cleaning the home</td>
<td>Individual home-based sessions 3 times per week</td>
<td>Written and verbal instructions, discriminating between clean and unclean items, corrective verbal and visual (stickers) feedback</td>
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<tr>
<td>Tymchuk et al. (1990b)</td>
<td>4 mothers with ID</td>
<td>Multiple baseline across skills</td>
<td>Knowledge of and skills in successfully responding to home emergencies (grease, clothes or house fires, poisoning, burns and choking)</td>
<td>Group training at clinic, individual training in home</td>
<td>Written and verbal information, discussion, modelling, role-play, praise</td>
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<tr>
<td>Tymchuk et al. (1990c)</td>
<td>4 mothers with ID, 6 children of pre-school age</td>
<td>Multiple baseline across safety topics</td>
<td>Knowledge of home dangers and using safety precautions</td>
<td>Weekly training in community centre as group and individually in the home</td>
<td>Discussion, written prompts, praise, corrective feedback</td>
</tr>
<tr>
<td>Study</td>
<td>Participant Characteristics</td>
<td>Design/Methodology</td>
<td>Outcome Measures</td>
<td>Findings/Results</td>
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<tr>
<td>Tymchuk (1991)</td>
<td>4 mothers with ID</td>
<td>Nonexperimental pre-test, post-test design Follow-up at 4–5 weeks</td>
<td>Knowledge of high-risk household products including categories and examples of high-risk household products and recognition and understanding of the importance of things to consider before, during and after usage of a high-risk household product Weekly group training in a classroom Didactic instruction (e.g., discussion, verbal and written instructions)</td>
<td>Verbal assessment of knowledge of high-risk household products and rules and importance of rules No child data Increase in knowledge of rules and importance from baseline to training and increases maintained at follow-up for 2 parents (although high baseline for these 2 parents obscured results) Anecdotal reports from staff of improvement in the safe use of products by parents</td>
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<tr>
<td>Feldman et al. (1992a)</td>
<td>11 mothers with ID</td>
<td>Multiple baseline design across skills and across participants Follow-up for 4 to 74 weeks (mean number of 31)</td>
<td>Individualised number and target skills for each parent: cleaning baby bottles, bathing child, toilet training, treating cradle cap, formula preparation, treating nappy rash, cot and sleep safety Weekly individual training sessions in home Verbal instructions, modelling, physical guidance, feedback, praise and tangible reinforcement, pictorial manuals, and training criteria</td>
<td>Correct performance on each step of each task analysis recorded through direct observation of mother and child Anecdotal reports of any changes in observable chronic health problems (e.g., nappy rash, low weight, frequent colds and infections) Ratings of consumer satisfaction Parent training effective in increasing all target parent skills Results maintained during follow-up Benefits to children included elimination of nappy rash and cradle cap, increased weight gain and successful toilet training Consumer satisfaction positive</td>
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<tr>
<td>Feldman et al. (1992b)</td>
<td>22 mothers with ID</td>
<td>Randomised controlled trial Repeated measures between groups design Training (n = 11) versus control (n = 11) group Follow-up 2 to 76 weeks</td>
<td>Individualised number and target skills for each parent: changing nappies, bathing, washing hair, cot safety, sleep safety, child, parent and home cleanliness, treating nappy Individual training in home Same as Feldman et al. (1992a)</td>
<td>Correct performance on each step of each task analysis recorded through direct observation of mother and child For items that could not be observed, mother’s verbal response to question recorded (correct or not correct) Post-training group per cent correct scores significantly higher than control group scores Control group significantly increased per cent correct scores once participated in...</td>
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<tr>
<td>Authors</td>
<td>Number</td>
<td>Platform</td>
<td>Task</td>
<td>Training</td>
<td>Assessment</td>
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<tr>
<td><strong>Tymchuk et al. (1992)</strong></td>
<td>3 mothers with ID 3 children, aged 5 years, 5 years and 7 years</td>
<td>Multiple baseline across skills Generalisation probes and follow-up at 1 month</td>
<td>Knowledge of home dangers, emergencies and precautions; Observable dangers and precautions in the home</td>
<td>Group training at community centre</td>
<td>3 measures relating to home safety including: assessment of mother’s and child’s recognition and understanding of household dangers, direct observation of number and type of dangers present in home and frequency with which precautions were implemented in home Questionnaire to assess parent’s knowledge and skill in responding to common household emergencies Relevance of skills trained Consumer satisfaction</td>
</tr>
<tr>
<td><strong>Greene et al. (1995)</strong></td>
<td>2 mothers with ID 3 children, aged 5 weeks (parent 1), 23 months and 8 years old (parent 2)</td>
<td>Parent 1 Multiple baseline across skills Maintenance measured over unspecified number of weeks</td>
<td>Parent 1 Changing nappies, stimulation, bathing, temperature taking, feeding, home hazards, child behaviour and parent</td>
<td>Once- to twice-weekly individual sessions in the home during visits with children</td>
<td>Parent 1 Written and verbal instructions, discussion, modelling, rehearsal, praise, corrective feedback, Parent 1 Per cent correct scores on parenting questionnaire — written responses Correct performance on each step of each task analysis recorded through Parent 1 Parent gained and maintained proficiency with most skills Required brief booster sessions for 3</td>
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<tr>
<td><strong>Children living in foster care during intervention</strong></td>
<td><strong>Booster session provided as needed</strong></td>
<td><strong>Relaxation strategies, illness recognition, nutrition, problem solving, manual guidance, planned ignoring, responsive play, sit and watch</strong></td>
<td><strong>Training criteria</strong></td>
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<td><strong>Parent 2</strong> Reversal design (A-B-A): standard training plus verbal negotiation, standard training plus written contract, standard training plus verbal negotiation</td>
<td><strong>Parent 2</strong> Preparing nutritious meals and improving physical condition of home (e.g. removing spider webs)</td>
<td><strong>Parent 2</strong> Verbal and written instructions, rehearsal, praise, reward of increased visit time with children contingent upon completion of target parenting tasks</td>
<td><strong>Direct observation of mother and child</strong></td>
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<td>Maintenance measured over unspecified number of weeks for both parents</td>
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<td><strong>Parent 2</strong> Direct observation of percentage of tasks completed</td>
<td><strong>Skills (e.g. changing nappies)</strong></td>
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<td></td>
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<td></td>
<td><strong>With training, parent regularly served at or near desired meal proportion</strong></td>
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<td><strong>Increase in child’s positive responses (e.g. babbling and laughing) and decrease in child’s negative responses (e.g. crying).</strong></td>
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<td><strong>Increase in child’s weight</strong></td>
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<td><strong>Parent regained full custody of child</strong></td>
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<td><strong>Parent 2</strong> Standard training plus verbal agreement resulted in 0% completion of tasks</td>
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<td><strong>Standard training plus written contracts resulted in substantial, but erratic, improvements in task completion</strong></td>
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<td></td>
<td><strong>Standard training plus verbal reinstated, completion of tasks deteriorated back to 0%</strong></td>
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<td><strong>No generalisation to non-contract tasks</strong></td>
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<td><strong>Parent 2</strong> Relaxation strategies, illness recognition, nutrition, problem solving, manual guidance, planned ignoring, responsive play, sit and watch</td>
<td><strong>Proportion of recommended daily allowance served in each meal (parent self-monitoring)</strong></td>
<td><strong>Parent 2</strong> Direct observation of percentage of tasks completed</td>
<td><strong>Increase in child’s positive responses (e.g. babbling and laughing) and decrease in child’s negative responses (e.g. crying).</strong></td>
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<tr>
<td><strong>Parent 2</strong> Relaxation strategies, illness recognition, nutrition, problem solving, manual guidance, planned ignoring, responsive play, sit and watch</td>
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<td><strong>Parent 2</strong> Relaxation strategies, illness recognition, nutrition, problem solving, manual guidance, planned ignoring, responsive play, sit and watch</td>
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<td><strong>Parent 2</strong> Direct observation of percentage of tasks completed</td>
<td><strong>Parent regained full custody of child</strong></td>
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<tr>
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<td><strong>Parent 2</strong> Direct observation of percentage of tasks completed</td>
<td><strong>Parent regained full custody of child</strong></td>
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<tr>
<td>Feldman &amp; Case (1997)</td>
<td>11 mothers and 2 fathers (11 families) with ID</td>
<td>11 children, age range 2 months to 44 months (mean 4.64 months)</td>
<td>Within subject multi-element design 3 conditions: no training control, audiotape and manual, manual alone; 1 skill assigned to each condition</td>
<td>Follow-up from 2 weeks to 6 months</td>
<td>3 individualised target child care and home safety skills for each parent</td>
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<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Study Design</td>
<td>Intervention Details</td>
<td>Outcome Measures</td>
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<tr>
<td>Feldman &amp; Case (1999)</td>
<td>9 mothers and 1 father with ID, 9 children, age range 4 to 51 months (mean age 16 months)</td>
<td>Multiple baseline across participants. Follow-up at 2 weeks to 12 months (mean of 4 months)</td>
<td>Individualised number and target skills for each parent: when to call the doctor; when to call the emergency phone number; preventing suffocation; prevention of cuts, burns and bruises; cleaning baby bottles; sterilising bottles</td>
<td>Weekly home visits: Audiovisual self-instruction Manual with written instructions and pictorial representation of target skills plus audiotape, one instruction to use materials and additional prompts if no progress after 4 visits, training criterion. Discussions, audiovisual materials, modelling, performance feedback and reinforcement. 3 measures of reading ability, Trainer rating of acceptance of materials, Correct performance on each step of each child care skills checklist and task analysis recorded through direct observation of mother and child. Consumer satisfaction.</td>
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<tr>
<td>Feldman et al. (1999)</td>
<td>10 mothers with ID, 10 children, age range 3 months to 22.5 months (mean 10.2 months)</td>
<td>Multiple baseline design across subjects. Follow-up conducted for average of 47.4 weeks</td>
<td>Individualised number and target skills for each parent: nappy changing, nappy rash treatment, bathing an infant, cot safety, bedtime safety, kitchen safety</td>
<td>Weekly home visits: Manual self-instruction training Manual with written instructions and pictorial representation of target skills, 1 instruction to use materials. Discussions, audiovisual materials, modelling, performance feedback and reinforcement. Correct performance on each step of each child care skills checklist and task analysis recorded through direct observation of mother and child. Trainer rating of how well parent could read and understand manual. Trainer rating of parents’ acceptance of manual. Consumer satisfaction.</td>
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</table>

- **Maintenance over follow-up period**: Self-instruction effective with 9 out of 10 parents and 11 out of 12 skills. Skills maintained over follow-up period. Mean number of sessions to training criterion was 5.5. No significant correlations between percentage correct on the child care skills or number of sessions to criterion and any reading or acceptance measures. Consumer satisfaction positive (n = 5).
| Llewellyn et al. (2003) | 40 mothers and 5 fathers (40 families) with ID | Randomised controlled trial | Knowledge and skills for managing home dangers, accidents and childhood illness | Manual with written instructions and pictorial representation of target skills, discussion, completion of worksheet or exercise | 5 measures relating to child health including knowledge of health-related words and body parts, knowledge of illness and symptom recognition, knowledge of different types of life-threatening emergencies, knowledge of when and what to ask at the doctor’s, knowledge of how to use medicine safely |
| | Number of children per family 1 to 5 (mean 2.2), age range 0 to 4 years and 6 months (mean 2 years and 4 months) | Intervention group and 3 alternative conditions (current services only, lesson booklets, visits only) | Weekly home visits over 10–12 weeks | 3 measures relating to home safety including home illustrations on dangers and precautions and direct observations in home identifying danger in home and precautions taken |
| | | Follow-up at 3 months | | | Kaufman Brief Intelligence Test (K-Bit) (Kaufman & Kaufman, 1990) |
| | | | | | SF36 Personal Interview (Ware, Snow, Kosinski & Gendek, 1993) — a subjective measure of parent health status |
| | | | | | Anecdotal improvements in parents’ skills and observable health of children (e.g. nappy rash) reported by other workers |
| | | | | | Trainer ratings of parents’ understanding of and acceptance of manual correlated significantly positively with mean training scores |
| | | | | | Consumer satisfaction positive (n = 6) |
| | | | | | Child health and home safety knowledge and skills improved after completion of intervention |
| | | | | | Improvements significant on all outcome measures and maintained at 3-month follow-up |
| | | | | | No significant correlations found between parent IQ and levels of learning or any outcome measure |
| | | | | | Significant correlation found between parent IQ and maintenance on prevention of life-threatening injuries |
| | | | | | Significant correlation found between reading accuracy and |
2.4.1.1 Participants and experimental design

Of the 132 parents who participated in these studies almost all were mothers (n = 124 mothers, n = 8 fathers). Only one study formally assessed the parents’ IQ (Llewellyn et al., 2003). All of the other participants had either been previously independently diagnosed as having an intellectual disability (e.g. Feldman et al., 1999) or were already participating in a service designed to suit the needs of parents with an intellectual disability (e.g. Tymchuk et al., 1992). Participant numbers across the studies ranged from 1 participant (e.g. Saber et al., 1983) to 40 participants (Llewellyn et al., 2003). Participants were referred as a result either of confirmed instances of neglect (e.g. Greene et al., 1995) or “because of concerns about their ability to provide adequate care for their children” (p. 238, Feldman & Case, 1997), or they participated voluntarily in the study (e.g. Feldman et al., 1992a) or were already participating in a program for parents with an intellectual disability (e.g. Tymchuk et al., 1992).

Demographic and descriptive data on the children of the participants were provided in all but two studies (Tymchuk et al., 1990b; Tymchuk, 1991). In two studies (Greene et al., 1995; Watson-Percezel et al., 1988) the children were living in foster care during the intervention.

Single-case experimental designs were used in 11 of the 14 studies. Two studies used a randomised controlled trial. Feldman et al. (1992b)
randomly assigned parents to either a training group or wait list control group, while Llewellyn et al. (2003) randomly assigned parents to either a training group or one of three alternative conditions. One study used a non-experimental pre-test, post-test, follow-up design (Tymchuk, 1991).

### 2.4.1.2 Skills trained

The aim of all the studies was to evaluate the effectiveness of parent training to improve the parents’ skills in one or all of the following areas: basic infant and child care, home safety and cleanliness, and emergencies skills. Where the studies differed was in how the target skills were selected, what these target skills were, and the number of skills tested.

Over a series of studies, Feldman and his colleagues (Feldman et al., 1992a; Feldman et al., 1992b; Feldman & Case, 1997; Feldman et al., 1997; Feldman & Case, 1999; Feldman et al., 1999) trained parents in targeted child and home safety skills including cleaning baby bottles, bathing a child, changing nappies, and preventing choking. Consistently, across all six studies, Feldman took an individualised approach to selecting the target skills for each participant. The researchers selected the target child care skills for training based on the parents’ individual performance of selected child care and home safety skills at baseline. Skills were selected for baseline observations from a number of sources of information (e.g., referral concerns, the parents’ requests, and the age of the children). Skills selected for training were those that received a mean score of below 80% at the baseline observation, that is, while performing the skill the parent did not correctly perform at least 80% of the steps correctly. This individualised approach
meant that, across these studies, parents received training in varying numbers of skills (ranging from one to six skills).

Studies conducted by Tymchuk and colleagues (Tymchuk et al., 1990b; Tymchuk et al., 1990c; Tymchuk, 1991; Tymchuk et al., 1992) and later Llewellyn and colleagues (Llewellyn et al., 2003) focused primarily on teaching parents knowledge and skills in managing home dangers, accidents and emergencies. As opposed to the studies discussed above, the researchers targeted the same number and type of skills within each study. Performance of skills at baseline did not dictate skills to be targeted during training; rather a curriculum of skills was developed based on what skills all parents required to provide a safe environment for their children (e.g., safe placement of heavy objects and hazardous toys, fire safety).

The remaining studies in Table 1 selected skills based on what had been identified as the most “problematic” area of concern as identified by referring child protection agencies. For example, Sarber et al. (1983) focused on menu planning and grocery shopping skills because the child protection agency considered the child’s nutrition to be the area of most concern.

2.4.1.3 Training location and parent training strategies

Of the 14 studies, 10 conducted weekly or twice-weekly individual sessions in the parent’s home. The remaining studies were all conducted by Tymchuk and colleagues and conducted in a clinic setting only (Tymchuk, 1991; Tymchuk et al., 1992) or a combination of clinic and home-based settings (Tymchuk et al., 1990b; Tymchuk et al., 1990c).

There were similarities across studies in the teaching strategies employed to help parents acquire the target parenting skills. Most studies
used performance-based behavioural teaching techniques (e.g., modelling, rehearsal, feedback, reinforcement). For example, Feldman and colleagues developed a model for training in infant and child care skills over the course of three studies (Feldman et al., 1992a; Feldman et al., 1992b; Feldman et al., 1997). The researchers used a combination of verbal instruction and discussion, modelling, physical guidance, feedback, praise and tangible reinforcement, pictorial manuals and a training criterion of 80% correct over two consecutive sessions.

In another series of studies, Feldman and colleagues (Feldman & Case, 1997; Feldman & Case, 1999, Feldman et al., 1999) used self-instruction to improve infant and child care skills and home safety in parents with an intellectual disability. In two studies, researchers used a pictorial manual with simple written instructions and an audiotape of an individual directing the listener to look at the picture and read the accompanying text. Weekly visits by a parent educator occurred but no other reminders or training was provided for four visits. If parents had shown little progress after this time, parent educators conducted full performance-based training (e.g., discussions, modelling, performance feedback and reinforcement). In the third study, Feldman used the pictorial manual alone. As with the other two studies, if parents showed little progress after four visits parent educators conducted full performance-based training.

Of the studies that did not employ performance-based behavioural teaching strategies, one (Watson-Percezel et al., 1988) used an “education” approach that focused on teaching parents to discriminate between clean and unclean items. The researchers employed verbal and visual corrective
feedback but not praise. Another study (Tymchuk, 1991) used didactic instruction, that is, verbal and written instructions and discussion in a classroom setting. The final four studies (Llewellyn et al., 2003; Tymchuk et al., 1992; Tymchuk et al., 1990b, 1990c) used primarily didactic instruction with some performance-based behavioural teaching techniques (e.g., role-play, corrective feedback and praise), although this was difficult to determine as these studies did not report sufficient detail regarding their training techniques to ascertain definitively whether a technique was used.

2.4.1.4 Dependent measures

Every study used direct observation as at least one way of measuring the effect of the parent training strategies. Where these studies differed was on what the researchers were observing. Over half of the studies observed the parents actually performing the target skills in the home (Feldman & Case, 1997; Feldman & Case, 1999; Feldman et al., 1992a, 1992b, 1997, 1999; Greene et al., 1995; Sarber et al., 1983). The remaining studies used direct observation either to record the presence or absence of dangers and precautions in the home (e.g. Llewellyn et al., 2003) or to record whether objects in a targeted room were clean or unclean (e.g., Watson-Percezel et al., 1988). Another way that a few studies measured the effectiveness of the parent training was by assessing the parents’ knowledge of areas that relate to child health (e.g., knowledge of illness and symptom recognition) and knowledge of managing household dangers (Llewellyn et al., 2003; Tymchuk, 1991; Tymchuk et al., 1990b, 1990c, 1992).

Half of these studies did not present any child data. Of those that did, three collected anecdotal reports of change in observable child health
concerns (e.g., nappy rash, low weight, and frequent colds and infections) (Feldman et al., 1992a; Feldman et al., 1992b; Feldman et al., 1999); one recorded child accidents (Tymchuk et al., 1990c); one assessed the children’s knowledge of home dangers, emergencies and precautions (Tymchuk et al., 1992); one study used direct observation to measure any change in the child’s positive and negative responses to their parent (Greene et al., 1995); and one recorded the child’s weight over the time of the intervention (Feldman et al., 1997).

Follow-up assessments were conducted in all studies. The length of time that maintenance was measured ranged from 4 weeks (Tymchuk et al., 1990b) to 58 months (Feldman et al., 1997). Three studies conducted observation probes for generalisation of the target skills to another setting (Greene et al., 1995; Tymchuk et al., 1992), or another food group (Sarber et al., 1983).

Three studies measured other collateral outcomes of the parent training. Feldman et al. (1992b), Greene et al. (1995) and Sarber et al. (1983) all reported on the status of child custody pre- and post-parent training.

Three studies conducted a social comparison where the performance of parents with an intellectual disability was compared with the performance of parents without an intellectual disability (Feldman et al., 1992a, 1992b; Watson-Percezel et al., 1988).

Only five studies formally recorded consumer satisfaction ratings (Feldman & Case, 1997, 1999; Feldman et al., 1992a, 1999; Tymchuk et al., 1992).

2.4.1.5 Intervention outcome
Only one study reported little or no improvement in target parent skills with the introduction or completion of training. Watson-Percezel et al. (1988) found that using the education approach with one family resulted in no improvement from baseline to intervention in one room (kitchen), some improvement in another room (bathroom), but poor results at follow-up.

In the studies that observed the parents actually performing the target skills in the home (Feldman & Case, 1997; Feldman & Case, 1999; Feldman et al., 1992a; Feldman et al., 1992b; Feldman et al., 1997; Greene et al., 1995; Sarber et al., 1983), all reported substantial improvements in the performance by the parents of the target skills. Only Greene et al. (1995) reported improvements with just one of the two families who participated in the research. The use of the target skills by the parent who did show an improvement was associated with changes in the child, for example, an increase in babbling and laughing and a decrease in crying. The infant’s weight also increased, however the infant was in foster care for almost the entire intervention period and this could have contributed to the weight gain.

The performance-based behavioural training strategies tested across the three studies by Feldman and colleagues resulted in increases in all target parent skills, which maintained over the follow-up period (Feldman et al., 1992a; Feldman et al., 1997). These studies found significant differences between the training and no training control group on parent target behaviours after training (Feldman et al., 1992b). The Feldman et al. (1992b) study found that the no training control group showed a significant improvement in performance once they had participated in the parent training. All children
across the studies showed improvements to observable health problems such as the elimination of nappy rash and an increase in weight.

In the studies conducted by Feldman and colleagues (Feldman & Case, 1997; Feldman & Case, 1999; Feldman et al., 1999) testing the efficacy of self-instruction, the results showed that approximately 90% of the parents who participated improved their performance on target skills with the introduction of self-instructional materials and an instruction to use them. In two of the studies only one parent in each study needed to participate in full performance-based behavioural training (Feldman & Case 1999; Feldman et al., 1999). Interestingly, Feldman and Case (1997) found adding an audiotape to pictorial manuals did not significantly improve the parents’ performance.

Of the group of studies that measured the presence or absence of dangers and precautions in the home and assessed the parents’ knowledge of areas that relate to child health and knowledge of managing household dangers (Llewellyn et al., 2003; Tymchuk, 1991; Tymchuk et al., 1990b, 1990c, 1992), all reported an increase in the parents’ knowledge in these areas although the results of three of the studies conducted by Tymchuk and colleagues (1990c, 1991, 1992) are obscured because of high baseline scores. In terms of actual implementation of precautions in each parent’s home, only Llewellyn et al. (2003) found a significant improvement in the parent’s home, with improvements being maintained over a three-month period. Although Tymchuk et al. (1992) reported improvements in knowledge in a clinic setting no improvement was actually observed at home and no skills were maintained at follow-up. A key difference between the Llewellyn et al. (2003) intervention and the intervention implemented in the studies conducted
by Tymchuk is that the Llewellyn study actually conducted the intervention sessions in the parent’s home. Tymchuk implemented the parent training strategies only in a clinic setting.

2.4.2 Solving problems and making decisions

Concern has been expressed about the ability of a parent with an intellectual disability to solve problems and make correct decisions in real-life child care situations (Budd & Greenspan, 1984; Tymchuk, Yokota, & Rahbar, 1990d). Despite this, only one study has evaluated the effectiveness of problem-solving training with this group (Tymchuk et al., 1988). The key components of this study are shown in Table 2. A brief discussion of these is provided after the table.

Table 2

Summary of Research on Parent Training Interventions That Focus on Decision-making Skills

<table>
<thead>
<tr>
<th>Author(s) (Year)</th>
<th>Participants</th>
<th>Experimental design</th>
<th>Skills trained</th>
<th>Parent training strategies</th>
<th>Dependent measures</th>
<th>Intervention outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tymchuk et al. (1988)</td>
<td>9 mothers with ID</td>
<td>Multiple baseline across parts of skills</td>
<td>Problem solving and decision making using two high-risk vignettes and two-low risk vignettes</td>
<td>Group training in a clinic for 6 weeks</td>
<td>Rating of vignettes on a 3-point scale (not important to important)</td>
<td>Percentage of parents who improved on each step increased across sessions</td>
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<tr>
<td></td>
<td></td>
<td>Generalisation probes to other untrained high- and low-risk vignettes</td>
<td>Follow-up at 4 weeks</td>
<td>Didactic instruction, modelling, corrective feedback and praise, tangible reward for completion</td>
<td>No child measures</td>
<td>Percentage of parents who made decisions did not increase from baseline because high baseline scores to start with</td>
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<td></td>
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<td></td>
<td></td>
<td>Percentage of parents who made correct final decisions increased significantly for 2 trained high-risk vignettes only</td>
</tr>
</tbody>
</table>

Table 2
Consistent with the child care studies discussed previously, the parents trained were all mothers. No data was provided on the children. A single-case experimental design was used to evaluate the effectiveness of parent training to improve parent skills in solving problems and making appropriate decisions. As with the parent training studies conducted by Tymchuk (e.g., Tymchuk et al., 1990b) and discussed in the previous section, the study was conducted in a clinic setting alone and a combination of didactic instruction and some behavioural teaching techniques was employed.

Different from the studies discussed in the previous section, this study did not use direct observation as a way of measuring the effect of the parent training strategies. Instead the researchers used parent ratings of the level of importance of a series of short vignettes.

The researcher reported that the percentage of parents who improved on each step increased over time, however high baseline scores resulted in no change in the percentage of parents who made decisions. The percentage of parents who made correct final decisions increased for only the high-risk vignettes and no generalisation to untrained vignettes was observed. It is worth noting that no individual parent data was presented and no in vivo generalisation probes were conducted therefore it was not possible to determine if parents used the skills in real-life situations.

**2.4.3 Child behaviour management**
Little research, particularly recent research, has been conducted focusing on parent training strategies aimed at teaching parents with an intellectual disability to use positive child behaviour management strategies.

As shown in Table 3, the literature focusing on teaching parents with intellectual disability child behaviour management strategies consisted of six studies.

**Table 3**  
Summary of Research on Parent Training Programs That Focus on Child Behaviour Management Strategies

<table>
<thead>
<tr>
<th>Author(s) (Year)</th>
<th>Participants</th>
<th>Experimental design</th>
<th>Skills trained</th>
<th>Training location</th>
<th>Parent training strategies</th>
<th>Dependent measures</th>
<th>Intervention outcome</th>
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</thead>
</table>
| Wolfe et al. (1982) | 1 mother with ID  
3 children, 2 years old, 2 9 year-old twins | Multiple baseline across parenting skills  
Follow-up at 1 month  
Generalisation probes across settings | Decreasing hostile parent behaviours (planned ignoring, and modified time-out contingent on difficult behaviour) and increasing positive parent behaviours (praise and hug, pat or gently touch child contingent on good behaviour) | Clinic | Coaching via bug-in-the-ear device, discussion, praise, verbal reminder used once bug in the ear was stopped | Direct observation of mother’s behaviour in clinic and at home (hostile physical prompts including pushing or grabbing child or making a hand-raising motion towards a child; hostile verbal prompts including threatening, labelling or condemning a child during an interaction; positive physical prompts including hugging, patting or touching a child when a child was engaging in appropriate behaviour; positive verbal prompts including specific praise, thanking the child or a positive verbalisation) | Immediate reduction in both hostile physical and verbal behaviours with the introduction of the parent training  
Both behaviours stayed at levels close to zero for entire intervention  
Introduction of training in positive behavior led to an increase in positive verbal behaviour during both cooperative and compliance tasks but no change in positive physical behaviour during the cooperative task  
Following withdrawal of the bug-in-the-ear device only positive physical behaviour decreased  
All other target behaviours was maintained at intervention rates  
No change in positive physical behaviours in |
<table>
<thead>
<tr>
<th>Study (Year)</th>
<th>Participants</th>
<th>Design</th>
<th>Intervention Details</th>
<th>Generalisation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fantuzzo et al. (1986)</td>
<td>3 mothers with ID</td>
<td>Multiple baseline across parenting skills</td>
<td>Identifying and describing use of parenting skills (e.g., positive reinforcement, positive parent-child interactions, noncorporal punishment) and social skills</td>
<td>Twice-weekly small group clinic sessions</td>
<td>Small group board game, modelling, verbal feedback, tangible reward for correct answer, individual performance criteria</td>
</tr>
<tr>
<td>Tymchuk &amp; Andron (1988)</td>
<td>1 mother with ID</td>
<td>Multiple baseline across skills</td>
<td>Identifying positive child behaviour, praise, descriptive statements of child’s behaviour, asking questions, modelling expected and appropriate behaviour for the child, ignoring child’s inappropriate behaviour</td>
<td>Weekly group therapy and marital therapy sessions at clinic, weekly individual training sessions at clinic and at home</td>
<td>Modelling, role-play, verbal and written instructions, verbal feedback, videotape discrimination training</td>
</tr>
<tr>
<td>Tymchuk, Andron &amp; Tymchuk (1990a)</td>
<td>8 mothers with ID</td>
<td>Nonexperimental pre-, post- and follow-up; comparison group of mothers without ID</td>
<td>Identifying and describing appropriate discipline strategies, strategies to promote development, and correct and incorrect parental reactions to both appropriate and inappropriate child behaviour</td>
<td>2 x 90-minute group training sessions conducted, 1 week apart, in the clinic</td>
<td>Review of items on 3 questionnaires, discussion of correct answers and application to each parent’s situation, (verbal and written instructions, group discussion)</td>
</tr>
<tr>
<td>Tymchuk &amp; (1988)</td>
<td>9 mothers</td>
<td>Multiple</td>
<td>Promote positive</td>
<td>Weekly 2-</td>
<td>Modelling, Direct observation</td>
</tr>
<tr>
<td>Authors</td>
<td>Participants and experimental design</td>
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<tr>
<td></td>
<td>behaviour in their pre-school children through praise, physical affection, modelling of appropriate speech</td>
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<td></td>
<td>hour group clinic sessions, training to a criteria of 50% above baseline</td>
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<td></td>
<td>Weekly home sessions started after group sessions</td>
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<td></td>
<td>rehearsal, verbal instruction and feedback, videotaped discrimination on training, individual performance criteria</td>
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<td></td>
<td>of mother’s behaviour at home and in clinic (command, question, model, label, praise, positive physical behaviour, verbal punishment, smiling/laughter, and affection/comforting)</td>
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<td></td>
<td>Direct observation of child behaviours in clinic and at home (compliance, negative vocalisation, positive vocalisation, attends to, question, negative physical behaviour, noncompliance, smiling/laughter)</td>
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<td></td>
<td>Parents without ID, but low SES, comparison group (n = 15)</td>
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<tr>
<td></td>
<td>Knowledge training produced increases in correct verbal responses to parenting situations.</td>
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<tr>
<td></td>
<td>Improvements maintained at 6-month follow-up</td>
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<td></td>
<td>Interaction training in clinic enhanced use of skills in clinic but not at home</td>
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<td></td>
<td>Interaction training in home showed increase in parent’s use of skills</td>
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<tr>
<td>Bakken, Miltenberger &amp; Schauss (1993)</td>
<td>Bakken, Miltenberger &amp; Schauss (1993) 5 mothers with ID 5 children, age range 12–60 months</td>
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<td></td>
<td>Identifying and describing appropriate use of parenting skills</td>
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<td></td>
<td>Behavioural skills training in praise, and verbal imitation</td>
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<td></td>
<td>Initially weekly small group clinic-based sessions (baseline, knowledge training, clinic training) followed by weekly home-based behaviour training</td>
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<td></td>
<td>Specific verbal feedback, modelling, verbal reinforcement (praise), individual performance criteria in form of rewards</td>
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<td></td>
<td>Mean percentage correct scores on parenting questions — verbal responses only</td>
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<tr>
<td></td>
<td>Direct observation of mother’s behaviour at home (praise, parental attention, verbal imitation, and noncorporal discipline)</td>
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<tr>
<td></td>
<td>Direct observation of child behaviours at home (child maladaptive behaviour, child vocalisation)</td>
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<tr>
<td></td>
<td>Knowledge training produced increases in correct verbal responses to parenting situations.</td>
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<tr>
<td></td>
<td>Improvements maintained at 6-month follow-up</td>
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<td></td>
<td>Interaction training in clinic enhanced use of skills in clinic but not at home</td>
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<td></td>
<td>Interaction training in home showed increase in parent’s use of skills</td>
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</table>

2.4.3.1 Participants and experimental design
The parents trained were always mothers. Consistent with the child care and home safety studies, all mothers had been previously classified as having an intellectual disability. Participant numbers across each study ranged from one participant (Tymchuk & Andron, 1988) to nine participants (Tymchuk & Andron, 1992). Participants were referred as a result of either confirmed instances of child neglect (Fantuzzo et al., 1986; Wolfe et al., 1982) or “suspicion of child abuse and neglect” (p.27, Tymchuk & Andron, 1988), or were voluntarily recruited from an existing parent training group (Bakken et al., 1993) or an existing comprehensive intervention program (Tymchuk & Andron, 1990; Tymchuk & Andron, 1992). In one of these studies (Tymchuk & Andron, 1992), four participants were required to participate in the existing program by an agency worker as a condition of maintaining their children in their own homes.

