PREVENTATIVE FAMILY-CENTRED POSITIVE BEHAVIOUR SUPPORT FOR
FAMILIES OF CHILDREN WITH DOWN SYNDROME

by

Susan Fawcett

M.Sc., The University of British Columbia, 2004

B.Sc., The University of Victoria, 1997

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, the dissertation entitled:

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Examing Committee:

Dr. Joseph Lucyshyn, Special Education Supervisor

Dr. Pat Mirenda, Special Education Supervisor Committee Member

Dr. Bruno Zumbo, Measurement, Evaluation, and Research Methodology Supervisor Committee Member

Dr. Jill Zwicker, Occupational Science and Occupational Therapy University Examiner

Dr. Sterett Mercer, Special Education University Examiner
ABSTRACT

Family-centred positive behaviour support (FCPBS) for children with developmental disabilities and problem behaviour has been well studied at the tertiary, individualized level of intervention, but no studies have addressed its implementation at the secondary prevention level. Group parent training programs are well substantiated and, therefore, offer evidence-based models for a secondary-tier FCPBS approach. Based on key features of FCPBS and best practice in group parent training, a 14-week, FCPBS parent training program was designed for families of young children with Down syndrome (DS) who engaged in mild to moderate problem behaviour. Program content included understanding problem behaviour, universal positive behaviour support strategies, mindfulness practices, and cognitive-behaviour change strategies. An initial version of the program was trialled in a Stage 1 study with two families. Focus groups were conducted with the participants, and revisions were made. A randomized controlled trial comprised of experimental and waitlist control groups was then employed to evaluate the effects of the revised program. Eleven families of children with DS participated in the intervention. Direct observations of child problem behaviour, child positive engagement, and parent intervention fidelity were conducted in one target family routine per family. Indirect measures included child behaviour in two generalization routines per family, sense of parenting competence, parenting stress, and family quality of life. Data were gathered pre- and postintervention and at the 6-month follow up with the experimental group. In contrast to the waitlist control group, families in the experimental group showed statistically significant improvements in child problem behaviour and positive engagement in both the target family routine and one generalization routine. Significant improvements for mothers were found for parenting sense of competence, parenting stress, and family quality of life. In contrast, fathers
did not show improvements in global measures of child behaviour or family functioning. The study makes two unique contributions to the PBS literature: It is the first study to evaluate a secondary prevention model of FCPBS and the first to examine the efficacy of FCPBS for children with DS. A secondary-tier approach to FCPBS appears to be a promising, cost-effective intervention for ameliorating problem behaviour in children with DS.
LAY SUMMARY

Many children with Down syndrome have behavioural challenges that preclude them from fully participating in the routines of everyday family life. To date, no research has examined whether a family-centred positive behaviour support (FCPBS) approach might be helpful in improving behaviour in this population of children. In this study, I evaluated a 14-week, FCPBS-informed group parent training program delivered to 11 families of young children with DS to determine whether it would be effective at ameliorating problematic behaviour of the children, decreasing parental stress levels, and enriching family quality of life. The program yielded significant improvements in child behaviour and modest improvements in parent stress and quality of life. A preventative-level parent training program appears to be a promising approach for addressing challenging behaviour in young children with Down syndrome and may reduce the need for some families to access more costly, intensive behavioural interventions in the future.
PREFACE

This dissertation research and the written document were completed by S. Fawcett with contributions from her supervisory committee: Dr. Joseph Lucyshyn, Dr. Pat Mirenda, and Dr. Bruno Zumbo. All methods were approved by the University of British Columbia’s Behavioural Ethics Research Board (Certificate #H15-02684) on January 27, 2016, under the title “Preventative FCPBS for Families of Children with Down Syndrome.” Research assistants were Ting Ting Chou, Sara Peralta, and Chloe Wang. This research has not been published.
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LIST OF ABBREVIATIONS