Demographic data and descriptive data on the children of the participants were provided in only four of the six studies (Bakken et al., 1993; Tymchuk & Andron, 1988; Tymchuk & Andron, 1992; Wolfe et al., 1982). Interestingly, only one study (Tymchuk & Andron, 1988) specifically outlined the problem behaviours displayed by the children previous to intervention.

Consistent with the studies discussed previously, single-case experimental designs were used in the majority of the studies (i.e., five out of six). One study differed in that the researchers used a nonexperimental pre-, post- and follow-up group design (Tymchuk et al., 1990a). Unlike the child care and home safety studies, no randomised controlled trials have been used to evaluate the efficacy of parent training strategies to teach parents with an intellectual disability child behaviour management strategies.
2.4.3.2 Skills trained

The aim of these studies was to evaluate the effectiveness of parent training to improve each parent’s skills in the area of managing her child’s behaviour. Where the studies differed was in the parenting skills targeted for training. For example, two studies solely trained parents, given common parenting scenarios (either in question form or in short vignettes), to identify and describe the use of appropriate parenting skills and discipline strategies (Fantuzzo et al., 1986; Tymchuk et al., 1990a). These studies gave no more detail on the specific parenting skills taught.

Bakken et al. (1993) also began training by focusing on teaching parents to identify and describe appropriate parenting strategies (knowledge training) but subsequently moved to performance-based behavioural skills training in two skills, praise and verbal imitation. Similar to the second part of the Bakken et al. (1993) study, Tymchuk and Andron (1988) and Tymchuk and Andron (1992) used performance-based behavioural skills training to teach parents praise and verbal imitation; however these studies also focused on identifying positive child behaviour, physical affection, descriptive statements of a child’s behaviour, modelling of appropriate speech, and ignoring a child’s inappropriate behaviour. Wolfe et al. (1982) focused on training parent skills that would decrease hostile parent behaviour (e.g., planned ignoring, and modified time-out contingent on problem behaviour) and increase positive parent behaviour (e.g., praise and hug, pat or gently touch child contingent on good behaviour).

2.4.3.3 Training location and parent training strategies
Consistent with the studies discussed previously, weekly sessions with parents were most common; however one study conducted 2 x 90-minute training sessions only. These sessions were conducted in either an individual or small group format in a clinic setting only (Fantuzzo et al., 1986; Tymchuk et al., 1990a; Wolfe et al., 1982) or in a combination of a clinic setting and home-based settings (Bakken et al., 1993; Tymchuk & Andron, 1988; Tymchuk & Andron, 1992). Unlike the child care and home safety studies, no child behaviour management study conducted solely individual home-based sessions.

In line with the child care and home safety studies, almost all studies discussed here used performance-based behavioural teaching techniques. Only Tymchuk et al. (1990a) employed didactic instruction similar to the parent training strategies used in Tymchuk (1991). There were some similarities across the remaining studies in the performance-based behavioural teaching techniques employed to help the parent acquire the target parenting skills. For example, every study used verbal instruction, verbal feedback and discussion. Modelling and praise were common teaching strategies in four of the six studies (Bakken et al., 1993; Fantuzzo et al., 1986; Tymchuk & Andron, 1988, 1992). Rather then modelling, Wolfe et al. (1982) used coaching, via a bug-in-the-ear device, and praise to teach the parent the target skills. Prompting was also used in Tymchuk & Andron (1988), Tymchuk & Andron (1992) and the second part of the intervention in the Bakken et al. (1993) study. In addition to these, individual performance criteria (e.g., 30% correct above the baseline mean, 60% correct above baseline mean, and finally set to 90% correct responses provided, or 50% correct performance
above baseline) were used in three studies (Bakken et al., 1993; Fantuzzo et al., 1986; Tymchuk & Andron, 1992), and both Bakken et al. (1993) and Fantuzzo et al. (1986) used tangible rewards for correct answers. Interestingly, two studies (Tymchuk & Andron, 1988, 1992) incorporated the use of videotaped technology as a tool for their intervention. For example, Tymchuk and Andron (1988) used videotapes of the children to teach the mother to correctly identify positive child behaviour. The mother watched videotapes of her children playing and was taught to correctly identify 10 examples of positive child behaviour and state that she would praise each one. It was difficult to determine how the videotapes were used as a teaching tool in the Tymchuk and Andron (1992) study due to a lack of sufficient detail.

Some studies differed in the way they presented the target parenting skills to the participants. For example, Fantuzzo et al. (1986) and Bakken et al. (1993) both used a card game format to teach parents to identify and describe appropriate use of parenting skills. A deck of cards was introduced. Each card contained a hypothetical parenting situation and the correct response to this situation. Participants, in turn, selected a card. The facilitator read the hypothetical parenting situation to the participants and allowed 10 seconds for them to respond. If the participant did not respond or responded with the wrong answer the facilitator read the correct answer to the participant. Tymchuk et al. (1990a) used another strategy for presenting the target skills. Three written and pictorial questionnaires were presented. Each asked simple questions on discipline and promoting development, and provided both correct and incorrect parental responses to inappropriate and appropriate child behaviour. Facilitators would review each item in the questionnaires, then
discuss the correct answers and how they might be applied to each participant’s situation.

2.4.3.4 Dependent measures

Unlike the child care and home safety studies, there was some variation in the outcome measures used across the six studies. Three studies used direct observation of the parents actually performing the target skills in the home and the corresponding child behaviour (Bakken et al., 1993; Tymchuk & Andron, 1988; Tymchuk & Andron, 1992) while one study used direct observation of the parent performing the target skills in the clinic and home but did not collect child data (Wolfe et al., 1982). The remaining two studies used the participants’ percentage of correct verbal identification of appropriate responses to parenting scenarios or questions. No child data was collected in either of these studies.

All six studies conducted follow-up assessments of parent behaviour, ranging from one- to eight-week follow-up (Tymchuk & Andron, 1992) to a six-month follow-up (Bakken et al., 1993). Generalisation probes of parenting skills across settings were conducted in only three studies (Bakken et al., 1993; Tymchuk & Andron, 1988; Wolfe et al., 1982). In addition, Bakken et al. (1993) conducted generalisation probes across parent responses.

Only two studies measured other collateral outcomes of the parent training. Fantuzzo et al. (1986) and Wolfe et al. (1982) reported incidents of maltreatment during either the two-month period following training (Wolfe et al., 1982) or the one-year period following training (Fantuzzo et al., 1986).

None of the studies formally recorded consumer satisfaction ratings.

2.4.3.5 Intervention outcome
In general, all six studies reported positive effects from their interventions. However, these results, and the interpretation of these results should be viewed cautiously.

Consistent with the child care and home safety studies, the studies that assessed the parent’s knowledge of the appropriate response to a parenting question or scenario reported an increase in the parent’s knowledge in this area. In two studies (Fantuzzo et al., 1986; Tymchuk et al., 1990a) the mean percentage correct group responses (no individual data was available for either study) to the parenting questions or scenarios increased from baseline to training and follow-up. Unfortunately, neither study reported data on child behaviour, making it impossible to identify the effects of parent training on child positive or disruptive behaviour. Both studies reported anecdotal evidence of improvements in the mothers’ use of the skills taught in training, and Fantuzzo et al. (1986) found no further reports of child maltreatment at a one-year follow-up. No data was provided in either study to confirm that parents’ increased knowledge of the correct response to a particular scenario or question resulted in the actual use of these skills in real-life situations with their children. Results of the Bakken et al. (1993) and Tymchuk et al. (1992) studies would later demonstrate that unconfirmed reports of the transfer of knowledge to actual performance of skills must be viewed cautiously in parents with an intellectual disability.

Also consistent with the child care and home safety studies, the studies that observed the parents actually performing the target skills in the home (Tymchuk & Andron, 1988, 1992; Bakken et al., 1993; Wolfe et al., 1982) all
reported positive results, however the results of two studies conducted by Tymchuk and Andron were minimal.

Bakken et al. (1993) conducted a two-phase study specifically to test the correspondence between knowledge and actual performance of parenting skills. The first part of the study was based on the Fantuzzo et al. (1986) study, and had results consistent with those discussed above. However, the results also showed no generalisation to actual parent–child interactions as measured by direct observation in the clinic and home. It was not until the second phase, when performance-based behavioural skills training was provided, that the results showed an increased use of the target parenting skills in the clinic. Generalisation of the target skills to the home setting was not seen until training was provided in each participant’s home. No overall improvement in child appropriate behaviour was found.

In the two studies conducted by Tymchuk and Andron (1988, 1992), improvements in target parenting skills were reported for some but not all target parenting skills. One study (Tymchuk & Andron, 1992) showed little sustained improvement from baseline to training and follow-up for about two-thirds of the target skills. Again, as with a sample of the child care and home safety studies, the effects of parent training were obscured by high rates of the target behaviour at baseline (Feldman, 1994, 1998), and the fact that videotaped observations of only five minutes were used to evaluate the intervention effects. As with Bakken et al. (1993), of the parenting skills that did show improvements, generalisation from the clinic to the home setting was not observed until direct instruction was provided in the home. Unlike Bakken
et al. (1993), improvements were observed in target child positive behaviour, but the improvements were minimal.

Wolfe et al. (1982) reported improvements in three of the four target parent skills (no improvement observed in the positive physical behaviour of the parent during cooperative task). However, a key finding in the Wolfe et al. (1982) study was that, unlike the studies mentioned above, generalisation from the clinic to the home setting did occur without direct instruction in the home. One important difference between these studies is that in the Wolfe et al. (1982) study the parent training that occurred in the clinic was provided individually to the parent whereas in the Bakken et al. (1993) and Tymchuk and Andron (1988, 1992) studies the parent training that occurred in the clinic was delivered in a small group format.

Improvements in target parent skills from baseline to training and follow-up were also reported in the Tymchuk and Andron (1988) study. However, despite the researchers’ positive interpretation of the results, upon visual inspection of the figures, Feldman (1998) found that clinic and home training resulted in improvements in only one-third (37%) of the participants’ target skills and two-thirds (60%) of the children’s target behaviour.

There is no way of knowing for any of the studies whether parents liked the parent training programs or found them to be of some benefit for themselves, their children or their families as no formal assessments of consumer satisfaction ratings were conducted.

**2.4.4 Positive parent–child interactions**

Numerous studies have shown that parents with an intellectual disability provide fewer sensitive, responsive and reinforcing interactions with
their children (e.g., Crittenden & Bonvillian, 1984; Feldman et al., 1985, 1986, 1989; Tymchuk & Andron, 1992). Research has also shown that young children of parents with an intellectual disability vocalise and verbalise less than a comparison group of peers from the same SES group (Feldman et al., 1986, 1989, 1993). This is an important finding as other research has shown that there is a strong association between severe communication impairment and behaviour problems in children with intellectual disabilities (Wing & Gould, 1979), and children without intellectual disabilities (Bishop, 1994).

As shown in Table 4, the studies that focus on positive parent–child interactions and communication number only seven. Given the evidence that teaching alternative means of communication can reduce the frequency of problem behaviour (Carr & Durrand, 1985), these studies could be viewed as indirectly targeting child behaviour management strategies by focusing on positive parent–child interaction skills and increasing a child’s language.

### Table 4
Summary of Research on Parent Training Programs That Focus on Positive Interactions and Communication

<table>
<thead>
<tr>
<th>Author(s) (Year)</th>
<th>Participants</th>
<th>Experimental design</th>
<th>Skills trained</th>
<th>Training location</th>
<th>Parent training strategies</th>
<th>Dependent measures</th>
<th>Intervention outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peterson et al. (1983)</td>
<td>6 mothers and 1 father with ID 5 children, age range 4 years 0 months to 5 years 8 months</td>
<td>Nonexperimental pre-, post- and follow-up Follow-up at 1 month Decrease commands</td>
<td>Increase descriptive statements, reflective statements, and praise</td>
<td>8 weekly group training sessions in clinic (2 groups of 3 parents)</td>
<td>Verbal instructions, modelling, role-playing, coaching, self-monitoring at home, tangible rewards for self-recording and attendance</td>
<td>Direct observation of parent behaviour in clinic (descriptive statements, reflective statements, unlabelled praise, labelled praise, direct commands and indirect commands)</td>
<td>Parent commands decreased in frequency from pre-training through follow-up Parent positive verbal behaviour increased from pre-training to post-training but did not maintain the gains at follow-up At post-training and follow-up, parents with ID had lower frequencies of descriptive statements, but equal or higher frequencies of praise than a comparison group of parents without ID</td>
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<td>Feldman et al. (1986)</td>
<td>7 mothers with ID</td>
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<td>Skills maintained at</td>
<td>follow-up</td>
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<tr>
<td>Slater (1986)</td>
<td>60 mothers with ID</td>
<td>60 children Mean age 48.2 months</td>
<td>Between groups design: high-level distancing (HLD) versus low-level distancing (LLD) versus attention control</td>
<td>Follow-up at 1 month</td>
<td>Generalisation probe across settings</td>
<td>LLD group: asking questions of child, talking more with child and offering more information verbally, expanding on child’s verbalisation and/or expressing approval of what child has done</td>
<td>HLD group: same as LLD but with much more detail and more complex</td>
</tr>
<tr>
<td>Feldman et al. (1989)</td>
<td>3 mothers with ID</td>
<td>Multiple baseline across subjects and skills</td>
<td>Imitating child vocalisation, praising child (1 mother)</td>
<td>Weekly sessions in each family's home</td>
<td>Verbal instruction only</td>
<td>Direct observation of each mother's behaviour in home (verbal imitation, praise, physical affection)</td>
<td>Verbal instruction alone resulted in little improvement</td>
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<td>3 children, 13 months, 21 months, and 6 months</td>
<td>Follow-up for 1–16 sessions over an 18-month period</td>
<td>Generalisation probes across settings and routines</td>
<td></td>
<td>Full training Verbal instruction, modelling, practice, praise, corrective feedback, and tangible reinforcement for 1 mother during maintenance</td>
<td>Direct observation of child's behaviour (child vocalisation)</td>
<td>Increase in skills observed with full training package — levels increased to same or higher than comparison group of parents without intellectual disability.</td>
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<td>Child's performance at pre- and post-intervention on standardised development tests — developmental quotients and differential performance on language versus nonlanguage test items</td>
<td>Gains observed over 3- to 18-month follow-up periods, although 1 mother required a reinforced maintenance procedure</td>
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<td>1 mother transferred skills to new child and different task</td>
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<td>Gains observed in frequency and quality of verbal behaviour in 2 children</td>
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<thead>
<tr>
<th>Leifer &amp; Smith (1990)</th>
<th>1 mother with ID</th>
<th>Nonexperimen tal longitudinal case study (4 years)</th>
<th>Parent–child interactions (no details on specific skills)</th>
<th>Clinic</th>
<th>Psychotherapy, home visits, parent training (no details on specific strategies)</th>
<th>Direct observation of parent–child interactions</th>
<th>Increase in positive parent–child interactions in clinic</th>
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<tbody>
<tr>
<td></td>
<td>1 child, 4 months old</td>
<td></td>
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<td>Measures of stress and psychopathology</td>
<td>HOME (Caldwell &amp; Bradley, 1984)</td>
<td>No change in depression score but decrease in overall psychopathology</td>
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<td>Strange situation test used when child 12 months and 18 months old</td>
<td>Strange situation indicated child “securely attached to mother”</td>
<td>Scores on HOME remained low average</td>
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<td></td>
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<td></td>
<td>Consumer satisfaction</td>
<td>Parent “moderately positive” about the intervention</td>
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<thead>
<tr>
<th>Feldman et al. (1993)</th>
<th>28 mothers with ID</th>
<th>28 children, age range 5–28 months</th>
<th>Between groups: training versus attention control</th>
<th>Imitation and expansion of child vocalisation, praise and physical affection</th>
<th>Weekly sessions in each family's home</th>
<th>Verbal instruction and discussion, modelling, prompting, praise, verbal feedback and tangible reinforcement</th>
<th>30% training criterion</th>
<th>Direct observation of mother's behaviour at home (talking to child, verbal imitation, praise, physical affection)</th>
<th>Direct observation of child behaviour (child vocalisation, child verbalisation)</th>
<th>Significant increase in responsive and reinforcing interactions of mothers in training condition at post-test.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keltner et al. (1995)</td>
<td>40 mothers with ID</td>
<td>40 children, age range 13–36 months</td>
<td>Randomised controlled trial</td>
<td>Child care skills and parent–child interactions (no details on specific skills)</td>
<td>Weekly group sessions at local church halls and weekly home individual visits</td>
<td>Intervention group</td>
<td>Case coordination, verbal instruction and discussion, modelling, practice, praise</td>
<td>No treatment support group</td>
<td>Monthly telephone contact, referral to appropriate services as needed</td>
<td>Nursing Teaching Assessment Scale (NCATS) — parent subscales include sensitivity to child's cues, responsiveness to distress, social and emotional growth fostering, cognitive growth fostering. Child subscales include clarity of cues and responsiveness to parents.</td>
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<td>Intervention group (n = 20) and no treatment support group (n = 20)</td>
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<td>No increase for control group however high baseline score.</td>
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### 2.4.4.1 Participants and experimental design

Consistent with the studies already discussed, the parents trained were almost always mothers. One study (Peterson et al., 1983) included one father as a participant. As with the studies discussed previously, parents who participated in these studies had either been previously classified as having an intellectual disability or were eligible for services and programs specifically for individuals with an intellectual disability via previous identification by the social service system. Participant numbers across each study ranged from 1 (Leifer & Smith, 1990) to 60 (Slater, 1986). Participants in all seven studies...
were referred by health and welfare professionals who were concerned that
the mothers were not providing adequate stimulation in the home environment
to promote the cognitive development of their children.

Unlike studies previously reviewed, every study in this section provided
some demographic and descriptive data on the children of the participants
(e.g., children’s age and gender). In addition to this, two studies provided
mean child IQ data (Peterson et al., 1983; Slater, 1986) and the three studies
conducted by Feldman and colleagues (1986, 1989, 1993) provided
information on the presence or absence of a developmental disability in the
target child.

Group designs were more common in these studies than in the studies
previously reviewed. For example, only two of the seven studies used single-
case experimental designs (Feldman et al., 1986; Feldman et al., 1989). Of
the studies that used a group design, one used a nonexperimental pre-, post-
and follow-up design (Peterson et al., 1983) while the remaining three used a
between groups design (Feldman et al., 1993; Keltner et al., 1995; Slater,
1986). Leifer and Smith (1990) was the only study to use a nonexperimental
longitudinal case study design.

2.4.4.2 Skills trained

In general, the aims of four of the seven studies (Peterson et al., 1986;
Feldman et al., 1986; Feldman et al., 1989; Feldman et al., 1993) were
similar: to evaluate the effectiveness of a parent training program to increase
positive parent–child interactions. The studies conducted by Slater (1986),
Leifer and Smith (1990) and Keltner et al. (1995) differed in that the first study
was designed to identify the effects of two different levels of maternal
interactions on their children’s cognitive functioning (i.e., low-level distancing and high-level distancing), the second study aimed to improve the parents’ “nurturance”, and the third study aimed to evaluate the effectiveness of a “family intervention” that focused on improving a range of parent skills, including parent–child interactions. Despite this, all of these studies were very similar in the specific skills taught to parents. For example, five of the seven studies identified praise and verbal imitation and/or expansion of a child’s vocalisation as target parent skills. Interestingly, these were common target skills in the child behaviour management studies. It was difficult to determine the specific skills targeted in both the Keltner et al. (1995) study and the Leifer and Smith (1990) study as no details other than “parent–child interactions” were provided.

2.4.4.3 Training location and parent training strategies

Consistent with studies previously discussed, weekly sessions with parents were the most common. These sessions were conducted in either a small group format in a clinic setting only (Leifer & Slater, 1990; Peterson et al., 1983; Slater, 1986), or in a combination of a clinic setting and home-based setting (Feldman et al., 1986; Keltner et al., 1995). Two studies conducted only individual sessions in each family’s home (Feldman et al., 1989; Feldman et al., 1993).

The teaching strategies employed to help parents acquire the target skills were very similar across most of the studies and consistent with the performance-based behavioural skills training provided in most of the child behaviour management studies. As with the studies reviewed before, almost every study used verbal instruction, verbal feedback and discussion.
Interestingly, Feldman et al. (1993) was the only study to utilise individual performance criteria. Again, it was difficult to determine the specific teaching strategies employed in the Keltner et al. (1995) and Leifer and Smith (1990) studies due to a lack of sufficient detail.

Slater (1986) deviated from the standard behavioural skills training by including video feedback. Unlike later child behaviour management studies conducted by Tymchuk and Andron (1988, 1992), where video technology was used as a tool for discrimination training, Slater employed a video feedback procedure where the trainer and mother co-reviewed the previously videotaped session. The trainer provided feedback and praise when the mothers correctly demonstrated a target skill and corrective feedback if the mothers did not use the skills or used them incorrectly.

Worth highlighting here is a model for parent–child interaction training developed over the course of the three studies conducted by Feldman and colleagues (1986, 1989, 1993). Essentially, the teaching strategies used to train the target parent skills consisted of verbal instructions, discussion, modelling, praise, corrective feedback, self-recording (Feldman et al., 1986 only) and a training criterion of 30% correct performance above baseline (Feldman et al., 1993 only). Strategies to promote generalisation included the use of multiple exemplars (e.g. using a variety of training materials such as play objects) and common stimuli (e.g. the clinic setting was a home-like environment, familiar toys from home) (Feldman et al., 1986) and giving the participants an instruction to generalise at the completion of the full training phase (Feldman et al., 1989).
Interestingly, to compare the relative effectiveness of verbal instruction alone versus the entire training package, one of these studies (Feldman et al., 1989) provided teaching strategies in two phases. The first phase involved verbal instruction only. The second phase involved incorporating performance-based behavioural training strategies (e.g., modelling, practice and feedback) into the training package.

2.4.4.4 Dependent measures

As with the child care and home safety studies, every study used direct observation as at least one way of measuring the effect of the parent training strategies. Six of the seven studies observed parents actually performing the target skills either in the home (Feldman et al., 1986; Feldman et al., 1989; Feldman et al., 1993; Keltner et al., 1995) or in the clinic (Leifer & Smith, 1990; Peterson et al., 1983). The remaining study used direct observation and parent interview to complete a standardised measure of quality and quantity of stimulation and support available to the child in their home (Home Observation for Measurement of the Environment-Revised-Preschool Version (HOME, Bradley & Caldwell, 1979) (Slater, 1986).

In addition to direct observation, Feldman et al. (1993) used the child’s performance at pre- and post-intervention on a standardised development test (Bayley Scale of Infant Development; Bayley, 1969), Leifer and Smith (1990) used measures of parent stress and psychopathology and implemented the strange situation test twice during the intervention, and Slater (1986) used both audiotapes (to record and code maternal comments and child responses) and standardised assessment measures such as subscales of the McCarthy
Scales of Children’s Abilities (McCarthy, 1972). Dependent measures of child behaviour were collected in every study.

Unlike the studies already discussed, follow-up assessments were conducted in only five of the seven studies. Of the studies that did conduct follow-ups, the assessment period ranged from one session one month after the last teaching session (Peterson et al., 1983; Slater, 1986), to 1–16 observation sessions after the last teaching session (Feldman et al., 1986), to 5–10 observation sessions over a period of 10 months (Feldman et al., 1989) and to observations over 13–82 weeks after training for half of the participants (Feldman et al., 1993).

Generalisation probes of parenting skills across settings were conducted in three studies (Feldman et al., 1986; Feldman et al., 1989; Slater, 1986). In addition, Feldman et al. (1989) conducted generalisation probes across child care routines (e.g., bathing and dressing).

As with the child behaviour management studies reviewed, only one study formally recorded consumer satisfaction ratings (Leifer & Smith, 1990).

2.4.4.5 Intervention outcome

Consistent with the studies reviewed previously, all seven studies reported positive effects. The four studies that observed the parents actually performing the target skills in the home reported substantial improvements in the performance by the parents of the target skills. The two single-case studies showed improvements in parent skills to the same or higher levels than the comparison non-ID group (Feldman et al., 1986, 1989) and the two group studies reported significant differences between the training and no training control groups (Feldman et al., 1993; Keltner et al., 1995).
The two studies that observed the parents performing the target skills in a clinic setting only (Leifer & Smith, 1990; Peterson et al., 1983) also reported increases in positive parent–child interactions although, interestingly, Leifer & Smith (1990) observed little improvement until a structured parent training intervention was introduced. Finally, Slater (1986) reported increases in the parents’ use of words, complexities and reinforcing comments, and in their total scores on the HOME. The mothers who participated in the intervention group that received more detailed and complex instruction showed significantly higher scores on the HOME than the less detailed instruction group or the control group.

Positive results were also reported for all children. Increases in vocalisation and verbal behaviour were observed in all three studies conducted by Feldman and colleagues (1986, 1989, 1993). This is significant given the demonstrated effectiveness of communication-based interventions, such as functional communication training, for problem behaviour in children (Wacker & Reichle, 1993). Slater (1986) found that children in both intervention groups showed significant increases at post-intervention in standardised cognitive skills assessment (i.e., McCarthy Scales of Children’s Abilities) and had more correct responses to questions than the non-intervention group.

In the main, these gains were maintained during follow-up in almost every study, however Peterson et al. (1983) found that only decreases in the frequency of commands maintained at follow-up, and gains achieved by one participant in Feldman et al. (1989) did not maintain at follow-up. Where generalisation probes where conducted, skills generalised across settings
(Slater, 1986) and across child care activities (Feldman et al., 1989). Contrary to the results reported in the first phase of the study by Bakken et al. (1993) and the study by Tymchuk et al. (1992), Feldman et al. (1986) found that improvements in a group setting generalised to improvements observed in the untrained home setting. Although there were several strategies used in the Feldman study that were not used in the Tymchuk study (e.g., Feldman used tangible reinforcements for reaching the training criterion and implemented simple generalisation strategies such as using multiple exemplars during training), the same cannot be said when comparing the procedure used in the Bakken study with the procedure used in the Feldman study. The only difference was the training setting. To provide a “homelike atmosphere” (p. 28), Feldman conducted the group parent training sessions at a group home for individuals with an intellectual disability whereas Bakken conducted the group training sessions in the meeting rooms of a local human services centre.

Similar to the results found by Bakken et al. (1993), and worth highlighting here, Feldman et al. (1989) found few meaningful gains in target parent behaviours, and little generalisation of skills across child care activities until particular teaching strategies were introduced. First, verbal instruction alone was not sufficient to promote acquisition of the target parent behaviour. It was not until performance-based teaching strategies (i.e., modelling, practice and feedback) were introduced that meaningful gains were observed. Second, generalisation was not observed until parents were instructed to generalise. That is, verbal instruction was required to promote generalisation across child care activities. Third, during a long follow-up period, gains
achieved during intervention were not maintained for one mother. It was not until a reinforced maintenance procedure using tangible reinforcers was introduced that these gains were re-established.

2.5 Issues in the effectiveness of parent training programs for parents with an intellectual disability

Although a majority of the studies reviewed here are sufficiently sound to allow for recommendations to be made as to effective parent training strategies for interventions with parents with an intellectual disability, there are some common issues with this body of research that are worth highlighting.

2.5.1 Number of studies and size of samples

Over the last decade, few studies have been published evaluating the use of parent training strategies with parents with an intellectual disability. Since the Feldman (1994) review, only seven studies have been published in this area; six focus on infant or child care and home safety skills while one focuses on parent–child interactions. Over this period, no more studies have been published that focus on child behaviour management skills; the total remains at five. Therefore, it is important to note that parent training recommendations in the area of child behaviour management are being drawn from a very small literature base.

It is also worth noting that, in general, the sizes of the samples in these studies are small. Seventeen of the 27 studies involved fewer then 14 parents and high drop-out rates were reported during follow-up (e.g., Feldman et al. 1993). Of the five studies that focused on child behaviour management, no
study reported a sample size of more than nine parents (Tymchuk & Andron, 1992).

2.5.2 Experimental designs and data collection

Few studies have been conducted that establish the external validity of parent training interventions for this group. In total, only five studies employed group a repeated measures between groups design, and none of these focused on child behaviour management. The majority of the studies used single-subject experimental designs (n = 18) with the remainder using nonexperimental designs (n = 3) and a long-term case study (n = 1).

There are two significant issues with data collection. First, one-third of the studies did not collect any child outcome data. Worth highlighting, given the aim of the current research, is the fact that two of the eight studies focused on child behaviour management. For a small group of studies this is significant as it makes it impossible to determine if improvements observed in the parents had any effect on the child. Contributing to this, of the studies that did collect child outcome data, some reported only anecdotally on changes in child health (e.g., Feldman et al., 1992a, 1992b), and the results of other studies were obscured by high baseline scores for child positive behaviour and low baseline scores for child negative behaviour (e.g., Bakken et al., 1993).

The second issue with data collection is the length of time that some data is collected in studies using single-subject methodology. Again worth highlighting, given the aim of the current study, is the fact that in the child behaviour management study conducted by Tymchuk and Andron (1992), the
authors conducted five-minute observation sessions only. This could help explain the poor results reported in this study.

### 2.5.3 Total training time

Insufficient information is provided in studies as to the amount of session time devoted to skills training. Although most report the amount and frequency of “sessions”, given the chaotic circumstances under which a lot of these parents live, it is likely these sessions included activities other than skills training, such as discussion of day-to-day issues. For example, 12 one-hour sessions that include half an hour of training time would have double the amount of training time as 12 sessions with 15 minutes devoted to actual skills training.

### 2.5.4 Additional services

Following on from the point above, the chaotic circumstances these families often live in is sometimes contributed to by the number of different services they are involved with. For example, one family may have a child health nurse, family support worker, case manager, and child care worker all “supporting” them in their day-to-day lives. It is not unusual for multiple services to be providing parents with advice, and sometimes conflicting advice, on caring for their children. None of the studies here has reported on the extent to which parents are involved with other services or therapies. It is impossible to know what impact, if any, these may have had on the effectiveness of parent training strategies.

### 2.5.5 Parent training techniques

Studies often poorly described their parent training methods. As discussed previously, although some studies would report using a
combination of didactic instruction and performance-based behavioural teaching techniques (e.g., Llewellyn et al., 2003; Tymchuk et al., 1992; Tymchuk et al., 1990b, 1990c), insufficient detail regarding the specific techniques, such as discussion and role-play, make it difficult to definitively ascertain whether a technique was used. In another study, Tymchuk and Andron (1988) mention video feedback as a training strategy but provide no further information on how this was actually implemented.

Several studies reported using parent training strategies to increase the parents' knowledge of the correct and appropriate use of a skill (e.g., Fantuzzo et al., 1986; Tymchuk et al., 1990b, 1990c). Given the results (Bakken et al., 1993; Tymchuk et al., 1992) suggesting that there is little transfer of knowledge skills to actual performance of those skills, the conclusions of these studies need to be interpreted cautiously.

2.6 Conclusion

Overall, the studies reviewed here support and extend the conclusions made by Feldman (1994). Taken together, the studies show that parents with an intellectual disability can improve and maintain parenting skills with corresponding benefits to their children when they participate in a parent training program that incorporates three key parent training practices.

First, the training program should incorporate teaching strategies that are primarily performance-based behavioural strategies. These include verbal and written instructions, modelling, praise, and corrective feedback. The focus of the training program should be on improvements in the actual performance of parenting skills rather then simply increasing knowledge (Bakken et al.,
1993; Feldman et al., 1989). Importantly, verbal instruction alone seems insufficient when working with a parent to acquire a new strategy.

Second, parent training should be conducted individually with the parents in their home to increase the likelihood of skill acquisition and decrease the need for setting generalisation (Bakken et al., 1993). Feldman (1998) has suggested that if this is not possible, out-of-home training may need to be conducted in a home-like environment to maximise generalisation. Adding to this, the results of Wolfe et al. (1982) suggest that any out-of-home training should be conducted individually rather than in a group setting.

Third, teaching strategies employed should be individually tailored for the learning needs of the parents. For example, Feldman et al. (1989) found that introducing a new teaching strategy (e.g. use of tangible reinforcement) for a particular family improved maintenance of a target parent strategy.

A promising practice worth highlighting is the use of video technology as a parent training strategy for interventions focusing on promoting positive behaviour in children. Using video technology in behavioural parent training has been shown to be an effective method for increasing knowledge and skills (Crittenden & Snell, 1983; Twentyman & Martin, 1978). The approach has been applied mainly toward helping parents with conduct-disordered children or children with special needs (e.g. Bernal, Williams, Miller & Reagor, 1972; Webster-Stratton, 1984, 1988). Two common methods used with parents are video modelling, in which parents are shown standardised vignettes of a model engaging in the target behaviour (Dowrick, 1999) and video feedback in which a videotape is made of the parent performing specific behaviours and
then co-reviewed with the parent trainer so that the parent can evaluate his or her own behaviour (Maione & Mirenda, 2006).

Although studies that use video technology with parents with an intellectual disability are limited, Slater (1986) provides preliminary evidence for the benefits of using video feedback as a teaching strategy. In addition to this, previous researchers have identified some advantages of employing such a strategy. These include (a) the lack of disruption in the natural flow of interactions (DeRoo & Haralson, 1971); (b) the permanent and accurate record of what transpired, which may limit defensiveness and argument (Walther & Beare, 1991); (c) the delay between recording the tape and watching the tape takes the parent–child interactions out of the immediate context, and may help the parents to be more prepared to objectively evaluate what occurred and to learn from feedback; (d) parents are provided with systematic data regarding their behaviour and its changes (Booth & Fairbank, 1984); and (e) videotapes of performances can be replayed as many times as needed, or stopped for review of a specific behaviour (Booth & Fairbank, 1984). This last point is particularly appealing when working with parents with an intellectual disability as it enables a parent and a parent trainer limitless opportunities to review the parent’s performance.
CHAPTER 3

BEHAVIOURAL PARENT TRAINING AND POSTIVE BEHAVIOUR SUPPORT

3.1 Overview

Behavioural parent training (BPT) is the most widely studied intervention for children with problem behaviour (Kazdin, 1993, 1997; Serketich & Dumas, 1996). Overall, studies and reviews have found that BPT is successful with many families in helping to reduce aggressive, antisocial and delinquent behaviour in their children (Serketich & Dumas, 1996). However, parents with an intellectual disability experience many of the circumstances that may act as barriers to effective BPT. Research with parents of children with problem behaviour repeatedly shows that parents who benefit the least from BPT often struggle with one or more of the following issues: poverty, low SES, limited social support, high stress and depression (Lutzker & Campbell, 1994; Sanders, 1996; Singer & Powers, 1993; Webster-Stratton, 1998). As discussed in Chapter 2, many families headed by a parent with an intellectual disability who come into contact with the service system tend to face some or all of these issues. This chapter will briefly describe BPT, its history and effectiveness, and issues in its effectiveness that are linked with family adversity, training formats and training strategies.

This chapter will then outline an approach to working with families that has emerged from the BPT literature. This approach, known as Positive Behaviour Support (PBS), shows significant promise with families of children with developmental disabilities and severe problem behaviour. As with parents
with an intellectual disability, these families can experience family adversity in many forms, particularly stress-induced health problems and diminished family and community activities and experiences (Anastopoulos, Guévremont, Shelton, & DuPaul, 1992; Turnbull & Ruef, 1996). PBS has shown success in both reducing problem behaviour and improving the quality of life for these families (Carr et al., 1999). This chapter will describe PBS, briefly review the evidence for its effectiveness with families, and discuss two key features to the approach that show promise in terms of improving the content and delivery of BPT for parents with an intellectual disability.

3.2 Definition of behavioural parent training

BPT is a summary term used to describe a therapeutic strategy that aims to teach parents how to apply child management strategies, based on behaviour-analytic principles and social learning techniques, to effect change in their child’s behaviour (Kazdin, 2005). The basic assumption of BPT is that both the appropriate and the problem behaviour of children are maintained by social agents, most often parents, who provide important cues and consequences for the child’s behaviour (Miller, 1975). Common alternatives to the term BPT include parent training, parent management training, and behavioural family intervention. Despite the lack of uniformity in the literature with regard to the usage of such terms, Kazdin (2005) identified four distinguishing but interrelated components under which a treatment could be classified as BPT. First, the conceptual view of BPT is derived from learning theory and research, particularly models of operant behaviour (Bear, Wolf & Risley, 1968; Skinner, 1953) and social learning theory (Bandura, 1977).
Second, BPT includes a variety of principles or general statements about relations between behaviour and events that precede or follow the behaviour. From these principles, multiple techniques can be developed. An example of an important principle is positive reinforcement, where a number of techniques (e.g. use of praise and tangible reward) can be generated from this principle.

Third, particular skills are developed in the parent through active training. Active training refers to using role-play, practice, feedback, and modelling by the practitioner to demonstrate how to interact with the child and how to implement techniques to change the child’s behaviour. Finally, BPT integrates assessment and evaluation with treatment. Information about the parent’s and child’s progress during the intervention is continually monitored. This helps to make decisions about alterations or new techniques to include in the intervention.

3.3 Rationale for behavioural parent training

Researchers employing BPT methods have identified several reasons for regarding parents as potentially viable change agents for their children. The main one is that parents are uniquely positioned as the primary constructors and managers of the child’s environment. It has been consistently shown that parents have enormous influence in maximising learning and minimising delay through the implementation of behavioural procedures with their child (Egel & Powers, 1989). Because parents wield a high degree of control over the child’s environment, they may be able to make changes in that environment that can bring about and sustain improved child developmental outcomes (Briesmeister & Schaefer, 1998; Cronan, Cruz,
Arriaga, & Sarkin, 1996). A change made in the way a parent interacts with a child can have profound effects because that alteration in interaction may be repeated across a multitude of situations and environments. As well, in comparison with other forms of intervention such as child therapy, successful implementation of BPT allows intervention to be applied more often and more consistently across time and settings. If parents are taught to successfully implement an intervention, then the intervention may be applied over time in a number of natural contexts.

3.4 Effectiveness of behavioural parent training

Systematic efforts to establish that BPT has an impact on child behaviour largely began in the 1960s and 1970s (Kazdin, 2005). During this period, mental health professionals increasingly turned to nonprofessionals to play a key role as agents of behaviour change (Moreland, Schwebel, Beck, & Wells, 1982). This was particularly so in the attempt to teach parents skills and strategies to use in managing child problem behaviour.

Most of the early BPT studies focused on the problem behaviour of young children and aimed to show that parents could be taught, using very simple instructional strategies such as verbal instruction, to alter their current child behaviour management practices (Hawkins, Peterson, Schweid, & Bijou, 1966; Patterson & Brodsky, 1966; Sanders & Dadds, 1982). For example, in one of the first published BPT studies, Williams (1959) taught parents to use a simple extinction procedure to successfully eliminate their 21-month-old son’s bedtime temper tantrums. The parents were instructed to put the child to bed and ignore any screaming and protests. This procedure was effective in
eliminating tantrums completely and was maintained over a two-year follow-up period.

By the 1970s and into the 1980s, BPT research had increased, with demonstrations of the usefulness of this type of intervention with an increasing range of more complex and severe problem behaviour and other clinical problems (Sanders & Dadds, 1993). To date there have been well over 400 published reports of data-based research on BPT (Bourke & Nielsen, 1995), numerous narrative reviews of the literature (e.g., Barclay & Houts, 1995; Graziano & Diament, 1992; Kazdin, 1997; Moreland, Schwebel, Beck, & Well, 1982; O’Dell, 1974; Polster, Dangel, & Rasp, 1986–1987; Wiese, 1992) and many recent meta-analyses (e.g., Lundahl, Risser, & Lovejoy, 2006; Maughan, Christiansen, Jenson, Olympia, & Clark, 2005; McCart, Priester, Davies, & Azen, 2006). For example, Serketich and Dumas (1996) examined outcomes of BPT programs immediately after treatment. They computed mean post-treatment effect sizes (ES) from 26 controlled outcome studies using BPT to target the problem behaviour of pre-school- and elementary school-age children. They reported large positive changes in general child outcomes (ES = 0.86) based on parent, observer and teacher reports. They reported moderate positive changes (ES = 0.44) in parental behaviour and adjustment.

Problem behaviour treated through BPT has included noncompliance, temper tantrums and aggression (Forehand & McMahon, 1981; Marcus, Swanson, & Vollmer, 2001; Patterson, Chamberlain, & Reid, 1982; Patterson, Reid, Jones, & Conger, 1975; Sallis, 1983; Sanders & Glynn, 1981), and other issues such as recurrent abdominal pain and headaches (Sanders et al.,
1989); enuresis, encopresis, nail biting, and thumbsucking (Christensen & Sanders, 1985). BPT interventions have also shown success with common problem behaviour in the home such as bedtime and mealtime problems (Dadds et al., 1984; Hall et al., 1972; McMahon & Forehand, 1978; Sanders et al., 1984); problems on shopping trips or in restaurants (Clark et al., 1977); language problems (Laski, Charlop, & Schreibman, 1988); academic learning problems (McNaughton, Glynn, & Robinson, 1987); attention deficit disorders (Pisterman et al., 1989); and children’s fears and phobias (Graziano, 1977). BPT interventions have been applied successfully with both typically developing and developmentally delayed children (Lutzker, Huynen, & Bigelow, 1998) and have been provided to parents both in the home (Dachman, Halasz, Bickett, & Lutzker, 1984), and in the clinic setting (Bauman, Reiss, Rogers, & Bailey, 1983). Much of the research showed that generalisation and maintenance of treatment effects are more likely when the children’s parents and caregivers are taught to implement the interventions (e.g., Lovaas et al., 1973; Wahler, 1969).

In addition to improvements in child behaviour, numerous other associated benefits of BPT to the family have been documented. These include an increase in family satisfaction and a decrease in the likelihood that the child will be placed in a more restrictive setting (Baker et al., 1991; Lutzker, 1993). Feldman & Werner (2002) evaluated collateral effects of BPT on families with children who have developmental disabilities and problem behaviour. Parents reported significantly fewer child behaviour problems, less disruption to child and family quality of life and less stress related to limits on family opportunities and child physical limitations. Participants also reported
being more effective child behaviour change agents in not only stopping child behaviour but also preventing new occurrences and teaching the child appropriate behaviour.

3.5 Issues in the effectiveness of behavioural parent training programs

The effectiveness of BPT has been shown to vary based on participant characteristics and features of the parent training programs (Singer et al., 2002). Researchers have identified several factors that influence the effectiveness of BPT. Of particular relevance to parents with an intellectual disability are the existence of multiple contextual risk factors such as family adversity (e.g., living in poverty), poor parent mental health (e.g., high stress levels), the format of training (i.e., group versus individual) and parent training strategies employed (Barclay et al., 2000; Kazdin, 2005; Lutzker & Campbell, 1994; Sanders & Dadds, 1993). The following sections will discuss each of these, paying particular attention to the implications that can be drawn for parents with an intellectual disability who participate in BPT interventions.

3.5.1 Family adversity and poor parent mental health

Research on the effectiveness of BPT repeatedly shows that parents who benefit the least from parent training struggle with one or more of the following issues: poverty and low SES, social isolation, single parenthood, marital discord, and parental stress and depression or other mental illness (Baker, 1989; Dumas & Wahler, 1983; Lundahl, Risser, & Lovejoy, 2006; Lutzker & Campbell, 1994; Sanders, 1996; Singer & Powers, 1993; Webster-Stratton, 1998).
For example, Lundahl et al. (2006) used meta-analysis procedures to evaluate the ability of parent training programs to modify child problem behaviour and parental behaviour and perceptions across 63 peer-reviewed studies. The researchers found that parent training was least effective for financially disadvantaged families. Webster-Stratton (1998) found that financially disadvantaged families were less likely to seek parent training, and when they did, they were less likely to complete it.

Similarly, social isolation plays a role in the outcome of BPT interventions. Researchers have found that the absence of social support interferes with the acquisition and maintenance of parenting skills (Wahler, 1988; Webster-Stratton, 1998 and that mothers who have limited social support either make limited intervention gains or fail to maintain these gains at follow-up (Dumas, 1984; Dumas & Wahler, 1983; Webster-Stratton & Hammond, 1990).

Other research has shown that BPT has limited effects when there are relationship problems between the mother and father (Dadds, Schwartz & Sanders, 1987), when the parent participating in the BPT is single (Dadds & McHugh, 1992; Webster-Stratton & Hammond, 1990), and when the parent participating is experiencing depression (Griest, Wells, & Forehand, 1979).

Such risk factors that threaten the effectiveness of BPT should be a major concern for practitioners who work with families headed by a parent with an intellectual disability. As discussed in Chapter 2, parents with an intellectual disability who come to the attention of the service system often experience some or all of these risk factors. These factors may impede the ability of parents to learn and/or carry out new parenting skills; however, the
precise role that each factor plays in treatment and how it exerts its influence is not clear (Kazdin, 2005).

The existence of these risk factors may partially explain why so few attempts have been made in the research literature to implement BPT with parents with an intellectual disability, despite evidence showing that their children are at risk for behaviour problems. To say that these factors influence treatment outcome does not mean that families who show several of the factors will not respond to treatment.

**3.5.2 Individual versus group training**

Another issue pertaining to the efficacy of BPT is the question of whether programs are delivered to parents on an individual basis or a group basis. A review of several BPT studies compared group with individual parent training for a variety of child problem behaviour (Graziano & Diament, 1992). They reported no individual differences in training outcomes between the two formats but found potential cost benefits in programs administered on a group basis. As a result, the researchers recommended that group programs be employed for the purpose of BPT rather than individually administered programs. However, in their meta-analysis, Lundahl et al. (2006) found that individually delivered parent training was far superior to group delivered parent training for parents facing financial disadvantage. Based on this, these researchers recommended that individual programs be employed with these families. Given that parents with an intellectual disability who come to the attention of the service system often live in poverty, this would suggest that these parents would experience improved outcomes when participating in BPT that is individually delivered. This is consistent with the conclusions
outlined in Chapter 2, that parents with an intellectual disability can improve and maintain parenting skills when they participate in a program that is delivered in an individual format and specifically tailored to their learning needs.

A possible explanation for the inconsistent results is that a number of studies have compared group-based interventions with individual interventions, with equivocal results (Cunningham, Bremner, & Boyle, 1995; Taylor, Schmidt, Pepler, & Hodgins, 1998; Webster-Stratton, 1984). Unfortunately, these studies confounded the format of training with the theoretical orientation utilised, making it impossible to determine whether observed differences were due to the group-based versus the individual formats or due to differences in theoretical orientation/therapeutic techniques.

### 3.5.3 Parent training strategies

Since the 1970s an abundance of instructional strategies has been developed to teach parents how to implement BPT interventions. Within-study comparisons of parent training methods were particularly prevalent in the 1970s and 1980s and almost exclusively based upon a behavioural framework (Sanders & Dadds, 1993). Research findings indicate that a number of training methods (including verbal, written or videotaped instructions; modelling and role-play; in-vivo prompts and performance feedback; videotaped feedback; praise and live or videotaped modelling) have all resulted in skill acquisition (O’Dell, 1985). Across several studies parents were exposed to a number of these instructional strategies as part of a BPT intervention (e.g., Anderson, Avery, DiPietro, Edwards, & Christian, 1987; Baker & McCurry, 1984; Hornby & Singh, 1984; Neef, 1995; Powers, Singer,
Stevens, & Sowers, 1992; Sanders & Dadds, 1982; Werle, Murphy, & Budd, 1993); however, the individual instructional strategies responsible for the parents’ skill acquisition were not identified (Lerman, Swiezy, Perkins-Parks, & Roane, 2000).

As with the parent training literature for parents with an intellectual disability, researchers have examined the necessary and sufficient components of a parent training program to develop more cost-effective BPT interventions. The outcomes of this research have been inconsistent. For example, research conducted by Kashima, Baker, and Landen (1988) and Koegel, Glahn, and Nieminen (1978) suggested that simple strategies, such as written or videotaped instructions, can produce changes in parent behaviour. Furthermore, other researchers have shown that inexpensive and arguably less intrusive training strategies (e.g., written manuals) are as effective as more comprehensive programs. For example, O’Dell et al. (1982) found that written instructions in the form of a manual were just as effective as live modelling combined with rehearsal in increasing parents’ correct use of positive reinforcement. Meanwhile, other studies found that verbal and/or written instructions were less effective than training with multiple instructional components, such as modelling, role-play and feedback (e.g., Nay, 1975). In a study by Hudson (1982), for example, parents did not implement the intervention with their children correctly unless verbal instruction was combined with modelling and role-play. Doleys, Doster, and Cartelli (1976) found that both written instructions and role-play with the therapist were ineffective unless feedback was included in training.
Factors responsible for these mixed findings are difficult to identify due to various limitations of this research. One common limitation, which was also discussed in Chapter 2, is that many studies fail to report sufficient detail regarding their parent training strategies, or when these were reported they were poorly described (Lerman et al., 2000). This is particularly true for certain types of strategies. For example, whether or not discussion was used as a parent training strategy is often difficult to determine not only because discussion can be difficult to define as a training method but also because discussion was not always explicitly identified as part of the training package.

Another common limitation is that data on parent behaviour is often not reported. For example, Maughan et al. (2005) conducted a meta-analysis examining the effectiveness of BPT for children and adolescents with problem behaviour. Of the 79 outcome studies included in the meta-analysis, only 16 studies included treatment integrity data.

Other issues include a lack of criterion levels being established for successful skill acquisition by the parent, training being implemented across a prescribed number of sessions, and the fact that most studies used group designs to compare the efficacy of different training formats, which prevented detailed examination of individual differences in performance and the pattern of skill acquisition (Lerman et al., 2000).

Finally, another explanation relates to the variation among studies of parent and child characteristics associated with successful outcomes (e.g., level of family adversity, as discussed above). For example, Knapp & Deluty (1989) found that mothers from middle-SES families implemented behaviour management strategies with a high degree of accuracy after training with
either verbal and written instructions or role-play combined with modelling; conversely, instructions were much less effective than role-play plus modelling for mothers from low-SES families.

While there is now much evidence for the effectiveness of BPT, the research suggests that there are a number of potential barriers to implementing BPT successfully with parents with an intellectual disability. Taken as a whole, these findings suggest that BPT will not be an effective intervention for parents with an intellectual disability with children with problem behaviour. To overcome these barriers, it is necessary to look to extensions of BPT that present promising adaptations of the approach that would enhance the delivery of BPT for parents with an intellectual disability.

One approach comes from the Positive Behaviour Support (PBS) literature. The following sections will describe PBS, briefly review the evidence for its effectiveness with families and discuss two key features to the approach that show promise in terms of improving the content and delivery of BPT for parents with an intellectual disability.

3.6 Definition of positive behaviour support

Over the last two decades, an approach to addressing problem behaviour, known as Positive Behaviour Support (PBS), has evolved within the field of developmental disabilities (Carr et al., 2002). PBS emerged from a combination of sources, including the BPT literature outlined above (Singer et al., 2002), Applied Behaviour Analysis (ABA) (Dunlap, 2006), the normalisation movement and person-centred values (Carr et al., 2002).
As discussed in Chapter 1, PBS is a collaborative, assessment-based approach to developing effective, comprehensive, and individualised interventions for individuals with problem behaviour (Lucyshyn et al., 2002). Rather than focus on reducing problem behaviour only, PBS interventions (often referred to as behaviour support plans) emphasise the use of proactive, skill-building, and reinforcement-based strategies to achieve meaningful and durable lifestyle outcomes. The approach puts an emphasis on improving deficient problem contexts by using multicomponent behaviour support plans to prevent triggering antecedents, to build replacement skills, and to redesign environments (Carr et al., 2002) that result in outcomes that are important to the individual and those caring for them. Behaviour support plans are always based on a functional assessment of the problem behaviour; they include empirically validated practices and recognise that effective practices only endure if they are implemented within the context of a supportive system (Carr et al., 2002; Lucyshyn et al., 2002; Sugai et al., 2000). The PBS approach evaluates behaviour support plans not only in terms of their effectiveness, but also in terms of their ecological and social validity. This results in an emphasis on the involvement of typical intervention agents such as parents, and the provision of supports in the individual’s natural setting over a long period of time (Carr et al., 2002). It is all of these critical features that, taken together, differentiate PBS from the approaches it has emerged from (Carr et al., 2002).

Although there has been some recent criticism of the PBS approach, this has mainly been about how it should be characterised, that is, as a new applied science (e.g., Carr et al., 2002) or as a value-based applied science
(e.g., Mulick & Butter, 2005) rather than how it is implemented and evidence for the efficacy of the approach.

**3.7 Effectiveness of PBS with families**

Over the past 15 years, a growing body of empirical research has demonstrated the efficacy of the PBS approach. Studies have generally used single-case experimental designs to assess the impact of the interventions on child and parent behaviour. To assess the overall effectiveness of these studies Carr, Horner and colleagues (1999) completed an extensive research synthesis and Marquis and colleagues (2000) completed a meta-analysis, using quantitative measures, of the effectiveness of PBS for individuals with developmental delay/intellectual disability and/or autism and problem behaviour. Both studies examined single-subject intervention studies that were published between 1985 and 1996. Generally, both analyses indicated that PBS was effective across all problem behaviour examined and across a wide variety of participant characteristics and intervention settings. Carr et al. (1999) reported that their results showed that participants were likely to be seen in atypical settings by both typical (e.g., teachers and parents) and atypical (e.g., researchers and behaviour analysts) intervention agents. This was consistent with Marquis et al. (2000) who also found some evidence from the analysis that PBS may be more effective with typical agents, in typical settings, with milder levels of intellectual disability, and with aggression; however, as the researchers pointed out, these conditions tended to co-occur, making it difficult to draw any definite conclusions about the effect of any one of these variables.
Despite the positive results reported above, there is only a small body of research that assesses the efficacy of PBS with families where PBS is provided via parent training. As with the early BPT studies, most of these PBS studies focused on showing that parents could be taught, using very simple instructional strategies such as verbal instruction, to conduct a functional assessment of their child’s problem behaviour and implement a behavioural support plan (e.g., Arndorfer, Miltenberger, Woster, Rortvedt, & Gaffaney, 1994; Derby et al., 1997; Dunlap & Fox, 1999; Fox, Dunlap, & Philbrick, 1997; Fox, Vaughn et al., 1997; Koegel, Steibel, & Koegel, 1998; Vaughn, Clarke, & Dunlap, 1997; Vaughn, Wilson, & Dunlap, 2002).

One of the first studies in which parents were actively involved in the assessment and implementation of the intervention in the home was conducted by Arndorfer et al. (1994). During the assessment phase, verbal instruction was used to teach five parents how to collect antecedent and consequent information for each episode of problem behaviour as it happened. During the intervention phase, verbal instruction and verbal prompts (for one parent only) were also used to teach two parents how to implement the intervention. Results showed that parents identified the same function for the problem behaviour as did the researchers when using an A-B-C assessment. Parents were able to implement the intervention as planned, and the problem behaviour of the children decreased.

In another study, Derby and colleagues (1997) showed that a long-term decrease in the problem behaviour displayed by four young children with multiple disabilities could be achieved when all functional assessment and intervention procedures were implemented in the home by the children’s
parents. As with the Arndorfer et al. (1994) study, parents were taught to implement all the assessment and intervention procedures using only a few parent training strategies (e.g., verbal instructions and feedback, and written and videotaped instructions). Results showed reductions in problem behaviour and increases in social and toy play behaviour by the children during intervention and at follow-up at 9, 12 and 17 months. Since then, other studies have extended these findings by demonstrating the effectiveness of the PBS approach when it is implemented across community settings by natural mediators (e.g., parents and teachers) over a 2½- (Carr, Levin et al., 1999) and 3-year period (Feldman, Condillac, Tough, Hunt, & Griffiths, 2002).

Dunlap and Fox (1999) implemented a PBS-based intervention, known as the individualised support program, with six young children between the ages of 29 and 44 months who suffered from autism and severe problem behaviour. Following a process of family-centred functional assessment, comprehensive behaviour support plans were developed. The plans focused largely on communication-based intervention strategies, and were implemented by the children’s families and caregivers in home, community and child care or pre-school settings. Unlike the studies above, researchers used a number of parent training strategies (including verbal instruction, modelling, coaching, ongoing reviews of plan, feedback, and verbal reinforcement) to teach parents to implement the interventions. Probe data were collected through direct observation across all settings, with multiple baseline designs being implemented across participants for three parents and across settings for one parent. An A-B design was used for the remaining two parents. The results showed reductions in problem behaviour to zero or near-
zero levels for all six children. Importantly, additional data indicated that the children improved in cognitive and social development, and that the families benefited from quality of life outcomes.

Studies have examined the varying levels of input necessary from the researcher in order to ensure parents are able to successfully implement a behavioural support plan. For example, using minimal researcher input (e.g. only didactic instruction and a written manual) Frea and Hepburn (1999) assessed the ability of two parents to perform a descriptive functional assessment, identify whether parents could generate functionally equivalent alternative behaviours, and evaluate the parents’ ability to independently teach the new behaviours. The results indicated that one parent was immediately successful in utilising functional assessment information to independently create and implement an effective intervention; the second parent required a brief instructional session on prompting procedures to effectively implement the intervention. In contrast to this, Barry & Singer (2001) used more intensive researcher input when they conducted a 26-month study with a family of a 10-year old with autism who displayed dangerous aggressive behaviour toward a younger sibling. The family, who reported being under extreme duress, found it more acceptable for the researchers to conduct the functional assessment and implement the intervention first. Once the child’s behaviour had improved, the parents were taught to implement the intervention using verbal instructions, modelling and praise. A nonconcurrent multiple baseline across types of aggression indicated that the intervention was associated with decreases in child problem
behaviour to zero levels and increases in appropriate behaviour. These improvements were maintained at follow-up after one and four months.

The focus of almost all PBS research has been children with intellectual, neurological or physical limitations. A study conducted by Galensky, Miltenberger, Stricker, & Garlinghouse (2001) differed in that it was one of the first where the focus of the intervention was on typically developing children. The study evaluated the effects of a brief functional treatment for mealtime behaviour problems, conducted by the parents in their home. Following functional assessment procedures, performance-based behavioural teaching techniques were used to teach the parents to implement a multicomponent treatment package consisting of contingent attention for food consumption, differential reinforcement for appropriate eating behaviour, ignoring of food refusal and play behaviour, and physical redirection. An interesting finding from this study was that the intervention was effective in improving mealtime behaviour, despite moderate levels of treatment integrity. Following intervention, the parents maintained above 80% treatment integrity with the provision of praise, almost 100% with the provision of contingent preferred food and physical redirection for elopement behaviour, and only 50% integrity with providing physical redirection for play behaviour and ignoring refusal and expulsion behaviour. Problem behaviour that was observed at low levels during baseline did not increase during intervention while behaviour that was observed at high levels in baseline all decreased during intervention. Importantly, treatment acceptability results suggested that the parents found the intervention to be acceptable.
3.8 Positive behaviour support: Improving the content and delivery of BPT

As discussed above, PBS has a number of critical features that, taken together, differentiate PBS from the approaches it has emerged from (Carr et al., 2002). Two features in particular, function-based intervention planning and the importance of the contextual fit of the intervention, show promise in terms of improving the content and delivery of BPT for parents with an intellectual disability. These will be discussed below.

3.8.1 Function-based intervention planning

In the early 1980s, functional assessment re-emerged in the applied behaviour analysis literature as an essential tool for understanding problem behaviour and for designing effective interventions (e.g., Iwata, Dorsey, Slifer, Bauman, & Richman 1982/1994). It is seen as a key feature of PBS interventions with families (Lucyshyn et al., 2002); however, the use of functional assessments has been largely overlooked in the BPT literature (Vittimberga, Scotti, & Weigle, 1999).