A-B-C ............. Antecedent-behaviour-consequence
ADHD............. Attention deficit hyperactivity disorder
BFI............... Behavioural family intervention
BPT............... Behavioural parent training
DD ............... Developmental disabilities
DS ............... Down syndrome
DSRF .......... Down Syndrome Resource Foundation
EBCI............. Eyberg Child Behavior Inventory
EG............... Experimental group
EST............... Empirically supported treatment
FCPBS........... Family-centred positive behaviour support
FIMP............... Fidelity of implementation rating
FQOL............... Beach Center Family Quality of Life survey
GCP ............... General case programming
IKT............... Integrated knowledge translation
IOA............... Interobserver agreement
IYPT............... Incredible Years Parent Training
PAR............... Participatory action research
PBS............... Positive behaviour support
PMTO............... Parent Management Training - Oregon
PSI-SF............ Parenting Stress Index – Short Form
PSOC............... Parenting Sense of Competence Scale
PWPBS............. Program-wide positive behaviour support
RCT............... Randomized controlled trial
SSTP............... Stepping Stones Triple P
SWPBIS.......... Schoolwide positive behavioural interventions and supports
Triple P .......... The Positive Parenting Program
WG ................ Waitlist control group
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CHAPTER 1: THE CASE FOR A SECONDARY PREVENTION MODEL OF FAMILY- CENTRED POSITIVE BEHAVIOUR SUPPORT

This dissertation is structured according to an Integrated Knowledge Translation (IKT) framework. A current theme in health research is to actively involve the people who benefit from the research in the actual study itself. This type of research, closely related to participatory action research (PAR), is called IKT (Canadian Institutes of Health Research, 2012) and is aimed at bridging the research-to-practice gap. The IKT approach proposes to involve knowledge users throughout the research process. Knowledge users are defined as “all those who might use, benefit from, or be impacted by the results of research” (Parry, Salsberg, & Macaulay, 2008, p. 8). An IKT approach is particularly appropriate for research that examines interventions, as it may result in enhanced acceptability, uptake, and effectiveness.

Chapter 1 provides rationale regarding the need for development of a secondary prevention model of family-centred positive behaviour support (FCPBS), as well as why families of children with Down syndrome (DS) are well-suited to this level of behavioural support. Chapter 2 outlines a Stage 1 study, in which a small group of parents of young children with DS participated in a group parent training program and gave feedback via focus groups about their experiences before, during and after the program. This feedback was incorporated into a final version of the group parent training program, which was then evaluated using a randomized controlled trial (RCT) design. This RCT, its results, and its implications are described in Chapters 3, 4 and 5 of the dissertation.

Multitiered Positive Behaviour Support

With firm footing in both science and values, positive behaviour support (PBS) is an established approach to remediating problem behaviour and enhancing quality of life (Carr et al.,
This approach has been effective for children and adults alike, with and without DDs, across a wide range of behavioural topographies, agents of intervention, and settings (e.g., Blair, Lee, Cho, & Dunlap, 2011; Clark, Dunlap, & Vaughn, 1999; Horner, Sugai, & Anderson, 2010). Several theories have informed the science of PBS, including applied behaviour analysis, ecological theory, family systems theory, and developmental psychology (Lucyshyn, Dunlap, et al., 2015). PBS is often further classified as applying to school or program systems (e.g., schoolwide positive behavioural interventions and supports [SWPBIS] and program-wide positive behaviour support [PWPBS]). The PBS approach may also be applied within family systems (i.e., family-centred positive behaviour support [FCPBS]; Dunlap, Strain, Lee, Joseph, & Leech, 2018; Horner et al., 2010; Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002).