Research has shown that problem behaviour typically serves a purpose or function: (a) escaping or avoiding nonpreferred or aversive demands, (b) gaining attention, (c) gaining access to a preferred thing, and (d) getting self-stimulation reinforcement (O’Neill et al., 1997; Repp & Horner, 1999). Functional assessment is the term used to describe the processes for identifying which function or functions the behaviour serves and the specific events in an environment that predict the problem behaviour (O’Neill et al., 1997). The purpose of conducting a functional assessment is to improve the effectiveness and efficiency of behaviour interventions (Carr et al., 1994;
Horner, 1994). Functional assessments are conducted so that the behaviour interventions will be more likely to have features that (a) neutralise and eliminate variables that trigger the problem behaviour, (b) consider the factors maintaining the problem behaviour, and (c) arrange the environment to establish consequences that encourage appropriate behaviour and decrease problem behaviour (Ingram, Lewis-Palmer, & Sugai, 2005).

A number of direct and indirect methods for conducting a functional assessment have been developed. Indirect methods, such as interviews and rating scales (e.g., O'Neil et al., 1997), involve gathering information via another person such as the child’s parent. However, relying solely on indirect methods has not been encouraged due to the questionable reliability and validity found by some studies (e.g., Barton-Arwood, Wehby, Gunter, & Lane, 2003). Instead, researchers such as Carr et al. (1999) have recommended a combination of indirect methods with at least one direct method.

Direct methods involve gathering information via direct observation, and can be placed along a continuum of control from descriptive assessments at one end to functional analysis at the other (English & Anderson, 2006). Descriptive methods are most often conducted away from the clinic or laboratory and involve recording instances of problem behaviour and the environmental events that precede and follow the response (O'Neil et al., 1997). These methods are seen as advantageous because they allow for the development of hypotheses about functional relations between the behaviour and the environment that occur naturally. However, because these events are not manipulated, those relations cannot be verified (English & Anderson, 2006). In contrast to that, a functional analysis involves the systemic
manipulation of a small number of environmental variables hypothesised to evoke or maintain difficult behaviour (Iwata et al., 1982/1994), and does enable the verification of any functional relationships.

Research has shown that a pre-treatment functional assessment (and hence a functionally derived intervention) greatly improves the likelihood that an intervention will be successful. In the research synthesis discussed previously, Carr, Horner and colleagues (1999) found that PBS was more effective when a functional assessment was completed and used to design the interventions. In addition to that, Campbell (2003) reviewed the efficacy of behavioural interventions for problem behaviour in persons with autism. The author found that behavioural treatments were more effective when preceded by a functional assessment. Finally, in a recent study conducted by Newcomer and Lewis (2004), the authors compared the efficiency and efficacy of function-based interventions with traditional intervention approaches that focus on the topography of the behaviour. They found that behavioural interventions based on functional assessment were more effective than alternative intervention approaches across three children who displayed behaviour problems in a general educational setting.

The body of intervention research from the PBS literature offers evidence that functional assessment is invaluable for developing effective behavioural support plans for children and youth with disabilities, across a variety of settings (e.g., Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Vaughn, Clarke, & Dunlap, 1997; Wacker, Cooper, Peck, Derby, & Berg, 1999). However, few BPT formats have been evaluated for interventions based on empirically derived functional assessment (Marcus et al., 2001).
Over two studies, Vollmer and colleagues (Marcus et al., 2001; Vollmer, Marcus, & LeBlanc, 1994) demonstrated the utility of combined functional assessment and analysis in a BPT format for parents of children with severe disabilities and problem behaviour. In the first study (Vollmer et al., 1994), functional analyses had shown that self-injurious behaviour (SIB) was maintained by automatic reinforcement. Using modelling, role-play, immediate and delayed feedback and booster sessions, parents were trained to reliably implement an intervention consisting of environmental enrichment (e.g., playing with preferred toy within reach of child), reinforcement of toy play, response blocking and time out. Correct implementation of the intervention resulted in a decrease in SIB and an increase in toy play.

The purpose of the second study (Marcus et al., 2001) was to extend the parent training procedures used in Vollmer et al. (1994) to children whose behaviour was maintained by socially mediated reinforcement. Results of the functional analysis showed that the children’s problem behaviour was maintained by social positive or negative reinforcement. Based on this, individualised interventions were designed consisting of a combination of differential negative reinforcement, differential reinforcement of alternative behaviour plus noncontingent reinforcement, prompts and time out. The results showed that parents correctly implemented the intervention and this corresponded with improvements in child behaviour.

3.8.2 Contextual fit of interventions

Ecocultural theory, first discussed by Gallimore, Weisner, Bernheimer, Guthrie, and Nihira (1993), is a theory of child development that builds on both family systems and ecological theories and integrates a social constructivist
perspective. Ecocultural theory proposes that families socially construct child activity settings to accommodate the needs of children within the pressures and opportunities in the family’s environment (Bernheimer, Gallimore, & Weisner 1990). Incorporating these ecocultural components into intervention planning increases the “contextual fit” of such interventions. This concept of the contextual fit of intervention plans is a key feature of PBS with families (Albin, Lucyshyn, Horner, & Flannery, 1996). The argument is that effective parent training programs that are technically sound but do not have good contextual fit may be rejected by families, implemented incorrectly, or be unsustainable over time (Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002). Intervention plans possess good contextual fit when they reflect family goals and values, build on the family’s strengths, utilise family resources and social supports, and are embedded into the daily routines and activities of family life in ways that are acceptable and feasible to the family (Lucyshyn et al., 2002).

Moes and Frea (2000) provided the first empirical evidence of contextual fit’s relative contribution to the success of an intervention. The researchers compared child and family outcomes related to two intervention approaches, a prescriptive approach and a contextualised approach. For the prescriptive approach, the researchers selected an intervention package and taught the child’s parents to implement it. Initial improvements in the child’s behaviour were observed but these deteriorated over time and did not generalise to another routine in the family home. The researchers then introduced the contextualised intervention approach. This included strategies that considered the parents’ preferences and involved adaptations that fitted better with parent goals, values and resources. Implementation of the
contextualised approach was immediately associated with reductions in child problem behaviour. These reductions were stable, generalised to a nontrained routine and maintained at three-month follow-up. A measure of contextual fit showed that this revised intervention plan could be maintained and could fit very well with the family’s goals, values, resources, and abilities.

Researchers have begun investigating ways to achieve good contextual fit of interventions with families. To do this, three strategies have been discussed in the PBS literature: developing collaborative partnerships with families, supplementing pre-intervention functional assessment procedures with assessments of the family ecology, and using family activity settings as the basis for intervention design and implementation. Each of these will be briefly discussed below.

A number of researchers have emphasised the importance of working collaboratively with a family during the development and delivery of an intervention (e.g., Dunlap & Fox, 1999; Dunlap & Fox, 2001; Lucyshyn et al., 2002; Vaughn, Dunlap, Fox, Clarke, & Bucy, 1997). The idea is that making meaningful and lasting behaviour and lifestyle change is more likely to be achieved when the people most familiar with the child and the child’s activities and routines are closely involved with the development and implementation of an intervention. This involvement provides access to detailed knowledge of the child and family, which is necessary to develop an appropriate plan that suits the context the family lives in (Lucyshyn et al., 2002). Working in partnership with families also promotes shared control over the type of intervention strategies and the opportunity to modify strategies to better fit the family context (Dunlap & Fox, 2001).
A second way to enhance the contextual fit of interventions is discussed by Albin and his colleagues (1996). The researchers developed a simple family ecology assessment of setting, values and beliefs that informs intervention planning and can increase the compatibility of the intervention with ongoing family routines and practices. Specifically, Albin and colleagues suggested that the following information be collected: (a) family members’ ideas and reactions regarding hypotheses of the function(s) of problem behaviour, (b) the ways in which the family has structured its daily living patterns and routines, (c) the family’s use of successful strategies and accommodations to address problem behaviour, (d) the future goals of the family, (e) potential support strategies, and (f) issues for program implementation and contextual fit. This information is collected through discussions with the family and can form the basis of the behavioural intervention. Family members are coached and supported through this process as required.

Another strategy used to enhance the contextual fit of PBS interventions is the use of family activity settings as the basis for intervention design and implementation (Lucyshyn & Albin, 1993; Lucyshyn et al., 2002). Activity settings are routines and activities that one or more family members construct and carry out to maintain the family’s day-to-day functions. They vary considerably between families, based on cultural practices, SES, family make-up, work, the presence of outside supports, and other contextual factors. Activity settings can include basic routines (e.g., cooking meals, dressing, bathing and sleeping), routines that include the ways in which families respond to external demands (e.g., paying bills and going to health
appointments), less frequent routines (e.g., going to the zoo, eating in a restaurant), and symbolic activities that are repeated over longer periods of time (e.g., birthday celebrations). Researchers argue that an analysis of activity settings may contribute to the generalisation and maintenance of interventions (O’Donnell and Tharp, 1990). If BPT strategies move a family further from their desired activity settings, then the family is likely to drop the strategies over time. On the other hand, if the strategies help families restore desired activity settings and reduce day-to-day efforts to respond to problem behaviour, then they are more likely to be sustained over time. This attention to the detail of routines can help practitioners and parents select intervention strategies that are practical, meaningful and sustainable.

Luchyshyn et al. (1997) was the first to address the implications of a focus on contextual fit by introducing all three strategies into a process of PBS with families. The researchers conducted a longitudinal, descriptive, and experimental analysis of comprehensive PBS with one family of a teenager with multiple disabilities and severe problem behaviour. Functional assessment procedures were supplemented with an assessment of family ecology, based on the assessment developed by Albin and his colleagues (1996), and an examination of routines that were important to the family but unsuccessful or did not happen due to problem behaviour. All assessment information was used to inform intervention planning and to increase the compatibility of the intervention with ongoing family routines and practices. Based on these findings, a comprehensive multicomponent PBS plan was collaboratively designed with the parents. Parents were taught to implement the behaviour support plan in valued routines in the home and community.
using a number of performance-based teaching strategies, including verbal and written instructions, modelling, coaching, problem-solving discussions, verbal reviews of definitions, self-monitoring and self-evaluation. A multiple-baseline probe design across settings showed improvements in child behaviour and increased participation in the routine when the parents reliably implemented the intervention. These improvements in child behaviour maintained across a one- to five-month period and during follow-up three and nine months post-intervention. The study also used repeated measures of social validity and contextual fit. Results of these showed that, overall, parents perceived intervention goals, procedures, and outcomes to be important and acceptable and that the intervention fitted well with their ecology.

Across a series of studies Vaughn and colleagues (Clarke, Dunlap, & Vaughn, 1999; Vaughn, Clarke, & Dunlap, 1997; Vaughn et al., 1997; Vaughn, Wilson, & Dunlap, 2002) demonstrated the efficacy of parent–professional collaborative partnerships in the design and implementation of PBS interventions in the context of activity settings. Vaughn, Dunlap et al. (1997) developed a partnership with the parent of a nine-year-old boy with Cornelia de Lange syndrome, severe intellectual disabilities, chronic medical problems and intense problem behaviour. The intervention was implemented across three family routines including shopping at the grocery store, eating at a fast-food restaurant and banking at a drive-through window. The results showed that problem behaviour substantially decreased and cooperative child responses increased as the intervention was implemented in each setting.

In another study, Vaughn et al. (1997) worked with the family of a boy with intense problem behaviour in a bathroom routine at home and on outings.
to restaurants. A multiple baseline design across settings showed the PBS intervention quickly reduced problem behaviour and increased the child’s positive behaviour.

Clarke et al. (1999) used an ABAB reversal design to demonstrate the effectiveness of a behaviour support plan to improve a child’s behaviour during the morning “get ready for school” routine. Implementation of the behaviour support plan (made up of the provision of visual prompts, modifying the child’s clothing arrangements, and positive reinforcement and rewards for completing routine) resulted in reductions in problem behaviour and an increase in on-task engagement.

Finally, Vaughn, Wilson, & Dunlap (2002) implemented an intervention with a family during an outing to a fast-food restaurant. What was different here was the researchers used a multiple baseline design across subroutines (arrival, mealtime, departure) to demonstrate the effectiveness of the intervention. After only two intervention sessions, parents successfully implemented the behaviour support plan, resulting in a decrease in child problem behaviour and an increase in task engagement.

3.9 Conclusion

Based on a review of the BPT literature this chapter has made the case that, taken as a whole, BPT would not be the most effective intervention for parents with an intellectual disability with children with problem behaviour. However, this chapter has also made a case that critical features of the PBS approach to problem behaviour show promise in terms of enhancing the delivery of BPT to these families. The evidence for improved intervention
outcomes when functional assessment procedures are used provides support for conducting a functional assessment prior to intervention development, something that no published study has done when working with parents with an intellectual disability. In addition to this, the critical concern in creating contextual fit is the development of strategies that are effective and feasible for implementation by all the persons who interact with the child (Dunlap & Fox, 2001). As discussed in Chapter 2, this is vital when developing parent training programs for parents with an intellectual disability. However, as with functional assessments, there are no published reports describing the use of strategies to enhance the contextual fit of an intervention with parents with an intellectual disability.

3.10 Focus of the current research and research questions

The previous chapters have demonstrated that, despite the evidence outlining the essential elements of parent training programs for parents with an intellectual disability and the volumes of research evidence showing the effectiveness of BPT, gaps in the research remain. This study aims to address these gaps by integrating the empirical literature of parent training programs for parents with an intellectual disability with critical features of the emerging technology of PBS. Both areas have emerged from the BPT literature in response to the need for adaptations and extensions of BPT for use with families facing high levels of family adversity.

First, the current chapter argues that BPT would not be the most effective intervention for parents with an intellectual disability with children with problem behaviour. The current chapter also argues that BPT
interventions could be enhanced by integrating critical features of the PBS approach to problem behaviour. Therefore, the current study aims to test the effectiveness of an enhanced assessment-based BPT intervention implemented by parents with an intellectual disability with children with problem behaviour. Enhanced assessment-based BPT refers to the integration of BPT with features of PBS. This involves conducting comprehensive family ecology assessments and functional assessments and using this information to help design the BPT intervention.

Second, as discussed in Chapter 1, it is not known whether the parent training strategies used to teach parenting skills such as child care, home safety and emergency skills would be successful in teaching parents with an intellectual disability to independently deliver and maintain an enhanced assessment-based BPT intervention at home. In addition to this, questions remain as to the importance of specific practices such as training in a home-like environment to promote generalisation (Feldman, 1998) and the effectiveness of promising practices such as video feedback (Slater, 1986). To answer these questions, the current study also aimed to test the effectiveness of a parent training package where the training strategies were progressively introduced based on the degree of intrusiveness in the target routine combined with the amount of structure required by the teaching strategy. To be specific, the training package began with the least intrusive but highly structured strategy of role-play and modelling in the home without the child and away from the target routine. This was done to determine the impact of these teaching strategies on the parents' generalisation of intervention skills to the target routine. Next, a more intrusive but less structured teaching strategy
was employed; verbal instruction with the child during the routine. The next
two conditions continued to increase in intrusiveness and structure (verbal
instruction plus feedback in routine with the child followed by coaching in
routine with the child) while the final condition decreased in intrusiveness but
also increased in structure (video feedback with the child away from routine).
This final condition was included to test the effectiveness of video feedback as
a teaching strategy for these parents. Advancement from one condition to the
next was based on pre-established training and accuracy criteria.

The specific research questions addressed are:

1) How effective are evidence-based parent training strategies on the
ability of parents with an intellectual disability to implement an
enhanced assessment-based BPT intervention during a family routine
at home?

2) What combination of parent training strategies is sufficient to teach the
parent to effectively implement the intervention?

3) Is there a functional relationship between accurate implementation of
the intervention and child behaviour improvement?

4) Do the intervention and the strategies used to teach it possess a
goodness of fit with the family’s values, goals and lifestyle?

5) Are the intervention and the strategies used to teach it socially valid
from the family’s point of view?
4.1 Overall summary of research method

In order to assist the reader a summary of the major research activities is provided below in Figure 1.

Figure 1. Major research activities conducted across time

4.2 Participants
Five parents (four mothers, one father) with an intellectual disability participated. Parents with an intellectual disability were defined as a parent who either: (a) had significantly subaverage general intellectual functioning concurrent with significant deficits in adaptive behaviour (American Association of Mental Retardation, 2002); (b) attended a special education school; or (c) had self-identified, or been identified by the referring agency, as having cognitive limitations resulting in difficulties with learning. This definition is based on a functional model of intellectual disability as described by Tymchuk, Lakin, & Luckasson (2001). To be eligible to participate parents needed to meet the above definition, their primary language needed to be English, and they needed to be the main carers of at least one child under six years old. Parents were not considered eligible for participation in the research if they had a diagnosed mental illness or a substance abuse disorder, or they lived in a substantiated domestic violence situation. Eligibility to participate was determined by the agency or worker referring the parent to the research.

A brief description of each parent participant and child participant follows.

4.2.1 Parent 1

Parent 1 was a 43-year-old mother. She lived with her husband who was 41 years old, and their only son who was 4 years and 1 month old. Neither parent was in paid employment. Parent 1 received a disability pension from the government, while her husband received a sickness benefit.

IQ scores were obtained from participants using the Kaufman Brief Intelligence Test (K-BIT) (Kaufman & Kaufman, 1990). The K-BIT provides
age-based IQ standard scores that have been normed to have the same metric as the Weschler Adult Intelligence Scales (WAIS). The K-BIT has two subscales, vocabulary subscale and matrices subscale. The vocabulary subscale assesses an individual’s word knowledge and verbal concept formation. The matrices subscale assesses an individual’s ability to perceive relationships and complete analogies. The K-BIT was administered by the researcher after recruitment during baseline data collection. It took, on average, 10 minutes to administer with each parent.

Parent 1 self-identified as having an intellectual disability and scored 56 on the K-BIT (Kaufman & Kaufman, 1990). Her husband did not identify as having any difficulties with learning. He was significantly overweight and was experiencing ongoing health problems, including gout, fatigue, shortness of breath and severe anxiety. He reported that, as a result of his problems, he could not participate in the study. He was present for all phases of the intervention but did not contribute.

During the time of intervention, Parent 1 had a case manager from a government disability organisation. It was this case manager who referred Parent 1 for the current study. The primary reason for the referral was a lack of appropriate services for Parent 1 that could help her manage Child 1’s problem behaviour. The family had received a number of family support services since Child 1 was born. Most of these were in-home and had focused on the day-to-day care of Child 1 (e.g., nutrition, household routines, toilet training, and hygiene). Some of the support workers associated with these services had put some attention to behaviour management strategies for Child 1, however both parents reported that these were neither useful nor helpful.
Parent 1 reported that she was never able to “get it right” and “it didn’t work” with Child 1.

**4.2.2 Child 1**

Child 1 attended a child care centre four full days per week. The centre had reported some problems with his behaviour, particularly with screaming and swearing.

The developmental status of each child targeted for intervention was assessed at pre-intervention using the Battelle Developmental Inventory Screening Test (BDIST) (Newborg, Stock, Wnek, Guidubaldi & Svinicki, 1984). Five domains associated with child development were assessed: personal-social skills, adaptive behaviour, motor ability, communication skills and cognition. The test was administered by the researcher and took, on average, 30 minutes to complete.

The results of the BDIST (Newborg et al., 1984) for Child 1 showed delays in two domains: personal–social skills and adaptive behaviours.

Child 1’s mother reported that the behaviours she found difficult at home included hitting and kicking, throwing objects at her, screaming and swearing, spitting, and noncompliance. Strategies to discipline him included repeated verbal reprimands, warnings, and putting him in his room.

**4.2.3 Parent 2**

Parent 2 was a 36-year-old mother who lived with her husband and two children, ages 4 years 6 months and 4 months old. The 4-year-old child was a boy; the other child was a girl. Parent 2 was not employed outside the home. Her husband worked full time as a car wash assistant. He generally worked more than 10 hours a day and spent approximately 2 hours travelling to and
from work. This schedule precluded his regular presence during all phases of this study.

Parent 2 self-identified as having “difficulties with reading and writing” but did not classify herself as having an intellectual disability. She scored 76 on the K-BIT (Kaufman & Kaufman, 1990).

The family had received no previous assistance from family support or education services. They were referred to the current study by the coordinator of the child care centre the boy attended. The centre had observed Child 2’s problem behaviour when his mother came to pick him up and was concerned about the mother’s ability to appropriately “handle” his problem behaviour. The centre also reported that Parent 2 had been requesting some assistance at home with Child 2’s behaviour.

4.2.4 Child 2

The 4-year-old boy’s behaviour was the focus of the intervention. He attended the child care centre two days per week. The centre had reported some problems with his behaviour, such as hitting and pushing other children and swearing. The results of the BDIST (Newborg et al., 1984) showed no overall delay in his development.

Child 2’s mother indicated that aggressive and destructive behaviour were her primary concern at home. She reported having particular problems when she was feeding her infant daughter. The aggressive behaviour during this time included hitting her, throwing objects at her, and yelling and swearing at her. The destructive behaviour included breaking toys, family ornaments, and kitchen objects (e.g., plates and cups). Current strategies to discipline him included verbal reprimands and warnings, and removing preferred toys.
4.2.5 Parent 3

Parent 3 was a 31-year-old mother who lived with her husband and only child, a boy who was 5 years and 3 months old. She was not employed outside the home. Her husband worked full time as an assistant to a car mechanic. His work schedule precluded his regular presence during all phases of this study. Parent 3 self-identified as having an intellectual disability and scored 70 on the K-BIT (Kaufman & Kaufman, 1990).

Prior to involvement in the study, Parent 3 had participated in one parenting education program for families with children with problem behaviour. She attended weekly group sessions outside the home over a number of weeks (she was unable to recall how many). Although Parent 3 reported that she liked these groups and learned some new strategies to try with her son, she could not remember what these were and did not think she was still using them. At the time of intervention the child was attending kindergarten at an early intervention centre as well as regular child care sessions at a mainstream child care centre. The family was receiving no other supports or services. The teachers at the early intervention centre referred the family to the current study as they were concerned about the current strategies Parent 3 may have been using to deal with her son’s difficult behaviour. For example, during one conversation with staff Parent 3 reported that she had put Child 3 outside so he would stop screaming. According to Parent 3, this had occurred at night and she could not recall how long he was outside.

4.2.6 Child 3

Child 3 attended kindergarten for three half-day sessions. The kindergarten operated out of a centre that provided early intervention services
for children with developmental delays. He also attended two full days at a regular child care centre. Both centres reported some problems with his behaviour in these settings. The results of the BDIST (Newborg et al., 1984) showed delays in all domains (i.e., personal–social skills, adaptive behaviour, motor ability, communication skills and cognition).

Child 3’s mother indicated that his problem behaviour at home included hitting, spitting, yelling and swearing, and throwing objects at her. She also indicated that he did not follow her instructions. Strategies to discipline him included repeated verbal reprimands and removing preferred objects and toys. If these were ineffective, she would put him outside in the back yard of the house. She was unable to report how much time would pass before she brought him back inside the house.

4.2.7 Parent 4

Parent 4 was a 41-year-old father who lived with his wife and their two children, ages 4 years and 8 months and 6 years and 11 months. The 4-year-old child was a boy; the other child was a girl. Neither parent was in paid employment. Parent 4 received a disability pension from the government while his wife received a parenting benefit from the government. Parent 4 self-identified as having an intellectual disability and scored 44 on the K-BIT (Kaufman & Kaufman, 1990). His wife did not meet the definition of intellectual disability as it is applied in this research.

Prior to participation in the study, both parents reported having attended a number of parenting support groups and parent education classes in community centres. The primary reason for their participation was to obtain assistance and develop strategies to use with both their children’s behaviour
but particularly their son’s problem behaviour. Although his wife found this support to be very useful, Parent 4 reported that he did not understand the information being presented and could not apply the parenting strategies at home. Attempts by his wife to review the strategies with him and coach him to apply them with his children would lead to significant conflict between the parents. This would often escalate to Parent 4 leaving the house for three or four hours at a time. Both parents agreed that the level and type of support provided did not meet either Parent 4’s needs or the needs of the family as a whole. At the time of intervention the family was receiving no other supports or services. They were referred to the current study by a government family support agency that had assessed the family as not eligible or suitable for the services provided by them.

4.2.8 Child 4

The 4-year-old boy’s behaviour was the focus for intervention. He attended a kindergarten program two full days per week. No significant behaviour problems were reported in this setting. Child 4 showed no overall delay in his developmental status as assessed by the BDIST (Newborg et al., 1984).

Child 4’s parents indicated his problem behaviour at home included hitting and kicking them and his sister, throwing objects at people, screaming and yelling, and refusing to follow instructions. Strategies to discipline him included repeated verbal reprimands and warnings, and when these were not effective, spanking him on his bottom and putting him in his room.

4.2.9 Parent 5
Parent 5 was a 23-year-old single mother who lived with her mother and her mother’s boyfriend. She had one son who was 2 years and 2 months old. She was not employed outside the home. Her mother was present in the home during the day and night, however she had multiple physical health problems, which limited her ability to assist with child care. These health problems precluded her involvement in any phase of the study. Parent 5 self-identified as having an intellectual disability and scored 54 on the K-BIT (Kaufman & Kaufman, 1990).

Prior to the study, Parent 5 had not participated in any parent education or family support programs. She was referred to the current study by the staff at the child care centre her son attended. The centre staff had concerns about Parent 5’s ability to provide him with a safe environment (staff had observed Child 5 running away from Parent 5 on a number of occasions) and set limits on his behaviour (staff had also observed Child 5 hitting Parent 5 on a number of occasions).

4.2.10 Child 5

Child 5 attended a child care centre three full days per week. No problems with his behaviour were reported in this setting, although concerns were expressed about possible delays in language. At the time of intervention, the child care centre staff had put Child 5 on a wait list for assessment and services from an early intervention service for children with developmental delays. The results of the BDIST (Newborg et al., 1984) showed delays in three domains: personal–social skills, communication skills and cognition.

Child 5’s mother indicated that the behaviour at home that she found difficult included hitting her with his hands and other objects, spitting, throwing
objects at her and other people, pushing, screaming, and noncompliance. She could not report any strategies she was currently using to discipline him.

**4.3 Referral and consent**

The parents were initially referred to participate in a pilot of an intensive home-based parenting program for parents with an intellectual disability. The parenting program was called *Parenting Young Children* (PYC) and was developed and produced with support from grants under the Stronger Families and Communities Strategy, Australian Commonwealth Department of Family and Community Services (July 2002–June 2004). The aim of the PYC program is to help parents with an intellectual disability develop their skills in the areas of positive parent–child interactions and basic child care.

Referrals to the PYC program were made by government and nongovernment services throughout Melbourne, Australia (e.g. family support agencies, kindergartens, child protection agencies). Workers from these organisations approached the parents they believed may be interested in participating, outlined what the PYC program was about, and obtained permission for a member of the project staff to contact them. During the first visit a project staff member verbally explained the program in simple language in front of a witness of the parent’s choice, with further explanation given if necessary. The parent was then asked some simple questions to determine if they understood the information being presented to them. Only once the parent, the project staff, and the witness agreed that the parent completely
understood the nature and extent of their involvement in the project were the parents asked to sign the consent form.

During the second visit the project staff member and parent(s) completed a demographics questionnaire and a Family Profile Interview (see Appendix A). These tools helped to determine the areas the parent would like to work on during the PYC program. If the parent identified significant problems with their child’s behaviour, the project staff offered the parent an option to participate in an extension of the project that solely focused on the implementation of a behaviour parent training (BPT) intervention to increase their child’s positive behaviour and decrease their problem behaviour. The differences between the main project and extension of the project were clearly outlined. Again, each parent was asked some simple questions to determine if they understood the information being presented to them and only once everyone present agreed that the parent completely understood the nature and extent of their involvement in the project were the parents asked to sign the second consent form (see Appendix B). If parents chose not to participate in the extension of the project their involvement in the main project continued as expected. The research was approved by the Human Research Ethics Committee, RMIT University, reference number 25/02.

4.4 Setting and materials

All baseline and intervention sessions were conducted in the family home. One family routine was collaboratively selected and defined with the parents. Each routine represented an activity setting that was highly valued by the family but they had great difficulty with it because of their child’s problem
behaviour. Families 1, 3, 4 and 5 selected the time period between returning from child care or kindergarten and dinner time. This was called a *home play routine* and described a time where the child was engaging in leisure activities independently in the living room or at the kitchen table, while the parent prepared dinner, carried out other routine household chores, or sat on the couch. The name and definition of this routine was based on a description of a leisure routine provided by Lucyshyn et al. (1997). Family 2 selected a routine which involved the child engaging in leisure activities independently in the living room or at the kitchen table while Parent 2 fed his infant sister. This was called *feeding infant sister routine*.

The routines that were selected were summarised into two brief operational definitions. First, the parent described to the researcher what happened during the routine now (what happens now). Next, the researcher and parent collaboratively identified what they would prefer to happen during the routine (new routine). Once the new routine had been described, the researcher read the name, definition and description of the new routine back to each parent and asked them to indicate if these were correct. Parents were encouraged to suggest any changes or adjustments they would like made to the definitions. The researcher then finalised the definitions and gave each family a copy. These definitions are provided in Appendix C.

4.5 Summary of data collection and analysis of parent and child behaviour

The following steps were followed in the collection and analysis of data related to parent and child behaviour:
(a) Selected parent and child behaviour of interest were specified.

(b) Videotapes of parent and child behaviour at home were made once or twice per week for the duration of the study.

(c) The videotapes were observed and data on the occurrence of the selected behaviour of the parent and child were scored.

(d) The parent and child behaviour data were graphed.

(e) A visual analysis of the graphs was conducted by two independent observers.

(f) A statistical analysis of the child graphs was conducted using the percentage of non-overlapping (PND) data approach.

4.6 Dependent variables

Four dependent variables were measured: (a) parent implementation of strategies, (b) child behaviour, (c) ratings of social validity, (d) ratings of the intervention’s contextual fit with the family.

4.6.1 Parent implementation of strategies

The parent behaviour selected as dependent variables were derived from the interventions developed for each parent. The interventions were logically consistent with the hypothesis developed in Phase 3 of the procedure (the descriptive functional assessment phase, which will be discussed later). Interestingly, the hypothesised triggers and consequences for the child’s problem behaviour were similar across all children. A direct consequence of this was that the parent strategies selected for each intervention were the same. However, for two families the number of strategies targeted was different.
In total, five categories of parent behaviour were defined: (a) presence of embedded reinforcers, (b) correct use of differential attention for other behaviour, (c) correct response to appropriate child behaviour, (d) correct response to child low-intensity problem behaviour, and (e) correct response to child high-intensity problem behaviour. Table 5 shows the specific strategies targeted for each parent.

Table 5

Specific Parent Intervention Strategies for Each Parent

<table>
<thead>
<tr>
<th></th>
<th>Parent 1</th>
<th>Parent 2</th>
<th>Parent 3</th>
<th>Parent 4</th>
<th>Parent 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of embedded reinforcers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Correct use of differential reinforcement</td>
<td>Delivery of attention for the absence of inappropriate behaviour at least once every 5 minutes</td>
<td>Delivery of attention for the absence of inappropriate behaviour at least once every 5 minutes</td>
<td>Delivery of attention for the absence of inappropriate behaviour at least once every 5 minutes</td>
<td>Delivery of attention for the absence of inappropriate behaviour at least once every 5 minutes</td>
<td>Delivery of attention for the absence of inappropriate behaviour at least once every 5 minutes</td>
</tr>
<tr>
<td>Correct response to appropriate child behaviour</td>
<td>Delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with parent</td>
<td>Delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with parent</td>
<td>Delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with parent</td>
<td>Delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with parent</td>
<td>Delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with parent</td>
</tr>
<tr>
<td>Correct response to child inappropriate behaviour</td>
<td>Planned ignoring</td>
<td>Planned ignoring</td>
<td>Planned ignoring</td>
<td>Planned ignoring</td>
<td>Planned ignoring</td>
</tr>
<tr>
<td></td>
<td>Redirect</td>
<td>Redirect</td>
<td>Redirect</td>
<td>Redirect</td>
<td>Redirect</td>
</tr>
<tr>
<td></td>
<td>Response block</td>
<td>Response block</td>
<td>Response block</td>
<td>Response block</td>
<td>Response block</td>
</tr>
</tbody>
</table>

Operational definitions of each intervention strategy are provided below.

1) **Embedded reinforcers**: The strategy is scored as present or not present during the routine. For each family, embedded reinforcers were defined as the presence and availability of a standard number of items...
perceived to be functional reinforcers for the child. For each child it was a box holding a minimum of five toys or activities. Examples of these could be crayons and paper, glue, child scissors, stickers, books, small cars, small animals, and puzzles.

2) Correct use of differential attention for other behaviour (DRO): This means the delivery of attention for the absence of problem behaviour at least once every five minutes. It includes any positive or neutral attention, which could be verbal (and/or nonverbal), gestural, or physical (i.e., touch), and is initiated by the parent or in response to the child. During the previous 30 seconds, no problem behaviour has occurred.

3) Correct response to appropriate child behaviour: This means the delivery of praise within 5 seconds of compliance or within 30 seconds of starting an activity either independently or with a parent or sibling. This includes any positive comment of approval given to the child by the parent that is specific enough to let the child know exactly what can be done or displayed again to receive similar praise. The praise may comprise an evaluative comment and/or a descriptive comment, and words such as “playing”, “working”, and “helping” are sufficient to score a praise as correct. For example, “That is a great tower you built”, and “I like the way you are doing the puzzle”, are both sufficient to score a praise as correct. The parent does not praise a child for inappropriate behaviour (e.g., the child started doing an activity, but swore at the same time) or for stopping a problem behaviour (e.g., the parent does not say “I’m happy that you stopped hitting me”). Praise cannot be scored as correct if the parent praises the child for
something when they are not doing it, for example, “You are playing very nicely with your toys” but the child is sitting on the floor doing nothing.

4) **Correct response to the child’s low-intensity problem behaviour.**

Low-intensity problem behaviour refers to problem behaviour that would not commonly inflict injury on the child or on others. Behaviours include collapsing on the floor, screaming, spitting, crying, yelling, throwing objects (not at people), whining, banging objects, swearing, and forceful grabbing of objects. Two parent intervention strategies were targeted for these behaviours. First, **planned ignoring**, in which the parent initiates planned ignoring within three seconds of the child engaging in low-intensity problem behaviour. The parent must continue this until the child’s behaviour has ceased for five seconds. The parent must remain silent, maintain a neutral facial expression, avoid or break eye contact with the child, and make no movement in response to the child except to turn away. The only response a parent can make that is considered planned ignoring is looking or turning away from the child, or beginning an independent activity clearly unrelated to the child. Planned ignoring is scored as correct only if the parent removes all attention from the child when the targeted problem behaviour occurs (e.g., turns away and, if necessary, walks away) and continues ignoring the behaviour until it has ceased for five seconds. Planned ignoring cannot be scored as correct if the parent continues to watch the child or continues to talk with the child as if nothing has happened. The second parent strategy was **redirect**. If a child forcefully grabs an object from another person the parent must remove the item, give a clear stop instruction (e.g., “Steven, stop, no grabbing) and redirect the child to another object or activity. If the child throws
an object, and the parent is interacting with the child, the parent must remove the object and redirect the child to another object or activity. If necessary, the parent may use gentle physical guidance. Redirection cannot be scored as correct if the parent gives the child positive attention or the parent is verbally critical and harsh towards the child (e.g., “That is awful”, “You are terrible”, “You are stupid”, “Shut up”).

5) Correct response to child high-intensity problem behaviour: High-intensity problem behaviour refers to problem behaviour that would commonly inflict injury on the child and/or other people. Behaviours include hitting, kicking, pushing or knocking over, and pinching. One parent intervention strategy was targeted for these behaviours, response block and move away from the child. The parent physically blocks the child’s arms and legs to stop the problem behaviour. The parent may also physically remove themselves to stop the child from being physically aggressive towards them. (In the case of Parent and Child 2, Parent moved herself and the infant away.) Within 5–10 seconds of the child displaying calm behaviour the parent may redirect the child back to an activity. This strategy may be implemented after a failed attempt to respond to a low-intensity problem behaviour, or may occur immediately because the problem behaviour has escalated swiftly and intensely. The strategy is not being used correctly if the parent gives the child positive attention or the parent is verbally critical and harsh towards the child.

Embedded reinforcers were assessed using a nonparametric, categorical measurement. The presence of embedded reinforcers in a routine was assessed by videotape. Coders would record on a data sheet whether the definition for embedded reinforcers was met or not during the routine.
For the remaining intervention strategies, coders would record two events: first, opportunities to demonstrate the procedure, based on the child’s behaviour; and second, whether the intervention strategy was implemented correctly. Incorrect demonstrations of the strategies were not recorded. Data on parent behaviour was expressed as the total number of opportunities to demonstrate the strategy, and within this, the total number of correct parent responses.

4.6.2. Child behaviour

Two categories of child behaviour were defined for all children:

1) Appropriate behaviour: This included engaging in an appropriate independent activity in the form of choosing toys or activities, independently playing with toys or activities, singing to self, and talking to self while playing with toys or activities. Appropriate behaviour also included appropriate interaction with sibling and/or parent in the form of playing together, requesting, sharing materials, making appropriate refusals to requests, and conversing and engaging in play activity cooperatively. Appropriate behaviour was scored as occurring if the child was observed to be behaving appropriately for the entire 15-second interval according to observer judgement.

2) Problem behaviour: Any occurrence of collapsing on the floor; hitting another person with hand or fist; kicking another person; pushing or knocking against another person so that they fall over or are moved away from the child; spitting at another person where saliva is ejected from the child’s mouth towards that person; grabbing and pulling on another person’s body or clothing; screaming; crying; yelling; swearing; throwing objects that are not
meant to be thrown (e.g., a small toy car); banging objects forcefully on floor, furniture or people; grabbing objects forcefully from another person; and whining. Problem behaviour was scored if any instance of problem behaviour occurred within an interval.

Data was scored as either occurring or not occurring by a trained observer using a 15-second continuous-interval recording procedure and calculated as a percentage of 15-second intervals scored.

4.6.3 Contextual fit evaluation

A simplified version of a “goodness-of-fit” assessment tool (Albin et al., 1996) was used to evaluate how well the intervention fitted with the parents’ goals and values and with each family’s lifestyle at intervals during the delivery of the intervention. The assessment tool consists of 15 items that examine five areas relevant to goodness-of-fit: 1) goals and expectations; 2) support roles; 3) fit with lifestyle; 4) implementation effort; and 5) sustainability. The assessment tool was administered in interview format and pictures were developed to represent each response category. To respond to each question, participants circled one of four faces representing “yes” (happy smiling face), “a little bit” (face with no expression with hand up and fingers making a pinching gesture), “don’t know” (face with no expression, hands in the air and shoulders shrugging) and “no” (a sad, frowning face).

Participants completed a contextual fit evaluation twice: once, at the end of Phase 4: Intervention Design and also at the completion of all training phases, before follow-up. The items used in the goodness-of-fit survey form are presented in Table 17 and Table 18 in Chapter 5.

4.6.4 Social validity evaluation
All participants evaluated the social validity of the intervention (Wolf, 1978). An instrument was designed to assess the acceptability of intervention strategies, teaching strategies and outcomes. A person familiar to the parent (e.g., research assistant), but not the researcher, asked the parent eight questions about their satisfaction with the program. To respond to each question parents circled one of three faces representing “yes” (happy smiling face), “sort of” (face with raised eyebrows) and “no” (a sad, frowning face). In addition, parents were asked to discuss what they thought were the best things about the intervention; what they thought were the worst things about the intervention; if there was anything about the intervention that should be changed; and what, if anything, would help them to keep doing the things they learned in the intervention. The interviewer recorded parent responses verbatim. Parents completed the social validity evaluation twice: once at the end of the first training condition (role-play) and again at the completion of all training conditions, before follow-up. The items used in the social validity survey form are presented in Table 19 and Table 20 in Chapter 5.

4.7 Observation probe session procedure

Direct observations formed the basis for monitoring the dependent variables and documenting the implementation of the intervention strategies. The basic observation procedure is described below.

Observation sessions were videotaped with an 8-mm portable video camera and scored at a later time. The video camera had a wide-angle lens attached to it. All behaviours were recorded using a paper-and-pencil recording system.
Observation probe sessions were conducted on average twice per week throughout baseline and all intervention sessions, and once per week during follow-up. Sessions were scheduled on a day convenient to the family during the time of day the target routine occurred (e.g., between 12.00 and 12.30 for the feeding infant sister routine). The video camera was located in a corner of the living area near the participants at a distance where it did not interfere with the routine and at a height that the children could not reach it. As an attempt to reduce reactivity to the presence of the camera, videotaping occurred with no observer present and began in the target settings at least three weeks prior to collecting baseline data. On observation probe days, training and support activities did not occur.

Upon arrival, the researcher would place the video camera in the agreed position while the child was not in the room. After a brief conversation with the family about how the day was, the researcher would turn the video camera on and leave the house. Once 30 minutes had passed the researcher would return, collect the video camera, and thank the family for their participation and effort, and leave.

During baseline observation probes, parents were instructed to do what they would normally do during this time. During intervention session observation probes, parents were instructed to try to use the skills they practised during the week.

### 4.8 Observer training

An undergraduate student with a major in psychology was selected as a research assistant. The research assistant’s role was to collect data using
the video monitor and act as observer, recording data using paper and pencil. For child behaviour, the research assistant was the primary coder; the researcher served in the role of interobserver agreement data collector. For parent behaviour, the roles were reversed. The research assistant was blind to all intervention conditions, however the researcher was not. For child behaviour, the research assistant received approximately 10 hours of training prior to the collection of baseline data. Training materials included procedural guidelines for setting up an observation session in the home, detailed operational definitions of child behaviour, and data recording forms. Training activities included discussion and practice of (a) child behavioural data coding, (b) use of pencil-and-paper data recording system; and (c) use of 15-second continuous-interval recording procedure.

Baseline data collection began after the research assistant and researcher achieved 90% interobserver agreement for each child behavioural category. Observer training occurred twice more during the intervention phase of the study, and once during the follow-up phase, to prevent observer drift from operational definitions, and deterioration in coding skills. Previously coded observations were used during these training sessions.

Because parents’ accurate implementation of intervention strategies could not be defined before the intervention was designed, observer training for coding parent implementation began during the intervention phase of the study. As discussed previously, for parent behaviour the researcher acted in the role of primary observer, the research assistant served in the role of interobserver agreement data collector. After receiving detailed operational definitions of the intervention strategies, the research assistant participated in
an additional five hours of training. A sample of probe sessions from baseline and intervention phases was used to practise coding parent implementation of procedures. Parent data was collected only after the researcher and research assistant achieved 80% agreement for each parent strategy. Observations used for practice sessions were later recoded by the researcher. Observations not previously viewed by the observers were used for interobserver agreement assessment. All tapes were coded independently.

4.9 Interobserver agreement assessment

The second observer collected data on child and parent behaviour during 36% of all baseline, intervention and follow-up sessions for child behaviour and 40% of all baseline, intervention and follow-up sessions for parent behaviour. Interobserver agreement for both parents’ accurate use of intervention strategies, including opportunities to implement these strategies, and child target behaviour, were calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%.

4.10 Research design

A characteristic of the experimental design was the introduction and manipulation of an independent variable under controlled conditions to determine its effect on the dependent variable (Cook & Campbell, 1979). Single-subject experimental design provides a methodological approach that permits experimental investigation with one subject in applied settings where between group designs are not feasible (Kazdin, 1982).
A partial nonconcurrent multiple baseline (Watson & Workman, 1981) across children was used to assess the effectiveness of the first intervention phase (RP) on child behaviour against baseline. Subsequent parent training conditions were introduced based on the parents performance of the target skill. For example, advancement from Condition 2 to Condition 3 occurred only after all target skills had been introduced and the parent demonstrated 80% correct performance for two consecutive sessions. Once the parent had reached Condition Three, advancement from one condition to the next occurred only if the parent did not meet criterion (80% correct per opportunity) within three sessions following the introduction of the condition.

A within-subject A-B analysis was used to assess the effectiveness of the parent training on parent skill acquisition. A multiple treatment design was used to assess the combined effect of multiple intervention components on both parent and child behaviour.

4.11 Data analysis

Both child and parent behaviour was graphed in preparation for visual analysis. This section describes this procedure as well as procedures used in visual and statistical analysis.

4.11.1 Graphing of target child and parent behaviour

Data from the two target child behaviours was graphed by plotting the percentage of intervals that the target child behaviour was present (Y axis) over sessions (X axis) for each child across every phase of the study. Consistent with a nonconcurrent multiple baseline design, child behaviour graphs for each participating child are presented on the same page to allow a
visual comparison between children. All graphs include a dotted line which
separates the baseline data collection period from each phase of the
intervention and follow-up period.

The target parent behaviour was graphed using bar graphs. Each bar
showed the total number of opportunities to demonstrate the procedure during
each session. Within the bar, the white area showed the total number of times
the parent responded correctly to child behaviour and the black area showed
the total number of times the parent responded incorrectly to child behaviour.
Parent behaviour was graphed across sessions (X axis) for each parent
strategy across every phase of the study. Each graph for every intervention
strategy was presented on the same page for every parent. As above, all the
graphs included a dotted line to separate the baseline data collection period
from each phase of the intervention and follow-up period.

4.11.2 Visual analysis of behaviour graphs — parent

For each parent behaviour graph, visual analysis was undertaken in order to
examine change in parent behaviour across each phase of the study. To
determine the reliability of the visual analysis, two independent raters who
were not involved in the study rated each graph according to criteria modified
from . Hudson, Wilken, Jaurnig, & Radler (1995). The two independent raters
evaluated each phase of each graph according to a three-point scale:
1. Increase — data shows that there has been a clear increase in the
   percentage of white relative to black.
2. No change — data shows that the intervention resulted in no change in the
   percentage of white relative to black from levels in the previous phase.
3. Decrease — data shows that the intervention in that phase resulted in a clear decrease in the percentage of white relative to black.

The researcher determined whether an increase or decrease in the variable reflected an improvement or deterioration in the variable. Each graph was presented on an A4 sheet of paper and the intervention phases and target behaviour were not labelled. Overall percentage agreement between independent raters was calculated for each intervention strategy across parents. If the raters disagreed on a rating, then they conferred to reach an agreement.

4.11.3 Visual analysis of behaviour graphs — child

For each child behaviour graph, visual analysis was undertaken in order to examine change in child behaviour across each phase of the study. To determine the reliability of the visual analysis, two independent raters who were not involved in the study rated each phase of each graph according to criteria modified from Hudson et al. (1995). The two independent raters evaluated each graph according to a three-point scale:

1. Increase — data shows that the intervention in that phase resulted in a clear increase in the variable.

2. No change — data shows that the intervention resulted in no change in the variable from the previous phase.

3. Decrease — data shows that the intervention in that phase resulted in a clear decrease in the variable.

The investigator determined whether an increase or decrease in the variable reflected an improvement or deterioration in the variable. Each graph was presented on an A4 sheet of paper and the intervention phases and
target behaviour was not labelled. Percentage agreement was calculated between the independent raters. If the raters disagreed on a rating, then they conferred to reach an agreement.

4.11.4 Statistical analysis of target child and parent behaviour

In line with recommendations made by Parker and Hagan-Burke (2007), the child data was analysed statistically using the percentage of non-overlapping (PND) data approach. To assist with the interpretation of PND scores, the following criteria were used, as suggested by Scruggs, Mastropieri, Cook, and Escobar (1986): PND scores of 90% and higher indicate a highly effective intervention, 70% to less then 90% indicate a moderate effect, 50% to less then 70% indicate a mild-to-questionable effect, and 50% or below indicate an ineffective intervention.

4.12 Procedure

The sequence of procedures was as follows: (a) pre-assessment interview; (b) descriptive functional assessment; (c) intervention design; (d) baseline data collection; (e) parent training; (f) follow-up. The procedures are described below.

4.12.1 Phase 1: Pre-assessment interviews

The aim here was to (a) identify and operationally define the target behaviour for the intervention; (b) identify the family routine the intervention would be developed around, and (c) develop and operationally define an envisioned routine. The discussion of problem behaviour, family routines, the generation of an ideal routine, and the development of ideal routines into operational definitions are described below.
The selection of each target routine was led by each parent’s response to a brief interview protocol administered by the researcher. This protocol, titled *Defining Problem Behaviours and Family Routines* (see Appendix D), was divided into four parts. Part 1 was adapted from the Parent Directed Functional Behavioural Assessment Interview (FBA) developed by O’Neill et al. (1997). Parents were asked to describe all problem behaviour their child displayed, group together those that occurred at the same time and identify which sets of behaviour posed the biggest problem for them or which behaviour they would like to focus on. This behaviour became the target problem behaviour for the intervention.

Parts 2, 3 and 4 were adapted from an interview protocol for defining family routines, developed by Lucyshyn et al. (1997). Part 2 asked parents to identify when and where target problem behaviour was most likely to happen, and what was usually occurring in the house at that time. Parents were then asked to identify which time of day they would like to focus on for the intervention. Part 3 aimed to define the structure and content of the time of day selected. Parents were asked to describe who was normally present during the routine, what materials and/or activities were used, what (if any) jobs or tasks were being done and why this routine was important to them.

Part 4 aimed to generate what the routine would look like if it were successful, that is, having their child display little or no problem behaviour. Definitions and descriptions of the routine were based on the concept of an activity setting described by O’Donnell and Tharp (1990) and used by Lucyshyn et al. (1997). First, the researcher summarised for the parents what had been previously discussed and recorded during selection of the target
routine. The researcher summarised (a) time and place of the routine, (b) who was present, and (c) what materials and/or activities were being used. Following this, the researcher asked the parents to describe what they would want the successful routine to look like, who would be there, what would be done, and anything new that could happen in the routine. Consistent with the procedure used by Lucyshyn et al. (1997) the researcher prompted the parents to generate a vision that was realistic for the child's age, interests and ability; that matched the family’s goals and beliefs; and that would be sustainable over time. During the interview, parent responses were recorded directly onto the protocol.

This phase was completed over one home visit with each family. The visit occurred at a time when the child was not present. The operational definitions of the family routines set the stage for baseline measurement of child behaviour and parent implementation of intervention strategies.

4.12.2 Phase 2: Descriptive functional assessment

Immediately following the completion of the pre-assessment interviews, descriptive assessments were conducted. The aim here was to (a) define the relationships between the behaviour, environmental antecedent, and consequence events and (b) to develop hypotheses regarding the function of the problem behaviour. This phase was completed in two steps: (a) data from interview protocols and (b) collection of direct observation data within the home during the target routine identified in Phase 1. To determine antecedents, problem behaviour and maintaining consequences, and to develop hypotheses, descriptive analyses were collected for each child
through the functional assessment strategies of parent interview and direct descriptive observation.

Each child’s parent was interviewed by the researcher following a structured format adapted from the *Functional Assessment Interview* (FAI; O’Neill et al., 1997). The title of this interview protocol is *Parent Directed Functional Behaviour Assessment* (PDFBA) (see Appendix E). Part 1 and questions 1 and 2 of Part 2 had previously been completed in Phase 1, therefore responses provided then were reviewed and inserted. The PDFBA focused on identifying the behaviour of concern, triggers for these behaviour, and events that were occurring after the behaviour, which may be maintaining them in the target routine. Additionally, the PDFBA identified the perceived function of the behaviour, listed more acceptable behaviour that could replace the problem behaviour, and identified possible rewards for the child.

Following this, three 30-minute direct observations per family were completed by the researcher using an A-B-C assessment format (Bijou, Peterson, & Ault, 1968) to describe and evaluate the stimuli surrounding the behaviour of concern identified in the PDFBA. Observations of child appropriate behaviour, previously identified in the PDFBA, were also recorded. These observations were completed during the target routine previously identified for intervention in Phase 1. Direct observations documented problem behaviour, events that occurred before problem behaviour and events that occurred after problem behaviour. Overall, the direct observations confirmed reports of high rates of problem behaviour during the target routines identified by the parents.
This phase was completed over four home visits with each family.

Completion of the PDFBA occurred at a time when the child was not present.

The data from the interviews and observations allowed the researcher to develop hypotheses regarding the possible triggers and maintaining consequences of the children's behaviour during the target routines. Table 6 provides a summary of the hypotheses developed regarding the antecedent triggers and maintaining consequences of the children's problem behaviour. Parental attention was the hypothesised maintaining consequence of problem behaviour for all children, with the addition of avoiding a nonpreferred task for Child 2. Triggers hypothesised for Children 1, 3, 4 and 5 commonly involved the child being unoccupied and the parent engaging in an activity independent of the child (e.g., household chores). The hypothesised trigger for Child 2 also involved the child being unoccupied and the parent sitting down and giving the infant sister a bottle.

Table 6

*Hypotheses Developed for Each Child’s Problem Behaviour*

<table>
<thead>
<tr>
<th>Routine</th>
<th>Antecedent triggers</th>
<th>Problem behaviour</th>
<th>Maintaining consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 1</td>
<td>Home play</td>
<td>Hitting, kicking, throwing objects at parent, screaming and swearing, spitting noncompliance</td>
<td>Get parental attention</td>
</tr>
<tr>
<td></td>
<td>Unoccupied, mother doing household tasks, father on computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td>Feeding infant sister</td>
<td>Hitting; throwing objects at parent; yelling and swearing; breaking toys, family ornaments and kitchen objects</td>
<td>Get parental attention and avoid a nonpreferred task</td>
</tr>
<tr>
<td></td>
<td>Mother giving infant sister a bottle of milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 3</td>
<td>Home play</td>
<td>Hitting, spitting, yelling and swearing, throwing objects at parent, noncompliance</td>
<td>Get parental attention</td>
</tr>
<tr>
<td></td>
<td>Alone and unoccupied, mother doing household tasks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 4</td>
<td>Home play</td>
<td>Hitting and kicking parents and sister, noncompliance</td>
<td>Get parental attention</td>
</tr>
<tr>
<td></td>
<td>Unoccupied, father watching</td>
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</tbody>
</table>
4.12.3 Phase 3: Intervention design

Immediately following the descriptive assessment, an intervention plan was developed. The aim of this phase was threefold: first, the intervention plans needed to be accessible to the participating parents and take into account their special learning needs; second, the design of the interventions needed to make the child’s problem behaviour irrelevant, ineffective and inefficient at achieving their purpose and third, the intervention plan needed to fit well with the material and social ecology of the family.

To address the first aim, the researcher used previous research with parents with an intellectual disability as a guide for the number of parent strategies incorporated into the interventions. As seen in Chapter 2, studies that have focused on teaching parents with an intellectual disability similar intervention strategies have focused on anywhere from two to seven parent strategies.

To address the second aim, the researcher used a competing behaviour analysis framework (Horner, O’Neill, & Flannery, 1993) to guide the selection of intervention strategies designed to make problem behaviour irrelevant, ineffective, and inefficient at achieving their purpose.
The third aim was to design an intervention plan that would fit with the material and social ecology of the family. As a means of generating a goodness-of-fit with the family’s ecology, support procedures were retained or proposed that (a) reflected the family’s goals and (b) diminished stressors. Two major areas were addressed: *prevention strategies* and *consequent strategies*. *Prevention strategies* included an antecedent manipulation that supported the child to engage in interactions and activities without using problem behaviour. *Consequent strategies* were specific instructions that provided ways to respond to the child’s problem behaviour.

As previously discussed, the categories of support strategies that made up these support plans were (a) presence of embedded reinforcers, (b) correct use of differential attention for other behaviour, (c) correct response to appropriate child behaviour, (d) correct response to child low-intensity problem behaviour, (e) correct response to child high-intensity problem behaviour. For operational definitions of these behaviours see Section 4.5 Dependent variables.

**4.12.4 Phase 4: Baseline**

Observation probes of pre-intervention rates of child problem behaviour, child appropriate behaviour and rates of parent implementation of intervention strategies were measured. As previously mentioned, baseline observation sessions were conducted on average twice per week. Baseline observations were conducted for varying numbers of observation sessions for each family within a nonconcurrent multiple-baseline format to establish basal levels for each response category.

**4.12.5 Phase 5: Parent training**
All training in the use of intervention strategies occurred during weekly one-hour visits in each parent’s home outside of the scheduled videotape observations. Each visit consisted of a catch-up time for approximately 10–15 minutes, parent training time for approximately 30 minutes and a wrap-up discussion of approximately 5–10 minutes.

Individual conditions of a parent training package were progressively introduced during parent training, based on each condition’s degree of intrusiveness in the target routine combined with the amount of structure required by the teaching strategy. Advancement from Condition 2 to Condition 3 occurred only after all target skills had been introduced and the parent demonstrated 80% correct performance for two consecutive sessions. The researcher set the training criterion at 80% based on previous parent training research with parents with an intellectual disability (e.g., Fantuzzo et al., 1986; Feldman et al., 1992b). Once the parent had reached Condition Three, advancement from one condition to the next occurred only if the parent did not meet criterion (80% correct per opportunity) within three sessions following the introduction of the condition. Baseline plus five training conditions plus follow-up were implemented. These are described below.

**Condition 1 — Baseline**

The parents were instructed to implement the relevant routine and to manage their child’s behaviour as they normally did. For more details see description in Phase 2.

**Condition 2 — Modelling and role-play**

A set of 30 cards was developed for this training condition. Each card had a picture representing the target skill on one side and a parenting
scenario on the other side. The researcher held the card up to the parent, read aloud the scenario on the back and said to the parent, “What do you do?” The parent was required to respond through a role-playing procedure with the parent acting as themselves and the researcher acting as the child. For correct responses the researcher provided specific verbal praise. For example, “Good answer, well done. I really like the way you got close to me and looked me in the eye when you praised me.” For incorrect answers, the researcher would stop the parent, remind them of the skill, ask them to verbally recite the definition of the skill, and prompt them to try again. For a second incorrect response, the researcher would stop the parent and change roles in the role-play, that is, the researcher would act as the parent and the parent would act as the child. Once the role-play was completed, the researcher would use verbal prompts to draw the parent’s attention to one important component of the skill, for example if the skill card was Planned ignoring the researcher may have said, “Did I look at you?” Parents were also encouraged to evaluate the strengths and weaknesses of their own performance.

Each response to a card was counted as one trial. Twenty trials were conducted during one teaching session. One parenting skill was introduced at a time. A new skill was not introduced until parents had demonstrated the current skill correctly, with no prompts, for at least 16 of the 20 trials (i.e. 80%) during one session.

This training condition differed specifically from those used by Fantuzzo et al. (1986) in that a modelling and role-playing procedure was used, in
addition to verbal instructions and responses, to train participants. All other teaching strategies were the same as those used by Fantuzzo et al. (1986).

In line with previous work by Feldman et al. (1989), parents were instructed to generalise, that is, they were specifically told to use the strategies anytime they were with their child but especially during the target routine.

**Condition 3 — Verbal instruction before session, no feedback**

This condition was introduced once the parent had met the criterion for each component of the intervention in the role-play (Condition 2), and if parent behaviour during the target routine did not meet the criterion (80%). This condition comprised of verbally reviewing the names and brief descriptions of the intervention strategies. The researcher read out the name and a brief description of each strategy to the parent at the beginning of a home visit. Parents were told to implement the strategies during the routine. Consistent with Condition 3, at the end of the session, the researcher asked the parent to practise the strategies during the routine until the next scheduled visit. No feedback on the parent’s performance was provided.

**Condition 4 — Verbal instruction and feedback after session**

This condition was introduced if parent behaviour was not 80% correct within three sessions following the introduction of Condition 3. This condition included the same verbal instructions provided in Condition 3. In addition to this, feedback was provided on the parent’s performance immediately after each session. First, feedback and praise was provided on what the parent did well, followed by suggestions from the researcher on how to improve their performance. For example, if a parent rarely delivered praise within 30
seconds of the child starting to play independently, the parent was verbally reminded to praise their child once they start to “play by themselves”. Feedback consisted of reviewing the specific components observed and explaining how the component should have been implemented. The researcher answered any questions the parent raised relating to the use of the procedures. At the end of the session, the researcher instructed the parent to use the strategies during the target routine.

**Condition 5 — Coaching during session**

This condition was introduced if parent behaviour was not 80% correct within three sessions of introducing Condition 4 (verbal instruction and feedback after session). At the start of a routine the researcher verbally reminded the parent of the strategies to focus on and the specific components to each strategy. While the parent implemented the skills during the target routine, the researcher observed and coached as needed. Coaching would occur via verbal, gestural and pictorial prompts. The researcher would verbally acknowledge and praise correct uses of the parent skills and quietly prompt the parent to use skills when an opportunity had occurred but the parent either did not implement the strategy or implemented the strategy incorrectly. At the end of the session, the researcher instructed the parent to use the strategies during the target routine.

**Condition 6 — Video feedback**

This condition was introduced if parent behaviour was not 80% correct within three sessions of introducing Condition 5 (coaching during session). This condition involved the parent watching an approximate 10-minute segment of themselves and their child during the target routine. The most
recent observation session that directly preceded the teaching session was used in this condition. The researcher had previously watched the tape and selected the 10-minute segment based on the presence of at least one instance of correct implementation of a target skill and two instances of incorrect implementation of a target skill.

During video feedback Session 1, the researcher started the tape just before the first instance of correct implementation of a target skill. The researcher prompted the parent to “watch for a skill you did well”. The researcher stopped the tape at the end of the interaction and asked the parent to describe what skill they used and what they did well during that interaction. If the parent responded correctly the researcher praised them and re-started the tape. If the parent did not respond or did not respond correctly the researcher provided them with the correct response. The researcher then played the tape again, asking the parent to “watch for a skill you did not do correctly”. The researcher stopped the tape immediately after an incorrect response or a period of time when there was no response from the parent, and prompted the parent to describe what skill they had tried to use or could have used. If the parent responded correctly, the researcher praised them and re-started the tape. If the parent did not respond or did not respond correctly the researcher provided the correct response. At the end of the session, the researcher instructed the parent to use the strategies during the target routine.

This condition was continued until either the parent reached the criterion (80% correct) over three sessions or the parent stated that they wanted to stop. Interestingly, all parents reported enjoying the video feedback sessions and requested that they keep going across a number of sessions.
Condition 7 — Follow-up

Approximately one month after the final parent training session, monthly observation probes were conducted in the same manner as baseline.
CHAPTER 5
RESULTS

5.1 Overview

Results for the four dependent variables are discussed below in the following order: (a) parents use of strategies, (b) child behaviour, (c) ratings of the contextual fit of intervention plan, (d) ratings of social validity.

5.2 Parent use of strategies

5.2.1 Reliability of parent behaviour observations

As outlined in Chapter 4, interobserver agreement checks for the total number of opportunities to use an intervention strategy, and of these the total number of times a parent correctly used the strategy, were calculated for 40% of all baseline, intervention and follow-up sessions. The average agreement across parents and intervention strategies was 98.6% (range, 92–100%). The mean agreement for individual intervention strategies across parents was 100% for embedded reinforcers, 98.8% (range, 98–99%) for DRO, 97.8% (range, 97–98%) for praise, 96.6% (range, 92–99%) for planned ignoring, 98.8% (range, 97–100%) for redirection, and 100% for response block. Interobserver agreement for all intervention strategies across all parents and conditions summarised in Table 7 and Table 8.

5.2.2 Reliability of visual analysis ratings of parent behaviour graphs

As outlined in Chapter 4, for each parent behaviour graph, visual analysis was undertaken in order to examine change in parent behaviour across each condition of the study. To determine the reliability of the visual
<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline Mean (Range)</th>
<th>Role-play Mean (Range)</th>
<th>Verbal instruction Mean (Range)</th>
<th>Verbal instruction and feedback Mean (Range)</th>
<th>Coaching Mean (Range)</th>
<th>Video feedback Mean (Range)</th>
<th>Follow-up Mean (Range)</th>
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**Redirection:**
- Parent 4: 97 (93–98)
- Parent 5: 91 (83–96)

**Response block:**
- Both Parent 4 and Parent 5: 100%
Table 8
Observer Agreement Percentages for Total Number of Times Parent Responded Accurately Across Conditions for Each Parent

<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline Mean (Range)</th>
<th>Role-play Mean (Range)</th>
<th>Verbal instruction Mean (Range)</th>
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</tr>
<tr>
<td><strong>Embedded reinforcers</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>DRO</strong></td>
<td>99 (97-100)</td>
<td>99 (97–100)</td>
</tr>
<tr>
<td><strong>Praise</strong></td>
<td>98 (95–100)</td>
<td>98 (95–100)</td>
</tr>
<tr>
<td><strong>Planned ignoring</strong></td>
<td>98 (96 – 99)</td>
<td>98 (96 – 99)</td>
</tr>
<tr>
<td><strong>Redirection</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Response block</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Parent 4</th>
<th>Parent 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Redirection</strong></td>
<td>97 (94–100)</td>
<td>97 (94–100)</td>
</tr>
<tr>
<td><strong>Response block</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Embedded reinforcers</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>DRO</strong></td>
<td>99 (98–100)</td>
<td>97 (95–100)</td>
</tr>
<tr>
<td><strong>Praise</strong></td>
<td>95 (89–100)</td>
<td>99 (98–100)</td>
</tr>
<tr>
<td><strong>Planned ignoring</strong></td>
<td>99 (98–100)</td>
<td>94 (93–95)</td>
</tr>
<tr>
<td><strong>Redirection</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Response block</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Parent 4</th>
<th>Parent 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Redirection</strong></td>
<td>97 (94-100)</td>
<td>100</td>
</tr>
<tr>
<td><strong>Response block</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Embedded reinforcers</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>DRO</strong></td>
<td>94 (88–100)</td>
<td>96 (95–97)</td>
</tr>
<tr>
<td><strong>Praise</strong></td>
<td>95 (89–100)</td>
<td>94 (93–95)</td>
</tr>
<tr>
<td><strong>Planned ignoring</strong></td>
<td>99 (98–100)</td>
<td>100</td>
</tr>
<tr>
<td><strong>Redirection</strong></td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td><strong>Response block</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
analysis, two independent raters who were not involved in the study rated each graph according to criteria. Table 8 shows the overall percentage agreement between raters. The average overall percentage agreement across parents and intervention strategies was 93% (range, 83–100%).

Table 9
Overall Percentage Agreement Between Raters for Each Intervention Strategy for Every Parent

<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Overall percentage agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent 1</td>
<td></td>
</tr>
<tr>
<td>Embedded reinforcers</td>
<td>100%</td>
</tr>
<tr>
<td>DRO</td>
<td>83%</td>
</tr>
<tr>
<td>Praise</td>
<td>100%</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>100%</td>
</tr>
<tr>
<td>Redirection</td>
<td>83%</td>
</tr>
<tr>
<td>Response block</td>
<td>83%</td>
</tr>
<tr>
<td>Parent 2</td>
<td></td>
</tr>
<tr>
<td>DRO</td>
<td>100%</td>
</tr>
<tr>
<td>Praise</td>
<td>83%</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>100%</td>
</tr>
<tr>
<td>Response block</td>
<td>100%</td>
</tr>
<tr>
<td>Parent 3</td>
<td></td>
</tr>
<tr>
<td>DRO</td>
<td>83%</td>
</tr>
<tr>
<td>Praise</td>
<td>100%</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>83%</td>
</tr>
<tr>
<td>Redirection</td>
<td>83%</td>
</tr>
<tr>
<td>Response block</td>
<td>83%</td>
</tr>
<tr>
<td>Parent 4</td>
<td>Embedded reinforcers</td>
</tr>
<tr>
<td>DRO</td>
<td>100%</td>
</tr>
<tr>
<td>Praise</td>
<td>100%</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>100%</td>
</tr>
<tr>
<td>Redirection</td>
<td>100%</td>
</tr>
<tr>
<td>Response block</td>
<td>100%</td>
</tr>
<tr>
<td>Parent 5</td>
<td>Embedded reinforcers</td>
</tr>
<tr>
<td>Strategy</td>
<td>Percentage</td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>DRO</td>
<td>100%</td>
</tr>
<tr>
<td>Praise</td>
<td>100%</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>83%</td>
</tr>
<tr>
<td>Redirection</td>
<td>100%</td>
</tr>
<tr>
<td>Response block</td>
<td>83%</td>
</tr>
</tbody>
</table>

5.2.3 Visual analysis of parent behaviour graphs

5.2.3.1 Parent 1

The results obtained with Parent 1 were graphed and are displayed in Figure 2. Table 9 shows the raters’ agreed ratings of change observed in the data for each intervention strategy across all conditions for Parent 1.
Figure 2. Total number of opportunities to perform intervention strategy across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for Parent 1. The white area indicates the total number of times the parent responded correctly to child behaviour and the black area indicates the total number of times the parent responded incorrectly to child behaviour. = presence of embedded reinforcers
<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline–Role-play</th>
<th>Role-play–Verbal instruction</th>
<th>Verbal instruction–Verbal instruction and feedback</th>
<th>Verbal instruction and feedback–Coaching</th>
<th>Coaching–Video feedback</th>
<th>Video feedback–Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO</td>
<td>Increase</td>
<td>No change</td>
<td>Decrease</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Praise</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Redirection</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Response block</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
</tbody>
</table>

Eighteen teaching sessions were required before Parent 1 met the accuracy criterion for progression from the role-play (RP) condition to the verbal instruction (VI) condition. From the VI condition onwards, accuracy criteria were never met by Parent 1 until the video feedback (VF) condition.

Figure 2 shows that embedded reinforcers were never present during baseline. They were first observed during the second session of the RP condition (session 8) and continued to be observed in every session until the end of data collection.

With the exception of DRO, the independent raters reported no change in the number of times Parent 1 correctly implemented all other intervention strategies, relative to the total number of opportunities, from baseline until the end of the verbal instruction plus feedback (VI + FB) condition. Figure 2 shows that although there were a number of opportunities to implement praise (an average of twice per session), planned ignoring (an average of five times per session), redirect (an average of twice per session) and response block
(an average of three times per session) across these conditions, Parent 1 did
not accurately implement these until the coaching (C) condition.

In addition to embedded reinforcers, only one other intervention
strategy was accurately implemented before the C condition. Figure 2 shows
that Parent 1 correctly implemented DRO during both baseline and RP
conditions. The independent raters reported an increase in the accurate use
of DRO, relative to the total number of opportunities, from baseline to RP.

Following this, the independent raters reported no change in the correct
use of DRO from RP to VI and a decrease in correct use from VI to VI + FB,
relative to the total number of opportunities. The data shown in Figure 2 show
that during the VI condition, Parent 1 accurately implemented DRO once
during the only session she had an opportunity to do so (50% correct per
opportunity). During the VI + FB condition, Parent 1 never had an opportunity
to implement DRO, resulting in a mean implementation rate of 0% correct per
opportunity.

The independent raters reported an increase in the correct use of all
the intervention strategies during the coaching (C) condition relative to the VI
+ FB condition. Parent 1 did not correctly use any intervention strategy during
the VI + FB condition; however, during the coaching condition, she correctly
used each strategy at least once. It is worth noting that Parent 1 had no
opportunity to implement DRO during the first sessions of the C condition.

The independent raters reported an increase in the correct use of every
intervention strategy, relative to the total number of opportunities, between the
C and the video feedback (VF) conditions. Figure 2 shows increases in the
correct use of DRO (increase from mean of 50% to mean of 70% correct per
opportunity), praise (increase from mean of 16% to mean of 42% correct per opportunity), planned ignoring (increase from mean of 30% to mean of 47% correct per opportunity), redirect (increase from mean of 57% to 90% correct per opportunity) and response block (increase from mean of 17% to 42% correct per opportunity).

There are a number of trends in the data during the VF condition that are worth highlighting. First, for the first time, Parent 1 implemented DRO, planned ignoring and redirect with 100% accuracy during at least one session of the VF condition (session 35 for DRO, sessions 37 and 41 for planned ignoring, and sessions 37, 38, 40 and 41 for redirect). Second, despite the increase in the correct use of praise, Parent 1 was correctly implementing praise during only 42% of the opportunities presented to her. Third, in general, the total number of opportunities to implement DRO and praise increased during this condition, while the total number of opportunities to implement the consequent strategies (planned ignoring, redirect, and response block) decreased. For example, Parent 1 had an average of eight opportunities to implement praise across the eight VF sessions compared with an average of two opportunities to implement response block across only three of the eight VF sessions.

Table 9 shows the independent raters reported either no change in the accurate use of DRO and redirect or a decrease in the accurate use of praise, planned ignoring, and response block, relative to the opportunities, during follow-up. This is also consistent with the data displayed in Figure 2.

5.2.3.2 Parent 2
The results obtained with Parent 2 were graphed and are displayed in Figure 3. Table 10 shows the raters’ agreed ratings of change observed in the data for each intervention strategy across all conditions for Parent 2.
Figure 3. Total number of opportunities to perform intervention strategy across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for Parent 2. The white area indicates the total number of times the parent responded correctly to child behaviour and the black area indicates the total number of times the parent responded incorrectly to child behaviour.
Fifteen teaching session were required before Parent 2 met the accuracy criterion for progression from the role-play (RP) condition to verbal instruction (VI) condition. As with Parent 1, from the VI condition onwards accuracy criteria were never met by Parent 2 until the VF condition.

Consistent with the data shown in Figure 3, the independent raters reported changes in the use of each intervention strategy at different conditions across the study. First, the raters reported no change in the use of DRO from baseline to RP and from RP to VI. An increase in the accurate use of DRO from VI to VI + FB was reported, followed by no change from VI + FB to C. Figure 3 shows that Parent 2 did not implement DRO accurately until the first session of the VI + FB condition. From there, Parent 2 implemented DRO at a mean rate of 67% correct per opportunity during VI + FB and 50% correct per opportunity during C.

In line with the data shown in Figure 3, raters reported another increase in the accurate use of DRO from C to VF (increase to mean of 75% correct
per opportunity during VF). Worth noting is that Parent 2 correctly implemented DRO at every opportunity presented to her during two sessions in the VI + FB condition and five sessions in the VF condition.

The raters reported no change in the use of praise from baseline to the VI + FB condition. Following this, an increase was reported in the accurate use of praise during the C condition compared with levels during the VI + FB condition.

Raters reported another increase in the use of praise from C to VF. Figure 3 shows a substantial increase in the accurate use of praise (mean of 67% correct per opportunity) during this condition. However, as with Parent 1, Figure 3 shows that Parent 2 continued to incorrectly implement praise in almost a third of the opportunities presented to her.

No change in the use of planned ignoring was reported until the VF condition when the raters reported an increase in the accurate use of planned ignoring. Figure 3 shows that Parent 2 did not accurately use planned ignoring until the VF condition. During this condition, accurate use of planned ignoring increased to a mean of 64% correct per opportunity. Worth noting is that Parent 2 accurately implemented planned ignoring at every opportunity presented to her during 2 of the 13 sessions during VF and 1 of the 6 sessions during follow-up.

Finally, the raters reported an increase in the use of response block from baseline to RP, and no change again in the use of the intervention strategy until VF. Figure 3 shows a small increase in the use of response block towards the end of the RP condition (mean of 14% correct per opportunity). This limited accurate use of response block continues into the
next condition (mean of 11% correct per opportunity during VI), however the data shows an increase in accurate use during VI + FB (mean of 44% correct per opportunity) and another increase in accurate use during C (verbal 75% correct per opportunity). Between the C and VF conditions, the raters reported another increase in the accurate use of response block. Figure 3 shows an increase in the mean to 95% correct per opportunity during the VF condition. It is important to note that the number of opportunities to use response block remained at a low rate throughout these conditions (an average number of two opportunities per session).

The raters reported no change in the accurate use of all intervention strategies from VF to follow-up.

As with Parent 1, a trend in the data worth highlighting emerges during the VF condition for Parent 2. That is, the total number of opportunities to implement DRO and praise increased during this condition, while the total number of opportunities to implement the consequent strategies (planned ignoring and response block) decreased.

5.2.3.3 Parent 3

The results obtained for Parent 3 were graphed and are displayed in Figure 4. Table 11 shows the raters’ agreed ratings of change observed in the data for each intervention strategy across all conditions for Parent 3.
Figure 4. Total number of opportunities to perform intervention strategy across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for Parent 3. The white area indicates the total number of times the parent responded correctly to child behaviour and the black area indicates the total number of times the parent responded incorrectly to child behaviour.
Table 12
Raters’ Agreed Rating of Change Observed in Data for Each Intervention Strategy Across Conditions for Parent 3

<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline–Role-play</th>
<th>Role-play–Verbal instruction</th>
<th>Verbal instruction–Verbal instruction and feedback</th>
<th>Verbal instruction and feedback–Coaching</th>
<th>Coaching–Video feedback</th>
<th>Video feedback–Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Praise</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Redirect</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Response block</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
</tbody>
</table>

Sixteen teaching session were required before Parent 3 met the accuracy criteria for progression from the role-play (RP) condition to the verbal instruction (VI) condition. As with Parents 1 and 2, from the VI condition onwards accuracy criteria were never met by Parent 3 until the VF condition.

Figure 4 shows that Parent 3 correctly implemented DRO during every condition, including baseline. During this condition, Parent 3 had an opportunity to use DRO during 10 of the 12 baseline sessions, and correctly implemented DRO during 47% of these opportunities.

The independent raters reported no change in the DRO data during RP from levels observed during baseline. Following this, raters reported an increase in the accurate use of DRO from RP to VI, a decrease from VI to VI + FB, and another increase from C to VF. The data in Figure 3 shows that by the VF condition, DRO was being accurately implemented by Parent 3 at a rate of 71% correct per opportunity.
Following this, raters reported no change in the accurate use of DRO from the VF condition to the follow-up condition.

The raters reported no change in the use of praise from baseline to the RP condition and from the RP condition to the VI condition. Following this, an increase was reported in the accurate use of praise during the VI + FB condition compared with levels during the VI condition. Figure 4 shows a small increase in the accurate use of praise (15% correct per opportunity) during VI. Raters reported no change in the accurate use of praise from VI + FB to C followed by another increase in the use of praise from C to VF. Figure 4 shows a small increase in the accurate use of praise during C (mean of 37% correct per opportunity) and a larger increase during VF (mean of 63% correct per opportunity).

The independent raters reported no change in the accurate use of planned ignoring, redirect or response block until the C condition, where they reported an increase in the data. The data displayed in Figure 4 show that Parent 3 did not accurately implement these strategies until the C condition, however it is important to note that the increase in the accurate use of these strategies during C is small. For example, each strategy was correctly implemented only once during one session of this condition (10% correct per opportunity for planned ignoring, 25% correct per opportunity for redirect, and 50% correct per opportunity for response block).

As with DRO and praise, raters reported another increase in the accurate use of planned ignoring, redirect and response block during the VF condition. The data shown in Figure 4 shows an increase of the means to
36% correct per opportunity for planned ignoring, 79% correct per opportunity for redirect, and 78% correct per opportunity for response block.

There are a number of trends in the data that are worth highlighting. First, as with Parent 1 and Parent 2, the total number of opportunities for Parent 3 to implement DRO and praise increased during the VF condition, while the total number of opportunities to implement the planned ignoring decreased. What was different from Parent 1 and Parent 2 was that the total number of opportunities for Parent 3 to implement redirect and response block was not only low during this condition but low across the entire intervention. For example, Parent 3 had an average of fewer than two opportunities per session to implement redirect and an average of one opportunity per session to implement response block across all conditions of the intervention. During the VF condition, opportunities to implement redirect occurred in only 6 of the total 14 sessions and opportunities to implement response block occurred in only 3 of the total 14 sessions.

Second, despite an increase in the correct use of praise and planned ignoring during the VF condition the accurate implementation of these strategies remained relatively low (63% correct per opportunity for praise and 36% correct per opportunity for planned ignoring).

Third, the raters reported no change in the data during follow-up for all intervention strategies other than praise (reported a decrease), indicating that the rate of accurate use of these strategies remained the same during follow-up.

5.2.3.4 Parent 4
The results obtained for Parent 4 were graphed and are displayed in Figure 5. Table 12 shows the raters’ agreed ratings of change observed in the data for each intervention strategy across all conditions for Parent 4.
Figure 5. Total number of opportunities to perform intervention strategy across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for Parent 4. The white area indicates the total number of times the parent responded correctly to child behaviour and the black area indicates the total number of times the parent responded incorrectly to child behaviour. • = presence of embedded reinforcers
Table 13
*Raters’ Agreed Rating of Change Observed in Data for Each Intervention Strategy Across Conditions for Parent 4*

<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline–Role-play</th>
<th>Role-play–Verbal instruction</th>
<th>Verbal instruction–Verbal instruction and feedback</th>
<th>Verbal instruction and feedback–Coaching</th>
<th>Coaching–Video feedback</th>
<th>Video feedback–Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO</td>
<td>Increase</td>
<td>No change</td>
<td>Decrease</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Praise</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Redirect</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Response block</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
</tbody>
</table>

Fourteen teaching sessions were required before Parent 4 met the accuracy criteria for progression from the role-play (RP) condition to the verbal instruction (VI) condition. As with Parents 1, 2 and 3, from the VI condition onwards accuracy criteria were never met by Parent 4 until the VF condition.

Consistent with the results reported for Parent 1, Figure 5 shows that embedded reinforcers were never present during baseline for Parent 4. They were first observed during the fourth session of the RP condition (session 20). They continued to be observed in every session until the second session of the coaching condition (session 38). They were also absent during the second, third, fourth and fifth VF sessions (sessions 41, 42, 43 and 44) and the final follow-up session (session 55).

Also consistent with the results reported for Parent 1, the independent raters reported an increase in the accurate use of DRO by Parent 4, relative to the total number of opportunities, during the RP condition. The data in Figure
5 shows the accurate use of DRO increased from 0% during baseline to 26% correct per opportunity during the RP condition. The raters reported no change in the accurate responses, relative to the number of opportunities, from RP to VI, followed by a decrease in the data from VI to VI + FB, then an increase in the data from VI + FB to C and another increase from C to VF. Worth highlighting here is that the increase in accurate use of DRO reported during the VF condition is substantial. During the C condition, the implementation of DRO by Parent 4 was 50% correct per opportunity compared with 97% correct per opportunity during VF.

Raters reported no change in the accurate use of praise until the C condition, where they reported an increase. Figure 5 shows that Parent 4 did not correctly implement praise until the first session of the C condition (session 37). Raters reported another increase in the data from C to VF. Figure 5 which shows an increase in the mean from 37% correct per opportunity during C to 64% per opportunity during VF.

The independent raters reported no change in the use of planned ignoring, redirect or response block until the VF condition, where they reported an increase in the data. The data displayed in Figure 5 shows that Parent 4 did not accurately implement these strategies until the VF condition. For each intervention, the increase was substantial. That is, mean levels of accuracy during this condition were 67% for planned ignoring, 49% for redirect and 83% for response block.

As with Parent 1, raters reported for Parent 4 a decrease in the accurate use of praise, planned ignoring and response block and no change in the use of DRO and redirect from VF to follow-up.
As with all parents previously discussed, opportunities for Parent 4 to implement DRO and praise increased during VF while opportunities to implement planned ignoring, redirect and response block decreased during this condition.

5.2.3.5 Parent 5

The results obtained for Parent 5 were graphed and are displayed in Figure 6. Table 13 shows the raters’ agreed ratings of change observed in the data for each intervention strategy across all conditions for Parent 5.
Figure 6. Total number of opportunities to perform intervention strategy across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for Parent 5. The white area indicates the total number of times the parent responded correctly to child behaviour and the black area indicates the total number of times the parent responded incorrectly to child behaviour. ● = presence of embedded reinforcers.
Eleven teaching sessions were required before Parent 5 met the accuracy criterion for progression from the role-play (RP) condition to verbal instruction (VI) condition. As with Parents 1, 2, 3 and 4, from the VI condition onwards accuracy criteria were never met by Parent 5 until the VF condition.

Consistent with the results reported for Parent 1 and Parent 4, Figure 6 shows that for Parent 5 embedded reinforcers were never present during baseline. As with Parent 4, embedded reinforcers were first observed for Parent 5 during the fourth session of the RP condition (session 23). They continued to be observed throughout the remaining sessions in this condition. During the three sessions in the VI condition (sessions 30, 31, 32) the presence of embedded reinforcers was not observed. They were observed again in the first session of the VI + FB

<table>
<thead>
<tr>
<th>Intervention strategies</th>
<th>Baseline–Role-play</th>
<th>Role-play–Verbal instruction</th>
<th>Verbal instruction–Verbal instruction and feedback</th>
<th>Verbal instruction and feedback–Coaching</th>
<th>Coaching–Video feedback</th>
<th>Video feedback–Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRO</td>
<td>No change</td>
<td>Increase</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Praise</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>No change</td>
</tr>
<tr>
<td>Planned ignoring</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Redirect</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Response block</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>Increase</td>
<td>Increase</td>
<td>Decrease</td>
</tr>
</tbody>
</table>
condition and remained present during every session until the end of data collection (session 52).

Consistent with the results of the parents discussed previously, for Parent 5 independent raters reported an increase in the accurate use of DRO earlier in the progression of the parent training conditions than the other intervention strategies. Raters reported an increase in accurate use of DRO from RP to VI. Figure 6 shows that Parent 5 implemented DRO correctly once during one session of the VI condition. No change was reported in the accurate use of DRO during the VI + FB condition.

With the exception of redirect, raters reported an increase in all other intervention strategies in the C condition, relative to the VI + FB condition before it. The data in Figure 6 shows a small increase in the accurate use of DRO (mean rate of 38% correct per opportunities), praise (mean rate of 20% correct per opportunities), planned ignoring (mean rate of 50% correct per opportunities), and response block (mean rate of 13% correct per opportunities) during this condition.

Independent raters reported increases in the accurate use of all intervention strategies during the next condition (VF). The accurate use of DRO increased to a mean of 92% correct per opportunities, accurate use of praise increased to a mean of 63% correct per opportunities, accurate use of planned ignoring increased to 100% correct per opportunities, accurate use of redirect increased to 74% correct per opportunities, and accurate use of response block increased to 87% correct per opportunities.
Raters reported a decrease in the accurate use of planned ignoring, redirect and response block and no change in the accurate use of DRO and praise from VF to follow-up.

As with all parents previously discussed, opportunities for Parent 5 to implement DRO and praise increased during VF while opportunities to implement planned ignoring, redirect and response block decreased during this condition.

5.3 Child behaviour

5.3.1 Reliability of child behaviour observations

As outlined in Chapter 4, interobserver agreement checks for observations of child behaviour were calculated for 36% of all baseline, intervention and follow-up sessions. The average agreement across children and behaviour categories was 96.5% (range, 95–99%). Interobserver agreement for child behaviour across all children and conditions is summarised in Table 14.

5.3.2 Reliability of visual analysis ratings of child behaviour graphs

As outlined in Chapter 4, for each child behaviour graph visual analysis was undertaken in order to examine change in child behaviour across each condition of the study. To determine the reliability of the visual analysis, two independent raters who were not involved in the study rated each graph according to criteria. Table 15 shows the overall percentage agreement between raters. The average overall percentage agreement across children and conditions was 82% (range, 67–100%).
Table 15
Observer Agreement Percentages for Child Behaviour Categories Across Conditions for Each Child

<table>
<thead>
<tr>
<th>Behaviours</th>
<th>Baseline Mean (Range)</th>
<th>Role-play Mean (Range)</th>
<th>Verbal instruction Mean (Range)</th>
<th>Verbal instruction and feedback Mean (Range)</th>
<th>Coaching Mean (Range)</th>
<th>Video feedback Mean (Range)</th>
<th>Follow-up Mean (Range)</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>98 (94–100)</td>
<td>96 (91–100)</td>
<td>100 (99–100)</td>
<td>99 (91–100)</td>
<td>95 (88–97)</td>
<td>92 (95–100)</td>
<td>98 (95–100)</td>
<td>97%</td>
</tr>
<tr>
<td>Problem</td>
<td>92 (84–98)</td>
<td>95 (90–100)</td>
<td>97 (94–97)</td>
<td>95 (95–98)</td>
<td>96 (93–100)</td>
<td>97 (91–98)</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>90 (84–100)</td>
<td>94 (90–98)</td>
<td>97 (97–99)</td>
<td>98 (97–99)</td>
<td>100 (87–98)</td>
<td>93 (85–100)</td>
<td>92 (88–100)</td>
<td>95%</td>
</tr>
<tr>
<td>Problem</td>
<td>97 (94–100)</td>
<td>91 (88–97)</td>
<td>99 (95–100)</td>
<td>97 (99–100)</td>
<td>99 (90–98)</td>
<td>95 (90–98)</td>
<td>100</td>
<td>97%</td>
</tr>
<tr>
<td>Child 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>95 (91–98)</td>
<td>96 (90–100)</td>
<td>97 (94–100)</td>
<td>100 (97–100)</td>
<td>98 (90–100)</td>
<td>98 (94–100)</td>
<td>97</td>
<td>97%</td>
</tr>
<tr>
<td>Problem</td>
<td>88 (83–97)</td>
<td>95 (92–98)</td>
<td>97 (96–98)</td>
<td>100 (98)</td>
<td>92 (89–98)</td>
<td>96 (93–99)</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Child 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>97 (92–98)</td>
<td>95 (90–98)</td>
<td>100 (99–100)</td>
<td>99 (98–100)</td>
<td>95 (95–100)</td>
<td>97 (89–100)</td>
<td>94</td>
<td>97%</td>
</tr>
<tr>
<td>Problem</td>
<td>96 (91–100)</td>
<td>95 (93–99)</td>
<td>97 (96–98)</td>
<td>91 (98–98)</td>
<td>100 (92–100)</td>
<td>96 (98–100)</td>
<td>100</td>
<td>96%</td>
</tr>
<tr>
<td>Child 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>96 (89–100)</td>
<td>98 (95–100)</td>
<td>100 (94–100)</td>
<td>97 (93–99)</td>
<td>97 (91–100)</td>
<td>94 (96–100)</td>
<td>98</td>
<td>97%</td>
</tr>
<tr>
<td>Problem</td>
<td>93 (86–97)</td>
<td>98 (96–100)</td>
<td>100 (98)</td>
<td>99 (98–100)</td>
<td>99 (98–100)</td>
<td>100 (98–100)</td>
<td>99</td>
<td>99%</td>
</tr>
</tbody>
</table>
Figure 7. Percentage of intervals of appropriate and problem behaviour across five strategies for baseline, role-play (RP), verbal instruction (VI), verbal instruction plus feedback (VI + FB), coaching (C), video feedback (VF) and follow-up for all children.
<table>
<thead>
<tr>
<th>Child</th>
<th>Behaviours</th>
<th>Overall percentage agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 1</td>
<td>Appropriate</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td>Problem</td>
<td>83%</td>
</tr>
<tr>
<td>Child 2</td>
<td>Appropriate</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Problem</td>
<td>67%</td>
</tr>
<tr>
<td>Child 3</td>
<td>Appropriate</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Problem</td>
<td>83%</td>
</tr>
<tr>
<td>Child 4</td>
<td>Appropriate</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Problem</td>
<td>100%</td>
</tr>
<tr>
<td>Child 5</td>
<td>Appropriate</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Problem</td>
<td>67%</td>
</tr>
</tbody>
</table>

5.3.3 Visual and statistical analysis of child behaviour graphs

A nonconcurrent multiple baseline across children was used to assess the effectiveness of the intervention on child behaviour. Figure 7 shows the rate of both problem behaviour and appropriate behaviour for each child across sessions. The staggered conditions lines indicate the point at which a new intervention condition was introduced. Results are also shown in Table 16, which shows the raters’ agreed ratings of change observed in the data and the percentage of non-overlapping (PND) data for the target child behaviour across all conditions for all children.

Overall there appears to be a number of trends across all children.
Table 17
Raters’ Agreed Rating of Change Observed in Data and Percentage of Non-overlapping Data (PND) for Each Child Behaviour Across Conditions for all Children

<table>
<thead>
<tr>
<th>Child</th>
<th>Baseline–Role-play</th>
<th>Baseline–Verbal instruction</th>
<th>Baseline–Verbal instruction and feedback</th>
<th>Baseline–Coaching</th>
<th>Baseline–Video feedback</th>
<th>Baseline–Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating</td>
<td>PND</td>
<td>Rating</td>
<td>PND</td>
<td>Rating</td>
<td>PND</td>
</tr>
<tr>
<td>Child 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>Inc</td>
<td>44%</td>
<td>Dec</td>
<td>0</td>
<td>NC</td>
<td>0</td>
</tr>
<tr>
<td>PB</td>
<td>Dec</td>
<td>56%</td>
<td>NC</td>
<td>0</td>
<td>NC</td>
<td>0</td>
</tr>
<tr>
<td>Child 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>NC</td>
<td>40%</td>
<td>NC</td>
<td>0</td>
<td>NC</td>
<td>0</td>
</tr>
<tr>
<td>PB</td>
<td>Dec</td>
<td>33%</td>
<td>NC</td>
<td>0</td>
<td>NC</td>
<td>0</td>
</tr>
<tr>
<td>Child 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>NC</td>
<td>0</td>
<td>Inc</td>
<td>33%</td>
<td>Dec</td>
<td>0</td>
</tr>
<tr>
<td>PB</td>
<td>NC</td>
<td>0</td>
<td>Dec</td>
<td>0</td>
<td>Inc</td>
<td>0</td>
</tr>
<tr>
<td>Child 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>NC</td>
<td>21%</td>
<td>NC</td>
<td>0</td>
<td>Dec</td>
<td>33%</td>
</tr>
<tr>
<td>PB</td>
<td>NC</td>
<td>7%</td>
<td>NC</td>
<td>0</td>
<td>Inc</td>
<td>33%</td>
</tr>
<tr>
<td>Child 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>NC</td>
<td>0</td>
<td>NC</td>
<td>33%</td>
<td>Inc</td>
<td>67%</td>
</tr>
<tr>
<td>PB</td>
<td>NC</td>
<td>0</td>
<td>NC</td>
<td>33%</td>
<td>NC</td>
<td>0</td>
</tr>
</tbody>
</table>

Note. AB = Appropriate behaviour; PB = Problem behaviour; NC = No change
First, Figure 7 shows that, during the baseline condition, problem behaviour occurred frequently, with an approximate mean rate of 62% of the intervals per session (range, 51–77) while appropriate behaviour occurred infrequently, with an approximate mean rate of 19% of the intervals per session (range, 10–25) across children.

When the first intervention condition (RP) began, the independent raters reported changes for only two children. Raters reported an increase in appropriate behaviour and a decrease in problem behaviour for Child 1 and a decrease in problem behaviour for Child 2. PND results show a mild intervention effect (56%) for the reported decrease in the problem behaviour for Child 1 only, and no intervention effect for the reported increase in appropriate behaviour for Child 1 (44%) or the decrease in problem behaviour for Child 2 (33%).

Raters reported changes in the data for only Child 1 and Child 3 during the next condition (VI) (i.e. decrease in appropriate behaviour for Child 1 and an increase in appropriate behaviour and decrease in problem behaviour for Child 3), however PND results show no intervention effects. 0% PND was calculated for the appropriate behaviour observed for Child 1 and the problem behaviour of Child 3, while 33% PND was calculated for the appropriate behaviour of Child 3.

Changes in the data were reported for three children during the VI + FB condition. Raters reported a decrease in appropriate behaviour and an increase in problem behaviour for Child 3 and Child 4 and an increase in appropriate behaviour for Child 5. Results of the PND calculations show a mild intervention effect (67%) for the increase in appropriate behaviour
reported for Child 5 and no intervention effect for the changes reported for
Child 3 (0%) and Child 4 (33%).

With the exception of appropriate behaviour for Child 2, the
independent raters reported increases in appropriate behaviour and
decreases in problem behaviour for all children during the C condition relative
to the previous VI + FB condition. The results in Figure 7 show an increase in
the rate of appropriate behaviour and decrease in the rate of problem
behaviour for all children during this condition. Interestingly, PND scores show
a mild treatment effect for the increase in appropriate behaviour for Child 1
(67%) and the increase in appropriate behaviour and decrease in problem
behaviour for Child 5 (67%) but no treatment effect for the remaining
behaviour of all children. This can be partially explained by the extreme outlier
values seen in the VI + FB condition for all children except Child 4. Extreme
outlier values in one condition can result in low PND scores in the next
condition (Faith, Allison, & Gorman, 1996). This will be discussed in the next
chapter.

Changes in the data were reported for all children during the last
intervention condition (VF). Raters reported increases in appropriate
behaviour and decreases in problem behaviour during the VF condition
relative to the data in the previous condition. Consistent with the results in the
previous condition, PND scores show intervention effects in only one-third of
the results. For example, PND scores show a moderate treatment effect for
the increase in appropriate behaviour for Child 1 (75%) and Child 2 (77%) and
the decrease in problem behaviour for Child 1 (63%) but no treatment effect
(range 0–38%) for all remaining results. These results will be discussed in Chapter 6.

There are a number of trends in the data within the VF condition that are worth highlighting. First, Figure 6 shows that, for the first time, the rate of appropriate behaviour occurred more frequently than problem behaviour for every child during this condition. For Child 1 this happened immediately, although it had begun to occur during the final session of the C condition. For Child 2 the rate of appropriate behaviour exceeded problem behaviour after five VF sessions. For Child 3 and Child 4 this occurred after six VF sessions. Finally, for Child 5, this occurred after only three sessions. Second, Figure 6 shows that the frequency of problem behaviour decreased to zero or near-zero levels for Child 2 and Child 5 during the last four VF sessions. Third, Figure 7 shows a slight increase in problem behaviour and a decrease in appropriate behaviour for Child 3 and Child 4 and a sharp increase in problem behaviour and decrease in appropriate behaviour for Child 1 towards the end of the VF condition. This steep change observed for Child 1 is immediately followed by a sharp decrease in problem behaviour and increase in appropriate behaviour during the final session.

Changes in the data were reported for three children during the follow-up condition. Raters reported an increase in appropriate behaviour and decrease in problem behaviour for Children 2, 4 and 5 and no change in the data for Child 1 and Child 3. PND scores showed no intervention effect for either target behaviour across children during this condition.

5.4 Ratings of the support plans contextual fit
As discussed in Chapter 5, participants completed a contextual fit evaluation twice; once, at the end of *Phase 4: Intervention Design*, and again at the completion of all parent training conditions, before follow-up. Table 18 shows a summary of questions and parent responses to the goodness-of-fit questionnaire for time 1 and Table 19 shows a summary for time 2.

At time 1, all parents agreed that the program included the most important goals for their child and family, however only one parent responded that they understood what to do on the intervention and two parents responded that they did not know if the researcher understood their children’s needs during the day. Table 19 shows that this improved at time 2. All parents responded yes to questions 1, 2 and 3 indicating that, at time 2, the intervention fitted very well with the parents’ goals and expectations.

At time 1 and time 2 all parents reported that they were happy with what they were doing on the program and understood what others were doing. However, only three parents reported that they were happy with what other people were doing, while two reported that they were only a little bit happy with what others were doing. Consistent with the intervention fit with parents’ goals and expectations, this improved at time 2. Here all parents reported being happy with what others were doing. This indicates the intervention also fitted well with the support roles of the parents and others involved.
Table 18

Summary of Questions and Parent Responses to Goodness-of-fit Questionnaire (Time 1)

<table>
<thead>
<tr>
<th>Question</th>
<th>No</th>
<th>Don’t know</th>
<th>A little bit</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think ___ understands what your child needs during the day?</td>
<td>40% (2)</td>
<td></td>
<td>60% (3)</td>
<td></td>
</tr>
<tr>
<td>2. Does the program include what you think are the most important goals for your child and family?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>3. Do you understand what to do on the program?</td>
<td>40% (2)</td>
<td>40% (2)</td>
<td></td>
<td>20% (1)</td>
</tr>
<tr>
<td>4. Do you feel happy with what you are doing on the program?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>5. Do you understand what other people (e.g. me, other family) are doing on the program?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>6. Are you happy with what other people are doing?</td>
<td></td>
<td>40% (2)</td>
<td></td>
<td>60% (3)</td>
</tr>
<tr>
<td>7. Does the program help you with what you need as the parent?</td>
<td>20% (1)</td>
<td>40% (2)</td>
<td></td>
<td>40% (2)</td>
</tr>
<tr>
<td>8. Does the program help your family (e.g. other children, grandparents) with what they need?</td>
<td>20% (1)</td>
<td>20% (1)</td>
<td></td>
<td>60% (3)</td>
</tr>
<tr>
<td>9. How well does the program fit with the things your family does every day (e.g. meals, shopping)?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>10. Does the program include things that you have used that have worked/stopped the behaviour you don’t like/got your child to play with you/got your child to listen to you?</td>
<td>20% (2)</td>
<td></td>
<td>60% (2)</td>
<td>20% (1)</td>
</tr>
<tr>
<td>11. Does the program disrupt what your family does in the home and out of the home so much that you feel stressed/tense/upset?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>12. Does the program use the things you family is good at? Does it help you to be better at those things?</td>
<td>40% (2)</td>
<td>40% (2)</td>
<td></td>
<td>20% (1)</td>
</tr>
<tr>
<td>13. Is the program hard for you to use (e.g. amount of time, new skills to learn)?</td>
<td></td>
<td></td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>14. Do you believe the program will work/is working?</td>
<td></td>
<td></td>
<td></td>
<td>100% (5)</td>
</tr>
<tr>
<td>15. If the program works, do you think you can keep using the skills for a long time (e.g. more than one year) even if ___ did not work with you?</td>
<td></td>
<td></td>
<td></td>
<td>NA</td>
</tr>
</tbody>
</table>
### Table 19

**Summary of Questions and Parent Responses to Goodness-of-fit Questionnaire**  
*(Time 2)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think ___ understands what your child needs during the day?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>2. Does the program include what you think are the most important goals for your child and family?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>3. Do you understand what to do on the program?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>4. Do you feel happy with what you are doing on the program?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>5. Do you understand what other people (e.g. me, other family) are doing on the program?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>6. Are you happy with what other people are doing?</td>
<td>40% (2) 60% (3)</td>
</tr>
<tr>
<td>7. Does the program help you with what you need as the parent?</td>
<td>40% (2) 60% (3)</td>
</tr>
<tr>
<td>8. Does the program help your family (e.g. other children, grandparents) with what they need?</td>
<td>40% (2) 60% (3)</td>
</tr>
<tr>
<td>9. How well does the program fit with the things your family does every day (e.g. meals, shopping)?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>10. Does the program include things that you have used that have worked/stopped the behaviour you don't like/got your child to play with you/got your child to listen to you?</td>
<td>20% (1) 80% (4)</td>
</tr>
<tr>
<td>11. Does the program disrupt what your family does in the home and out of the home so much that you feel stressed/tense/upset?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>12. Does the program use the things you family is good at? Does it help you to be better at those things?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>13. Is the program hard for you to use (e.g. amount of time, new skills to learn)?</td>
<td>20%(1) 60% (3) 20%(1)</td>
</tr>
<tr>
<td>14. Do you believe the program will work/is working?</td>
<td>100% (5)</td>
</tr>
<tr>
<td>15. If the program works, do you think you can keep using the skills for a long time (e.g. more than one year) even if ___ did not work with you?</td>
<td>20%(1) 80%(4)</td>
</tr>
</tbody>
</table>
Parent responses in Tables 17 and 18 indicated that the intervention fitted only moderately well with the family’s lifestyle at time 1 and time 2. At both assessment points, all parents reported that the intervention fitted with the things their families did every day. Most parents reported that the intervention would help other family members with what they needed (n = 3) or it would help a little bit (n = 1), while one parent said it would not help at time 1 and this increased to two parents at time 2. Most parents also reported that the intervention would help with what they needed as a parent (n = 2) or it would help a little bit with what they needed as a parent (n = 2) and this increased only slightly at time 2. At time 1 it was difficult to evaluate implementation effort or sustainability as the parents had not started attempts to implement the intervention. However, at time 1, it is worth noting that each parent reported that the intervention would not disrupt what their family did in the home and all parents reported that they believed the intervention would work. It is also worth noting that, at time 1, only one parent reported that the intervention included strategies they had successfully used before and one parent reported that the intervention used things their family was good at.

The results at time 2 showed that, overall, the effort it took to implement the intervention fitted moderately with the parents. Table 18 shows almost all parents (n = 4) reported that the intervention did include successful strategies they had used before, all parents continued to report that the intervention did not disrupt what their family did at home, and all parents reported that the intervention used things their family was good at. Worth noting here is that only one parent reported that the intervention was not hard
to implement while three reported that it was a little bit hard and one reported that yes, it was hard.

The results at time 2, in Table 18, also showed that all parents believed the intervention was working and all parents believed that they could keep using the skills without assistance.

5.5 Ratings of social validity

Participants completed a social validity evaluation twice, once at the end of the first parent training condition (RP) and another at the completion of all parent training conditions, before follow-up. Table 19 provides a summary of the results of time 1 and Table 20 provides a summary of the results for time 2.

Overall there was an increase in the level of satisfaction with the intervention, between time 1 and time 2. Table 19 shows that parent responses at time 1 indicated either complete agreement (yes/no) or partial (sort of) agreement with all statements while Table 20 shows that at time 2, all parents were in complete agreement with every statement. Each parent reported that they liked the intervention; that it was a good way to help their family; that it helped with their child’s behaviour and helped their family; that they wanted to keep using what they had learned; that they liked the way they practised the skills; and that the intervention did not cause any problems for their family.
Table 20
Summary of Questions and Parent Responses to Program Satisfaction Questionnaire (Time 1)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>Sort of</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The program is a good way to help my family</td>
<td>40% (2)</td>
<td>60% (3)</td>
<td>0</td>
</tr>
<tr>
<td>The program helped me with my child's behaviour</td>
<td>60% (3)</td>
<td>40% (2)</td>
<td>0</td>
</tr>
<tr>
<td>I want to keep using what I have learned in the program</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The program caused problems in my family</td>
<td>0</td>
<td>0</td>
<td>100% (5)</td>
</tr>
<tr>
<td>I liked this program</td>
<td>80% (4)</td>
<td>20% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Overall, the program helped my family</td>
<td>40% (2)</td>
<td>60% (3)</td>
<td>0</td>
</tr>
<tr>
<td>I like the way we practised skills in the program</td>
<td>60% (3)</td>
<td>40% (2)</td>
<td>0</td>
</tr>
<tr>
<td>The way ______ worked with me was helpful</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 21
Summary of Questions and Parent Responses to Program Satisfaction Questionnaire (Time 2)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>Sort of</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The program is a good way to help my family</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The program helped me with my child's behaviour</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I want to keep using what I have learned in the program</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The program caused problems in my family</td>
<td>0</td>
<td>0</td>
<td>100% (5)</td>
</tr>
<tr>
<td>I liked this program</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overall, the program helped my family</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I like the way we practised skills in the program</td>
<td>100% (5)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The way ______ worked with me was helpful</td>
<td>100%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
CHAPTER 6
DISCUSSION

6.1 Overview

This study aimed to address a number of challenges, outlined in Chapter 1, faced by family support practice for parents with an intellectual disability. The study aimed to do this by beginning to integrate the empirical literature of parent training programs for parents with an intellectual disability with critical features of the emerging technology of PBS. As discussed in Chapters 2 and 3, both areas emerged from the BPT literature in response to the need for adaptations and extensions of BPT for use with families facing high levels of adversity and disadvantage.

The discussion section of this thesis begins with a summary of the results of the study. Following this summary, the findings will be examined in relation to the specific research questions and issues raised in the literature review.

6.2 Summary of results

Overall the results of this study show that parent and child behaviour changed in response to the parent training intervention. The rate at which parents accurately implemented the intervention strategies was at its highest during the VF condition. This corresponded with an increase in child appropriate behaviour and a decrease in problem behaviour. Observation probes conducted across a 5–6-month period show that, in the main, parents’ accurate use of the intervention strategies and changes to the children’s behaviour were maintained over this time.

The accurate use of embedded reinforcers was observed early in the parent training. The three parents who implemented this strategy were all observed to do so
accurately for the first time during the RP condition. Parent 1 maintained accurate implementation of embedded reinforcers throughout all remaining parent training sessions while both Parents 4 and 5 did not. Worth noting is that, for Parents 4 and 5, the number of sessions from which embedded reinforcers were absent was small and both parents accurately implemented the strategy during the follow-up sessions.

The accurate use of DRO was first observed at different points during parent training for each parent. For example, Parent 4 accurately implemented DRO for the first time during the RP condition, for Parent 5 it was the VI condition and for Parent 2 it was during the VI + FB condition. Interestingly, DRO was implemented accurately in every condition where there was an opportunity to do so for two parents (Parents 1 and 3).

With the exception of Parent 3, the accurate implementation by all parents of the remaining strategies (i.e., praise, planned ignoring, redirect and response block) was first observed in the C condition (Parent 3 was observed to accurately implement praise at low levels during the VI + FB phase). However, accuracy criteria were never met by parents until the VF condition and one parent did not reach the accuracy criterion for praise at any time during the intervention (Parent 2).

Parents demonstrated their highest level of accuracy on all skills after the introduction of the VF condition. For all parents, accurate implementation rates were high for DRO (70%–97% correct per opportunity) and moderate for praise (42%–67% correct per opportunity). Rates were moderate for planned ignoring for four parents (36%–67% correct per opportunity) and high for one parent (Parent 5 demonstrated 100% correct per opportunity). Rates were high to moderate for four parents for redirect (49%–90% correct per opportunity) and high for response block for four parents (78%–95% correct per opportunity) and low for one parent (Parent 1 demonstrated 42% correct per opportunity).
The accurate use of the intervention strategies varied across parents at follow-up. For example, Parent 2 was observed to maintain the accurate use of all strategies throughout the five-month follow-up, Parent 3 maintained all strategies other than praise during this time, Parents 1 and 4 maintained the accurate use of DRO and redirect and Parent 5 maintained accurate use of DRO and praise.

Changes in target child behaviour were parallel to improvements in the accurate implementation of the intervention strategies by parents. The results show that child appropriate behaviour increased and problem behaviour decreased as the accuracy of parent implementation improved. By the VF condition, when implementation rates were at their highest, rates of appropriate behaviour occurred more frequently than problem behaviour for the first time for every child.

Although the statistical analysis using percentage of non-overlapping data (PND) scores showed a moderate intervention effect during the VF condition for Child 1 and Child 2 only, independent raters reported increases in appropriate behaviour and decreases in problem behaviour during the VF condition relative to the data in the previous condition. However, it is worth noting that child problem behaviour fell to zero or near-zero levels for only two children (Child 2 and 5). Although the rate of problem behaviour did fall for the other three children, two children (Child 3 and 4) continued to display these behaviours during approximately 25% of the intervals while one child’s problem behaviour (Child 1) increased to 50% of intervals by the second to last VF session. This did not correspond with decreases in the accurate use of intervention strategies by Parent 1.

Despite the varied results for the accurate implementation of intervention strategies by parents, the results showed that the behaviour of Children 2, 4 and 5 continued to improve during follow-up while the behaviour of Child 1 and Child 3 remained the same.
As with the results above, PND scores showed no intervention effect for either target behaviour across children during this condition.

Overall, the parents’ ratings on the goodness-of-fit questionnaire indicated that the contextual fit of the intervention improved over time and, by the end of the parent training conditions, each parent’s responses showed that the intervention was fitting moderately well with their family’s ecology. By time 2, the responses of all parents indicated a good fit with their goals and expectations and the support roles of others, and a moderate fit with the family’s lifestyle and implementation effort. Parent responses also indicated that the intervention was working and parents believed they could sustain the strategies over time.

As with the results of the goodness-of-fit questionnaire, parent ratings on the social validity evaluation indicated that satisfaction with the intervention improved over time. Results show that by the end of the parent training conditions all parents reported that they liked the intervention and the way they practised the skills, and that it was a good way to help their family and their child’s behaviour.

6.3 Discussion of findings

The present study aimed to test the effectiveness of a combination of parent training strategies to teach parents with an intellectual disability to implement an enhanced assessment-based BPT intervention during a family routine. The following sections will address each of the five research questions outlined in Chapter 3.

6.3.1 Effectiveness of the overall intervention

The results of this study show that the enhanced assessment-based BPT was an effective intervention for parents with an intellectual disability whose children were displaying problem behaviour. The results show that the intervention was effective in improving their child’s behaviour during one valued family routine. These positive effects
were replicated across five parent–child dyads, suggesting the probability of a functional relationship between the independent and dependent variables. Sustained effects were seen in all cases during follow-up observations.

In addition, the results of the intervention provided support for the hypothesis developed from the descriptive assessment. However, because a functional analysis was not conducted, the results do not rule out other potential maintaining factors.

Consistent with previous work by Feldman and colleagues (1986, 1989, 1993), parent training resulted in improvements in parent–child interactions. Before training the parents’ use of positive behaviour such as contingent attention and specific praise was limited and their use of consistent, noncorporal discipline strategies was non-existent. After training, the parents began providing their children with positive or neutral attention for behaviour other than problem behaviour and began providing specific praise for compliance or starting an activity either independently or with a parent or sibling. The parents also began to use positive discipline strategies in response to both low-intensity and high-intensity problem behaviour.

One interesting finding was the speed with which embedded reinforcers were accurately implemented with no corresponding effect on child behaviour. This suggests that embedded reinforcers alone were not sufficient to improve child behaviour and provides further support for the hypothesis developed from the descriptive assessment.

Adding to this, all parents accurately implemented DRO after fewer teaching sessions and during earlier training conditions than every other intervention strategy. This may suggest that the more general preventative strategies, such as embedded reinforcers and DRO, may have been easier to implement than those demanding responses to children’s specific behaviour (for example, praise requires the parent to cue in to very specific behaviour and provide a timely response). The findings also suggest that the
effectiveness of specific parent training methods may interact with the type of intervention strategy. For example, VI + FB alone may be sufficient to teach parents to accurately implement DRO, while VF may be required for skills such as planned ignoring. Further research is required to determine if specific intervention strategies require specific training conditions.

A closer look at implementation rates shows that, during the VF condition, parents employed considerably lower rates of the consequent strategies for problem behaviour, compared with the implementation rates of the consequent strategies for appropriate behaviour (e.g., DRO and praise). The main reason for this is an increase in the total number of opportunities to implement DRO and praise paired with a decrease in opportunities to implement the other strategies. It is worth speculating whether DRO and praise would be sufficient to improve child behaviour. Future research should look at the necessity of including all strategies.

6.3.2 Strategies necessary for parent behaviour change

The results of this study support the use of VF for training parents to use child behaviour management strategies in response to their children’s behaviour. The results revealed that, with the exception of embedded reinforcers and DRO for Parent 2, accurate implementation of all intervention strategies improved across the 5 parent–child dyads following the introduction of VF. It is important to note that the results show a small increase in the accurate use of strategies by all parents during the coaching condition, however this was at lower then desirable levels. Importantly, accurate implementation rates were at their highest for all parents during the VF condition, providing some evidence for the effectiveness of VF as a teaching strategy for parents with an intellectual disability. Worth noting is that all parents required VF to achieve accuracy criteria.
The design of this study prevents an analysis of the individual contribution of various components to observed changes in parent behaviour. However, several factors probably influenced the effectiveness of the VF condition. First, the VF condition may have operated as a positive reinforcement for appropriate behaviour of the parents (Embregts, 2000). That is, prior to the VF condition, no parent had been successful in decreasing his or her child’s problem behaviour. Once the parent observed that the intervention improved their child’s behaviour, the parent was reinforced to obtain the same level of success by implementing the procedures accurately. Second, the delay between recording the tape and watching the tape took parents out of context, allowing them to concentrate on the important parts of the particular skill and decreasing distractions. This may have helped learning. Third, it is possible that the teaching conditions that occurred prior to VF contributed to the success of VF as a teaching strategy. The increase in accuracy observed during this condition may be due to a practice effect, that is, the change in parent behaviour may be a result of the teaching sessions prior to implementation of VF rather than VF in and of itself.

The explanations provided above do not explain why accuracy failed to improve with VI, VI + FB or C alone. Poor accuracy in implementation of the intervention strategies during these conditions may have resulted from the fit of the training conditions with the environment rather than the suitability or match with parents’ learning style. For example, during VI, VI + FB and C, parent training was conducted in natural settings. This made it more difficult to control extraneous factors such as the telephone ringing and neighbours dropping over. In addition to this, providing immediate feedback during coaching was difficult and often discouraged by the parent, particularly with the child present. The benefits of the VF condition allowed teaching to occur during a time when the children
were out of the house, and enabled parents to pause and rewind videotapes if other interruptions occurred.

One important finding was that only moderate levels of implementation accuracy were necessary to achieve treatment effects. This is consistent with the findings of Vollmer et al. (1994) who also reported that treatment effects were relatively strong despite poor treatment integrity. This is an important finding for parents with an intellectual disability as it may mean that 100% accuracy is not required in order to have an impact on their child's behaviour.

It is important to acknowledge that the parents in this study were willing to participate in training with the researcher. Hieneman & Dunlap (2001) argue that this factor of willingness influences the parents’ abilities to learn the skills. It is possible that the “willingness” of the parents in this study to participate helped contribute to the effectiveness of the intervention. Future research should attempt to replicate this study with families ordered by the child welfare and protection systems to participate in a parenting program.

6.3.3 Functional relationship between parent and child behaviour

The results of this study suggest a functional relationship between the accurate implementation of BPT strategies and improvements in child behaviour. That is, improvements in the children's behaviour corresponded to improvements in the parents’ performance. Thus, when parents implemented the intervention components with moderate integrity, the children’s appropriate behaviour increased and problem behaviour decreased. However, it is important to note that the decrease in appropriate behaviour and increase in problem behaviour exhibited by three children towards the end of the final parent training phase preclude the formation of definitive conclusions regarding the effectiveness of this intervention for reducing child problem behaviour.
These results are inconsistent with the results of the Bakken et al. (1993) study where no improvements in child behaviour were observed. One crucial difference between the current study and the Bakken study was the inclusion of a functional assessment to assist with the selection of intervention strategies in the current study. Given the evidence outlined in Chapter 3 showing that a pre-treatment functional assessment improves the likelihood that an intervention will be successful (Carr, Horner et al. 1999), it is possible that the functional assessment in the current study facilitated the success of the strategies.

As mentioned above, an important finding was that children showed a bias toward appropriate behaviour even when the treatment was implemented with less than 100% accuracy. In line with conclusions made by Marcus et al. (2001), child response allocation between appropriate and problem behaviour is supportive of matching theory (Mazur, 1990). Specifically, matching theory predicts that response allocation between appropriate and problem behaviour will roughly match the relative rate of reinforcements for the alternatives. The theory also predicts that child responding will be allocated disproportionately to the reinforcement schedule associated with higher probability of reinforcement. During this study, as parents accurately implemented the intervention strategies, reinforcement for appropriate behaviour became relatively more frequent and relatively more probable per occurrence of behaviour in comparison to reinforcement for problem behaviour. The results are supportive of matching theory because child response allocation changed as a function of accurate implementation of intervention strategies.

Response patterns of children during the final teaching condition are worth discussing. As reported in the results, child behaviour mildly deteriorated for three children (Children 1, 3 and 4) towards the end the VF condition. One explanation for this could be that the function of the children’s behaviour had changed over the course of the intervention. This would mean that the intervention strategies employed by the parents no
longer neutralised or eliminated the variables that triggered and maintained the problem behaviour. It is possible that, with such lengthy interventions, “top up” functional assessments are required to ensure the intervention strategies employed remain related to the functions of the target behaviour.

6.3.4 Contextual fit and social validity

As mentioned above, the results of this study show that parent ratings on the goodness-of-fit questionnaire and social validity evaluation improved over time. By the end of the parent training conditions, the results showed the intervention and the strategies used to teach it possessed a moderate fit with the families’ values, goals and lifestyle and were socially valid from the parents’ point of view. These results provide further evidence for the efficacy and acceptability of the intervention.

Moderate ratings on some items of the goodness-of-fit questionnaire may help explain the moderate levels of implementation accuracy. For example, the results show that most parents found the intervention difficult to implement and it did not address all their needs, and some parents were unhappy with the role of others. It is worth speculating whether attempts to improve the parent ratings in each of these areas may have resulted in improvements in accuracy. It is also worth speculating whether this would be necessary given the positive results obtained here with moderate accuracy levels.

It seems reasonable to speculate that the high ratings of social validity upon completion of the parent training could be a direct result of improvements in the children’s behaviour. Parents completed the first social validity evaluation at the end of the RP condition. At that point the results showed no improvements in child behaviour across all five parent–child dyads. At time 2, the results showed significant improvements in the children’s behaviour for all families.
6.4 Contributions to the literature

The study supports and extends the literature in a number of areas. First, these findings add to the literature on parent training interventions with parents who have an intellectual disability. Specifically, they support the findings of a number of studies that demonstrate that parents with an intellectual disability can improve and maintain parenting skills with corresponding benefits to their children when they participate in a parent training program that incorporates three key parent training practices: (a) teaching strategies that are primarily performance-based behavioural strategies; (b) training that is conducted with the parents in their homes; and (c) individually tailored teaching strategies that match the learning needs of the parents (Feldman et al., 1989, 1992a, 1992b; Llewellyn et al., 2003).

Second, these results build on the work of Slater (1986) and provide further evidence for the benefits of using VF as a teaching strategy for parents with an intellectual disability. This is particularly encouraging as VF has a number of practical advantages that will be outlined in a later section.

Third, these results partly replicate previous work by Bakken et al. (1993), Tymchuk and Andron (1988, 1992) and Feldman et al. (1986, 1989, 1993); however, there are also some important differences.

The results are similar to the results found by Bakken et al. (1993) and Feldman et al. (1989) in that few meaningful gains in target parent behaviours were observed until particular teaching strategies were introduced. As with both these studies, VI alone was not sufficient to promote acquisition of the target parent behaviour. However, the difference here was that it was not until the introduction of VF that meaningful gains were observed. In the Bakken et al. (1993) and Feldman et al. (1989) studies, performance-based teaching strategies (i.e. modelling, practice and feedback) led to gains in the target parent behaviour. One crucial difference between this study and Bakken et al. (1993) and
Feldman et al. (1989) that may account for the difference was that between four and six BPT skills were targeted in this study whereas only two, praise and verbal imitation (note, not verbal instruction) were targeted in the Bakken et al. (1993) study and only three, praise, verbal imitation and physical affection was targeted in Feldman et al. (1989) study. It may be that the additional strategy of VF was necessary to successfully teach parents an increased number of target skills.

In addition to this, contrary to the results reported by Feldman et al. (1986) but similar to the results reported in the first phase of the study by Bakken et al. (1993) and the study by Tymchuk et al. (1992), the current study found that improvements in the knowledge and demonstration of a target skill during the RP condition did not generalise to improvements in parent behaviour during the target routine. This is an important finding given that, in line with a key parent training practice, the parent training during the RP condition was individually implemented in the parents’ homes and simple generalisation strategies were used (e.g. multiple exemplars and an instruction to generalise). In fact, the only strategy not used in this study that was used in the Feldman et al. (1986) study was tangible reinforcements for reaching the training criterion. It is worth speculating that had this strategy been included in the current study, parents may have generalised the use of the target skill to the setting at an earlier point in the training conditions.

Finally, contrary to the results reported by Feldman et al. (1986, 1989), Peterson et al. (1983) and Tymchuk and Andron (1992) but similar to the results reported by Feldman et al. (1993), the current study found that all parents maintained either all or some of the intervention strategies during follow-up. This finding could be explained by the shorter follow-up period run in this study (between 4 and 6 month follow-up) compared to 10 months for Feldman et al. (1986) and 18 months for Feldman et al. (1989). In addition to this, Feldman et al. (1993) speculated that the use of tangible reinforcement for meeting
pre-specified performance criteria and thinning reinforcement through follow-up could have been responsible for skill maintenance. However, this was not applied to the current research. Significantly, all parents maintained the accurate use of embedded reinforcers and DRO during follow-up. As previously mentioned, the ease with which these strategies can be accurately implemented may partially explain the maintenance observed in this study. However, this does not explain the maintenance of other intervention strategies.

The findings of the current study also add to the literature on the effectiveness of BPT and, to a lesser extent, PBS as an intervention for children with problem behaviour in four key ways.

First, the study strengthens the internal validity of a BPT approach with parents with an intellectual disability, adding to the already extensive evidence base demonstrating the effectiveness of this approach.

Second, the study demonstrates the utility of functional assessment in a BPT format for parents with an intellectual disability and children with problem behaviour, supporting and extending the previous work of Vollmer and colleagues (Marcus et al., 2001; Vollmer et al., 1994). In addition, it extends the use of functional assessment procedures prior to intervention development into home settings with parents with an intellectual disability. This is something that no published study has done when working with parents with an intellectual disability.

Third, the results demonstrate the utility of incorporating strategies to promote the contextual fit of assessment-based BPT intervention for parents with an intellectual disability. The current study did this by including a focus on developing collaborative partnerships with families, incorporating assessments of the family ecology, and using family activity settings as the basis for intervention design and implementation. This supports and extends the work of Lucyshyn et al. (1997) who were the first to address the
implications of a focus on contextual fit by introducing all three strategies into a process of PBS with families.

In addition to this, the current study adds empirical support for the activity setting or routine as a useful unit of analysis and intervention, thus building on the work of both Lucyshyn et al. (1997) and Moes and Frea (2002).

Worth highlighting here is that, in line with the PBS studies but in contrast to previous studies evaluating parent training interventions with parents who have an intellectual disability, parents in this study contributed to the development of the intervention with the researcher. Specifically, they actively participated in identifying the target child behaviour, specifying the schedule and location for implementing the intervention, and providing input with regard to the intervention strategies. As discussed in Chapter 2, this is vital when developing parent training programs for parents with an intellectual disability. However, as with functional assessments, there are no published reports describing the use of strategies to enhance the contextual fit of an intervention with parents with an intellectual disability.

This research also aimed to address some of the common issues with this body of research from both parent training studies for parents with an intellectual disability and BPT studies outlined in Chapters 3 and 4. These are discussed below.

First, contrary to one-third of the published studies evaluating parent training interventions with parents who have an intellectual disability, this study directly measured the impact of the intervention on target child behaviour by systematically collecting child outcome data. Second, unlike previous child behaviour management studies such as Tymchuk and Andron (1992), observations sessions in the current study were conducted for 30 minutes, thus improving the reliability of the data collected.
Third, previous studies evaluating parent training intervention with parents who have an intellectual disability have not reported on the extent to which parents are involved with other services or therapies. Parents in the current study were not involved with other services while they were participating in this study and, as reported in Chapter 4, all children in the study were attending a child care and/or kindergarten setting that remained constant throughout their involvement in the current study. If these had an impact on the results of the current study this impact would have remained constant throughout.

Fourth, unlike previous studies, sufficient detail was provided on the amount of session time devoted to skills training and the specific parent training techniques used.

Fifth, social validity has rarely been considered in previous research examining parent training programs for parents with an intellectual disability. This is not the case with the current research. It is worth noting that, of the research that has been conducted that focuses on parent training strategies aimed at teaching parents with an intellectual disability to use positive child behaviour management strategies, the current study is the first to formally record consumer satisfaction ratings.

**6.5 Implications for practice**

The results of this study offer three implications for practitioners involved in parent training interventions for parents with an intellectual disability.

First, the results show that VF is a promising parent training strategy to incorporate into parent training interventions for parents with an intellectual disability aimed at improving child problem behaviour. This is particularly encouraging as VF as a number of practical advantages and is relatively easy to implement.

Second, although the intervention was effective, it could be characterised as inefficient and expensive in terms of time and effort. Approximately 8–10 hours of direct
assessment and planning were required prior to parent training. Following this, approximately 12–16 parent training sessions were required to produce meaningful behaviour change. However, it is important to note that all parents were able to sustain the use of some of the interventions and maintain child outcomes for a period of time after intervention. From a cost-effectiveness point of view, future research may be able to address this issue by either introducing strategies such as VF at the start of the parent training process or including the use of tangible reinforcers for reaching training criteria, in line with Feldman et al. (1986).

A third implication for practice stems from the moderate levels of implementation accuracy that were necessary to achieve treatment effects. The results here suggest that it may not be necessary for parents with an intellectual disability to implement intervention strategies with 100% accuracy in order to have an impact on their child’s behaviour. This is important, as anecdotally the research reports that parents with an intellectual disability can often be held up to a higher standard than parents without an intellectual disability (Booth, 2000).

6.6 Limitations of study and recommendations

The results of this study should be interpreted cautiously. The following section outlines a number of limitations with the study. Recommendations for future research are also made in addition to recommendations already made in earlier sections.

6.6.1 Participant numbers and gender

One major limitation of the study is that it provides replication across only five families. This represents a very modest contribution to the external validity of the enhanced assessment-based BPT intervention employed. In addition to this, only one of the parents was a father. The absence of father involvement raises questions regarding
potential differences in assessment data and intervention effects if fathers had participated. It would be worthwhile for future researchers to replicate the assessment-based parent training format used in this study with a larger sample of participants and include fathers in the evaluation.

6.6.2 Research design

Seven limitations with the design of the current research require discussion.

First, the current study used a partial nonconcurrent multiple baseline (Watson & Workman, 1981) across children. This was used as it was not practical or possible to implement either a treatment withdrawal design or a concurrent multiple baseline design. One limitation of using a nonconcurrent design is that nonconcurrent multiple baseline designs only control for threats associated with participant maturation and/or exposure to the intervention (Kazdin, 1982). Carr (2005) argues that these designs do not control for historical threats to internal validity (e.g., increase in other services, change in household living arrangements) that might concurrently affect multiple participants. However, it is very unlikely that this applies to the current research — that one historical event affected all participants. Carr (2005) argues that, according to single-case design logic, the nonconcurrent multiple baseline design demonstrates only prediction and replication, and not verification of the intervention’s effects. Future research should aim to enhance the experimental control by employing either a concurrent multiple baseline design or, if possible, a brief withdrawal design.

Second, the research design does not permit any conclusions to be drawn on the internal validity of the parent training intervention. The nonconcurrent multiple baseline format was only structured to evaluate the effects of the first intervention phase (RP) against baseline. The introduction and duration of subsequent conditions was governed by parent performance. The research design only allows for a suggestion of a causal
relationship between the introduction of parent training conditions, parent behaviour and child behaviour. Further studies are needed that employ a stronger experimental design which can better rule out alternative explanations of the results.

Third, the research design does not permit any conclusions to be drawn on the external validity of the parent training intervention. As outlined in Chapter 2, only five parent training studies for parents with an intellectual disability have employed a repeated measures between group design (e.g. Feldman et al., 1993). To date none of the studies has focused on child behaviour management. Further studies are needed that employ either between group designs or further replications using single-subject designs to build on the external validity of parent training programs that focus on child behaviour management strategies.

Fourth, the multicomponent nature of the intervention means it is not possible to know if the intervention strategies operated separately or interacted in contributing to the positive outcomes. Future studies could address this issue by comparing the effectiveness of employing stand-alone preventative strategies (e.g., DRO) with stand-alone consequent strategies (e.g., redirect). More research is also necessary to isolate the independent effects of each component of the training package.

Fifth, although all parents significantly improved their performance during the VF condition, the research limits making any conclusions about the effectiveness of VF as a stand-alone parent training strategy for parents with an intellectual disability. It is possible that the teaching conditions that occurred before contributed to the success of VF as a teaching strategy. Further research is needed to determine whether VF as a stand-alone teaching strategy is sufficient to teach BPT strategies to parents with intellectual disability. Applications of video technology in behaviour modelling and training of parents with an intellectual disability have been a neglected area of investigation. Further research is also
needed to determine the relative efficiency, cost effectiveness, and acceptability of the approach.

Sixth, the current study did not formally assess the generalisation of parents’ skills to other family routines and/or child behaviour. It is not clear whether parent training was adequate to promote generalisation. In addition to this, follow-up measures were only gathered for 5–6 months post-intervention. This does not provide any indication of the durability of the behaviour change observed in the routine.

Finally, although this research combined functional assessment methodology with intervention development, it cannot be assumed that the behavioural program was sufficiently comprehensive to prevent future problem behaviour from occurring during the routine that each family chose. One solution would be to extend the intervention phase of the study and/or make booster sessions available on request over a longer follow-up period. Additional research is needed to determine the amount of parent training that is required to maintain child behaviour improvements.

6.6.3 Data collection

It is important to acknowledge three issues with data collection.

First, it is possible that treatment effects were confounded by reactivity to being observed (e.g. the presence of the video camera). The researcher in the current study attempted to reduce reactivity by ensuring videotaping occurred with no observer present and began in the target routine at least three weeks prior to collecting baseline data. Despite this, parents and some children were aware that they were being observed.

It should also be noted that a verbal report was used to assess the contextual fit and social validity of the intervention. This may be subject to bias given the frequency with which parents worked with the researcher. Future studies may consider ensuring that such assessments are conducted by persons other than the primary parent trainer.
It should also be noted that, as part of a collaborative partnership, the parents were informed of the research design. This may have introduced a bias, that is, change in child behaviour may have occurred due to implementation of parent training paired with parent expectations as to when to begin using interventions.

6.6.4 Data analysis

The data was analysed both visually and statistically. Research has shown that visual inspection methods are the most predominant method of analysis for single-subject data (Busk & Marascuilo, 1992; Kratochwill & Brody, 1978; Scruggs, Mastropieri, & Regan, 2006). Although there are a number of advantages of visual inspection procedures (e.g., they allow for precise and intimate interpretation of the data), there are also a number of disadvantages. One important disadvantage is that the process of visual inspection permits subjectivity and inconsistency in the evaluation of change in data and intervention effect. The current research attempted to address this in two ways.

The first way was to employ two independent raters to rate each graph according to predetermined criteria. This resulted in high reliability for the visual analysis ratings of parent behaviour (93%) and moderate reliability for the visual analysis of child behaviour (82%). Previous research has found that moderate levels of reliability are common when there is high variability within a condition, as is the case with the child data in the current study (Kennedy, 2005).

The second way the current research attempted to address this was by supplementing visual inspection with statistical analysis of the data. In line with recommendations made by Parker and Hagan-Burke (2007), the child data was analysed statistically using the percentage of non-overlapping (PND) data approach. One limitation of PND as a method for quantifying the impact an intervention phase has on a data series is that a high degree of variability in the data in the previous condition may reduce the
PND value of the current condition. As discussed in Chapter 5, extreme outlier values in one condition can result in low PND scores in the next condition (Faith et al., 1996). This is observed a number of times in the study. Specifically, statistical analysis moderated the interpretation of the results, suggesting moderate intervention effects in only one-third of the results, while visual analysis shows a clear intervention effect.

6.7 Concluding comments

In spite of these limitations and cautions, the study represents one of the first efforts to extend assessment-based BPT to parents with an intellectual disability. The assessment-based BPT program implemented with moderate treatment integrity by parents with an intellectual disability in the natural setting was effective in decreasing the occurrence of child problem behaviour and increasing child appropriate behaviour.

It is worth speculating whether the extended pre-intervention procedures used here (e.g., pre-assessment interview, descriptive functional assessment and intervention design) were necessary to achieve the outcomes observed in the study. It is conceivable that the children’s behaviour may have been improved with parent training alone and that the phases leading up to this, and the additional assessments, were superfluous.

In turn, it is also worth speculating whether the implementation of the entire PBS approach would have improved the outcomes observed here. It is possible that the collaborative development of a comprehensive behaviour support plan, with an emphasis on the use of proactive, skill-building, and reinforcement-based strategies may achieve more meaningful and durable lifestyle outcomes for these families.

Much more work is needed to improve current approaches to parent training for parents with an intellectual disability. This is especially true for families headed by a parent with an intellectual disability whose children are displaying problem behaviour. This study
shows that there is considerable promise in further integrating the empirical literature of parent training programs for parents with an intellectual disability with critical features of the PBS approach.
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children and adolescents (pp. 467-500). New Jersey: Lawrence Erlbaum
Associates.


**Appendix A. Descriptive and Background Information**

*Family Profile Interview*

<table>
<thead>
<tr>
<th>Today's date</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>What language do you speak at home?</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Your date of birth</th>
<th>Partner's date of birth</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Child's date of birth</th>
<th>Child's gender</th>
<th>M / F</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Your relationship to child</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Θ Mother</td>
<td>Θ Step father</td>
</tr>
<tr>
<td>Θ Father</td>
<td>Θ Foster parent</td>
</tr>
<tr>
<td>Θ Step mother</td>
<td>Θ Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Θ Single</td>
<td>Θ Separated</td>
</tr>
<tr>
<td>Θ Married</td>
<td>Θ Divorced</td>
</tr>
<tr>
<td>Θ Defacto</td>
<td>Θ Widow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Schooling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Θ Regular School</td>
<td></td>
</tr>
<tr>
<td>Θ Special School</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest level of schooling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Θ Primary school</td>
<td>Θ Year 9</td>
</tr>
<tr>
<td>Θ Less then Year 8</td>
<td>Θ Year 10</td>
</tr>
<tr>
<td>Θ Year 8</td>
<td>Θ Year 11</td>
</tr>
<tr>
<td>Θ Year 12</td>
<td></td>
</tr>
</tbody>
</table>
Occupation (self)__________________________________________________________
If in paid employment, how many hours per week?______________________________
If not in paid employment, current source of income____________________________

Partner’s occupation________________________________________________________
If in paid employment, how many hours per week?______________________________
If not in paid employment, current source of income____________________________

Total income for your family

- $0 - $288 per week gross
- $289 - $577 per week gross
- $578 - $866 per week gross
- $867 - $1154 per week gross
- $1155 or more per week gross

Which describes the household in which your child is presently living?

- Original family (both biological or adoptive parents present)
- Step family (two parents, one being a step parent)
- Sole parent family
- Other __________________________________________________________

At present who lives at home with your child?

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Relationship to child</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
### C) Significant relatives who are not part of the family’s household

<table>
<thead>
<tr>
<th>Birth father</th>
<th>Parental responsibility</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburb</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### D) Brothers and sisters

<table>
<thead>
<tr>
<th>Name(s)</th>
<th>Age</th>
<th>Suburb</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Others (please specify)

<table>
<thead>
<tr>
<th>Name(s)</th>
<th>Age</th>
<th>Suburb</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

If the child has any health conditions, impairment(s) or a genetically inherited condition – please give details

(include for example: physical disability, sensory impairment, Down’s syndrome, autism, anaemia)

<p>| | |</p>
<table>
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<tbody>
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</tbody>
</table>
Your child’s health

Does your child experience any of the following problems?

A vision or hearing impairment

Yes No

A severe chronic illness that results in regular hospitalisation

Yes No

A medical condition (e.g., asthma, diabetes)

Yes No

A physical disability

Yes No

An intellectual disability

Yes No

A developmental delay

Yes No

A restrictive/therapeutic diet prescribed by a health professional

Yes No

Is your child on medication

Yes

No

If Yes, please indicate__________________
E) **Key events which may have had an impact on the child**

(for example: death of brother or sister, circumstances surrounding conception)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Other key events experienced by siblings or other family members which may affect the child

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Known services currently involved (with child/parents; how often)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Known services involved in past

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Child/Family Weekly Timetable

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

______________________________________________________________________________
FAMILY PROFILE INTERVIEW

(A) Presenting Concerns (reason for referral)

Presenting concerns in the words of the referral source.

Begin with a description of the presenting concerns in the words of the referral source. Record family’s response to referral (helps to avoid working on a problem that is not defined by the family).

________________________________________________________________

________________________________________________________________

________________________________________________________________

_______________________________________________________

Family’s definition of their concerns (from most important to least important)

________________________________________________________________

________________________________________________________________

________________________________________________________________

_______________________________________________________

Description of how life will look when concerns are no longer a problem

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________
(B) **Family Characteristics**

What are the things your family is good at?

*e.g., eating together, playing, going shopping, best time of day*

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
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________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

What are your goals for your family (what do you want to happen)?

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

What are your goals for your child (what do you want to happen)?

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
What are things that cause stress in your family?
e.g., money, other services, cleaning, other people

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

What things/supports/people (formal vrs informal) have you used to help make
the situation better?  E.g., respite care, going to a parent support group, help with
care and household jobs by other people?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

Where or what do you get support from (sources of social support)?  E.g.,
someone who you discuss problems and find solutions; someone who you do
activities with (leisure activities); someone who makes you feel good?
__________________________________________________________________
__________________________________________________________________
Appendix B Invitation and consent letters to participants

Dear Parent,

My name is Robyn Mildon. I work at the Victorian Parenting Centre (VPC). As you know I work on a parenting program that is working with parents who have learning difficulties. I am also a PhD student with RMIT University. My PhD project is an extension of the program I work on at the VPC. I am looking at ways to teach parents with learning difficulties positive ways to decrease the difficult behaviour their child/children may be showing. You have already agreed to be part of the main parenting program with the VPC. I am now writing to invite you to be part of the extension of this program, which is for parents with learning difficulties who have children showing very difficult behaviour.

The aim of the project is to learn more about parents who have learning difficulties and to find ways to help you increase your child’s positive behaviour and decrease the behaviours you find difficult. The information that I collect will also be helpful to other parents and their children.

The project has three steps:

**Step 1.**
I will come to your home and meet with you. During this meeting we will talk about:
- The behaviours your child does that you find difficult.
- The times of the day when you think your child’s behaviour is better and the times of the day you think your child’s behaviour is worse.
- What you think triggers these behaviours.
- What you think reinforces these behaviours.
- What behaviours you would rather your child did instead of the difficult behaviours.

**Step 2.**
I will come to your home twice a week for half an hour. I will do this at the time you told me was when your child’s behaviour is most likely to be difficult. I will use a video camera and tape these times to record what your child is doing. I do this to try to find out why your child’s behaviour is difficult at this time. At any time you may ask me to turn the videotape off. I will give you copies of all the tapes that are done. No one but a research assistant and myself will see these tapes.

**Step 3.**
You participate in a parenting program. The program is about working with your child in ways that will increase the behaviour you like and decrease the behaviour you find difficult. Together we will practice different parenting skills.
Some you will already know, some will be new to you. I will visit you at your home once a week at a different time to the videotaping to do this program. We will do this program together until we have reached all your goals.

The video recording will be used the whole time we work together. I do this to see if your child’s behaviour is improving as we do our parent training. Again, at any time you may ask me to turn the video camera off. I will give you copies of all the tapes that are done. No one but a research assistant and myself will see these tapes.

While we are having our conversations, you can answer as many or as few of the questions as you wish. Nobody will know about what we talk about in our meetings, with the exception of a research assistant, my supervisor and myself. Nobody will see the videotape of you and your child with the exception of a research assistant and myself. All information and any videotapes will be kept in a locked cabinet. At any stage of the project you can have all the information I have from our conversations and the videotape, including a copy of the tape. I will keep the information I have from our conversations and the videotape for 5 years. After 5 years they will be destroyed.

If you do not want to participate in this extension of the parenting program you can continue to do the main VPC parenting program. You can also leave the project at any time and this will not affect your relationship with us or any other people who work with you.

As this is a project that will have some results, these may be written and shared with other people who are also interested in helping parents with learning difficulties. The results will also be used in a report made to the Department of Community Services. However, no information that can identify you or your family will be given to these people or put in the report.

If you would like to participate in this project, please complete and sign the attached form. If you have any questions about the project, please ring me at the Victorian Parenting Centre on 9639 4111.

Many thanks for your interest and help.

Yours sincerely

Robyn Mildon
Project Coordinator/PhD student
Victorian Parenting Centre

Alan Hudson
Supervisor
RMIT University
**FACULTY OF**
**Applied Science**

**DEPARTMENT OF**
**Psychology and Disability Studies**

**Name of participant:**

**Address:**

**Phone Number**

**Email:**

**Project Title:** Positive Behaviour Support and Parents with Intellectual Disability

**Name(s) of investigators:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robyn Mildon</td>
<td>9639 4111</td>
</tr>
<tr>
<td>Alan Hudson</td>
<td>9925 7360</td>
</tr>
</tbody>
</table>

1. I have received a statement explaining the procedures and interview/questionnaires involved in this project.

2. I consent to participate in the above project, the particulars of which - including details of the procedures, interviews and questionnaires - have been explained to me.

3. I authorise the investigator or his or her assistant to use the procedures, interview me and administer questionnaires referred to in 1 above.

4. I acknowledge that:
   
   (a) Having read Plain Language Statement, I agree to the general purpose, methods and demands of the study.
   
   (b) The possible effects of the tests or procedures have been explained to me to my satisfaction.
   
   (c) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied (unless follow-up is needed for safety).
   
   (d) The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
   
   (e) The confidentiality of the information I provide will be safeguarded. However should information of a confidential nature need to be disclosed for moral, clinical or legal reasons, I will be given an opportunity to negotiate the terms of this disclosure.
   
   (f) The security of the research data is assured during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to_____________(researcher to specify). Any information which will identify me will not be used.

**Participant’s Consent**

**Name:**

(Date: ________________________)

(Participant)

**Name:**

(Date: ________________________)

(Witness to signature)

Participants should be given a photocopy of this consent form after it has been signed.

Any complaints about your participation in this project may be directed to the Secretary, RMIT Human Research Ethics Committee, University Secretariat, RMIT, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 1745.

Details of the complaints procedure are available from the above address.
Appendix C: Operational definitions of family target routines

<table>
<thead>
<tr>
<th>Parent and Child 1. Home play routine</th>
<th>New routine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What happens now</strong></td>
<td><strong>New routine</strong></td>
</tr>
<tr>
<td>Routine happens between 4.30 and 6.00 in the late afternoon</td>
<td>Parent 1 asks Child 1 to sit at the kitchen table</td>
</tr>
<tr>
<td>It starts when Child 1 arrives home from childcare</td>
<td>Parent 1 puts a box of toys and activities down on the floor next to where Child 1 is sitting</td>
</tr>
<tr>
<td>It ends when dinner is served</td>
<td>Father can be in living room, at kitchen table or in the office</td>
</tr>
<tr>
<td>Child 1 moves between rooms throughout the house but mainly stays in kitchen and living room</td>
<td>Parent 1 helps Child 1 choose one or two toys or activities from the box</td>
</tr>
<tr>
<td>Parent 1 is in the kitchen making dinner</td>
<td>Parent 1 helps Child 1 to start playing with these toys</td>
</tr>
<tr>
<td>Father is in the office on computer</td>
<td>Once Child 1 is started, Parent 1 moves back to kitchen bench and continues preparing dinner</td>
</tr>
<tr>
<td></td>
<td>Child 1 plays with his toys on his own and Parent 1 talks to him about what he is doing, answers questions and provides help as needed</td>
</tr>
<tr>
<td></td>
<td>Child 1 is allowed to play in the backyard during this routine</td>
</tr>
</tbody>
</table>

Parent and Child 2. Feeding infant sister routine

<table>
<thead>
<tr>
<th>What happens now</th>
<th>New routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>This happens 3 times a day, sometime between 7.30 and 8.00 in the morning, 12.00 and 12.30 and 5.30 and 6.00 in the afternoon.</td>
<td>Child 2 sits on floor with his toys and activities and plays with these by himself</td>
</tr>
<tr>
<td>It starts when the bottle of milk is ready</td>
<td>Parent 2 sits on couch giving bottle to sister and watches Child 2</td>
</tr>
<tr>
<td>During the routine Child 2 is sitting on the floor in the living room, Parent 2 is sitting on the couch in the living room and Sister is sitting in mother’s lap</td>
<td>Child 2 and Parent 2 talk about what Child 2 is doing</td>
</tr>
<tr>
<td>Toys and activities are in the</td>
<td>When the sister has finished the bottle, Child 2 takes the bottle from Parent 2 and puts it on the kitchen bench</td>
</tr>
</tbody>
</table>
**Parent and Child 3. Home play routine**

<table>
<thead>
<tr>
<th>What happens now</th>
<th>New routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine happens between 5.00 and 7.00 in the late afternoon</td>
<td>Parent 3 and Child 3 go into child’s playroom and Parent 3 helps Child 3 to choose one or two toys or activities</td>
</tr>
<tr>
<td>It starts when Child 3 finishes watching children’s television programmes</td>
<td>Parent 3 helps Child 3 bring these out into the living area</td>
</tr>
<tr>
<td>It ends when the father returns home from work</td>
<td>Parent 3 helps Child 3 to start playing with these toys</td>
</tr>
<tr>
<td>Child 3 moves between rooms throughout the house including the lounge, kitchen and parents bedroom upstairs</td>
<td>Parent 3 plays together with Child 3 for a short period of time (unspecified)</td>
</tr>
<tr>
<td>Parent 3 is sitting in the lounge or making dinner in the kitchen</td>
<td>While Child 3 is still playing, Parent 3 moves back and sits on the couch near the child or moves to kitchen to make dinner</td>
</tr>
<tr>
<td></td>
<td>Child 3 plays with his toys on his own and Parent 3 talks to him about what he is doing, answers questions and provides help as needed</td>
</tr>
</tbody>
</table>

**Parent and Child 4. Home play routine**

<table>
<thead>
<tr>
<th>What happens now</th>
<th>New routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine happens between 4.30 and 5.30 in the late afternoon</td>
<td>Parent 4 and Child 4 sit together at kitchen table or on floor in living room</td>
</tr>
<tr>
<td>It starts when Child 4 is finished playing in the backyard and he comes inside the house</td>
<td>Parent 4 starts to talk with Child 4 about what he was doing outside</td>
</tr>
<tr>
<td>It ends when dinner is served</td>
<td>While they are talking Parent 4 asks Child 4 where he would like to play</td>
</tr>
<tr>
<td>Child 4 and sister are either in the living room on the floor or sitting at the kitchen table</td>
<td>Parent 4 helps Child 4 move a box full of toys and other activities close to where Child 4 choose to play</td>
</tr>
<tr>
<td>Parent 4 is sitting on couch in living room or at table in kitchen</td>
<td>Child 4 sits either in living room on floor or at kitchen table</td>
</tr>
<tr>
<td>Parent 4 has one or two small household jobs to do (e.g., folding laundry)</td>
<td>Child 4 has box of toys near him</td>
</tr>
<tr>
<td>Mother is getting dinner ready</td>
<td>Sister can be in living room, at kitchen table or in her room</td>
</tr>
</tbody>
</table>
### Parent and Child 5. Home play routine

<table>
<thead>
<tr>
<th>What happens now</th>
<th>New routine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Routine happens between 5.00 and 6.00 in the late afternoon</strong>&lt;br&gt;It starts when Child 5 either finishes watching children’s television programmes or returns home from childcare&lt;br&gt;It ends when dinner is served&lt;br&gt;Child 5 moves between rooms throughout the house including the lounge, kitchen and grandmother’s bedroom&lt;br&gt;Parent 5 is sitting in on the couch in the lounge or making dinner in the kitchen&lt;br&gt;Grandmother is in her bedroom lying in bed</td>
<td><strong>Parent 5 brings a box of toys and activities into the living room</strong>&lt;br&gt;Parent 5 helps Child 5 choose toys and/or activities from the box to play with&lt;br&gt;Once Child 5 is started, Parent 5 moves back and either sits on the couch or moves to kitchen bench and starts making dinner&lt;br&gt;Child 5 plays with his toys on his own and Parent 5 talks to him about what he is doing, answers questions and provides help as needed&lt;br&gt;Parent 5 moves back onto floor in lounge near the box of toys if Child 5 moves out of the lounge room or stops playing with toys&lt;br&gt;Parent 5 either helps Child 5 to start playing with toys again or starts playing with toys herself and verbally encourages Child 5 to come back into lounge&lt;br&gt;Grandmother stays in bedroom throughout the routine</td>
</tr>
</tbody>
</table>
Appendix D: Interview protocol for defining problem behaviours and family routines

Part 1: Describe the problem behaviours

What does your child do that gets them into trouble or is a problem?

1. Describe problem behaviours

2. Which of these happen at the same time (give an example)? Does this happen in any order (give an example)?

3. Of these groups of behaviours which group bothers you the most?

Which behaviours would you like your child to stop doing? Let’s focus on those behaviours (target problem behaviours)

Part 2: Identify family routine

4. When your child is home, when are the problem behaviours most likely to happen? What time of day is this?

5. Where are the problem behaviours most likely to happen?

6. What is normally happening at this time? What are people in the house doing?

6. Among these times of day, which is most important to you (only ask if more than one time of day has been mentioned)?

7. Among these times of day, which one do you want to work on?

Part 3: Describe family routine
8. Who is normally there during this routine/time?

9. What (if any) toys, materials, or equipment do you use during the routine/time?

10. What (if any) tasks, jobs, or activities are being done?

11. Why is this routine/time important to you and your family?

Part 4: Developing an idea of what we would like to happen?

12. Who would be there during the routine/time?

13. What other toys, materials or equipment would be there for you?

14. What tasks, jobs, activities would be done?

15. Why do you want the routine to be like this? What do you want to happen for you, what do you want to happen for your child?

16. What new things could happen during this routine?
Appendix E. Interview protocol for parent directed functional assessment

Part 1: Describe the problem behaviours

Previously completed - Interview protocol for defining problem behaviours and family routines (see Appendix D)

Part 2: Antecedent events

1. Setting: Where are the problem behaviours most likely to happen?

Previously completed - Interview protocol for defining problem behaviours and family routines (see Appendix D)

2. Routines/times of the day: When are the problem behaviours most likely to happen?

Previously completed - Interview protocol for defining the problem behaviours and family routines (see Appendix D)

3. People: With whom are the problem behaviours most likely to happen? With whom are the problem behaviours least likely to happen?

4. Activity: What activities are most likely to produce the problem behaviours? What would X be normally doing when he starts to insert problem behaviours? What activities are least likely to produce the problem behaviours? What is X doing when he does not insert problem behaviours?
5. Is there anything else (situation, person, event) that we have missed that sometimes seem to “set off” the behaviours, such as particular demands, noises, lights, clothing?

6. What one thing could you do that would most likely make the problem behaviours happen? How can you tell the behaviour is about to start?

7. Briefly describe how _____ would behave if _____
   a) asked him/her to do something they find hard?
   b) interrupted an activity he/she liked, such as eating a favourite food or watching their favourite TV show?
   c) you unexpectedly change his/her routine or schedule of activities?
   d) he or she wanted something but wasn’t able to get it (e.g., food item up on a shelf)?
   e) you didn’t pay attention to the person or left him/her alone for a while (e.g., 15 minutes)

Part 3: Functions of problem behaviour

8. What normally happens right after your child _____ (problem behaviour)? The last time the problem behaviour occurred what was done? What exactly do they get? What exactly do they avoid?

9. What do you think purpose/reason/intent of the behaviour? Why do you think your child behaves this way?

Part 4: Functional alternative
10. Instead of the problem behaviour, what do you want or expect your child to do instead?

11. Is this something your child is able to do? If not, what is something your child already does that could happen instead of the problem behaviour (e.g., they could use your name rather than hit)

Part 5: Reinforcers

What are things that your child really likes? What are things you have used in the past as a reward for doing something?

a) food items

b) toys and objects

c) activities at home

d) activities/outings in the community

e) other