Positive behaviour support often is implemented within a tiered system of intervention; that is, supports are provided within universal, secondary, and tertiary levels of intervention (Lucyshyn, Dunlap, et al., 2015). Universal, or primary, supports are those that are readily available to the public and are preventative in nature. Examples may include websites with general behavioural or parenting skills information or workshops comprising information and skill training that is provided to a large group of stakeholders within a community. Secondary PBS supports comprise more targeted interventions. These often are administered in small groups, with members who may meet on a regular basis for a period of time. The focus of support is on individuals who are at risk of developing problem behaviour or who engage in mild to moderate levels of problem behaviour. The small groups may include the individuals who engage in problem behaviour or the people who support them. Secondary support straddles the line between prevention and intervention. It may be conceptualized as a form of early
intervention for problem behaviour (i.e., the first course of action to take when behaviour problems arise). In equal measure, the secondary tier is preventative because it helps children and adults, and those who support them, to follow a more positive trajectory, while preventing or minimizing future problems. To be sure, secondary tier supports may include a brief functional assessment and a behaviour support plan that includes multiple components informed by functional assessment results. Even when an individual engages in mild to moderate levels of problem behaviour, family and school routines may be disrupted enough to warrant an FA-based behaviour support plan, albeit one that is simpler in nature in terms of plan components and key stakeholders involved (Crone & Horner, 2003). Finally, tertiary supports are individualized, intensive interventions geared toward children and adults who have been engaging in severe, ingrained patterns of problem behaviour for months or years. Children or adults who require this level of care receive ongoing support from a behavioural consultant who collaborates with stakeholders to develop and implement a full functional assessment process and a resultant comprehensive multicomponent behaviour support plan (Freeman et al., 2006; Lucyshyn et al., 2002).

The success of PBS delivered in schools (i.e., SWPBIS), is exceptionally well documented within the research literature (Horner et al., 2010). A substantial percentage of schools in the United States have implemented SWPBIS, which exemplifies the seamless integration of all three levels into a multitiered system of support. This has resulted in fewer office discipline referrals and increased student engagement and academic performance (Horner et al., 2010). At the universal level of prevention, SWPBIS comprises (a) school-wide behavioural expectations in the form of three to five values-based school rules; (b) explicit instruction of behavioural expectations; (c) an acknowledgement system in which faculty and
staff recognize and reward students for adhering to expectations; and (d) an instructional approach to discipline. At the secondary level of prevention, children who need more help with behaviour may take part in a behavioural monitoring program such as the “Check-In/Check-Out” (Maggin, Zurheide, Pickett, & Baillie, 2015, p. 197) behavioural report card system, or participate in a social skills training group with several same-aged peers. Crone, Hawken, and Horner (2010) recommend a brief functional assessment in order to individualize the Check-In/Check-Out program for students who engage in mild-to-moderate problem behaviour. At the tertiary level, a small percentage of children who are unresponsive to the first two levels of support require a function-based, individualized behaviour support plan that is collaboratively developed and implemented so that they may experience lower levels of problem behaviour, higher levels of adaptive behaviour, and successful inclusion and participation in school activities. Within a typical school setting, it is estimated that 80% of children will benefit from the primary level of support, 15% will require a secondary level of support, and 5% of children will need intensive, tertiary-level intervention (Sugai & Horner, 2002).

**Family-Centred Positive Behaviour Support**

Family-centred positive behaviour support (FCPBS) is an evidence-based, individualized approach to addressing problem behaviour in children with developmental disabilities (DDs). FCPBS has not yet utilized a multitiered approach, nor have all three levels been explored in research. In particular, no research has explored a secondary prevention model of FCPBS. Given that a secondary prevention model could be implemented with groups of parents at the community level, it would be more efficient and cost-effective, as well as less time-consuming, for families and clinicians. In this section, I summarize the research to date on FCPBS and
provide a rationale for developing and testing the effectiveness of a secondary prevention approach for families of children with DDs.

The effectiveness of FCPBS at the tertiary level has been well studied, with researchers in this area amassing 28 studies over 21 years, from 1997 to 2018 (Lucyshyn, Miller, Cheremshynski, Lohrmann, & Zumbo, 2018). For example, an early multimethod study described the process and outcomes of FCPBS assessment and intervention for a young boy with severe disabilities and his family (Fox, Vaughn, Dunlap, & Bucy, 1997; Vaughn, Dunlap, Fox, Clarke, & Bucy, 1997). Using a multiple baseline design across family routines, Vaughn, Dunlap, et al. (1997) demonstrated an association between implementation of a function-based multicomponent behaviour support plan and improvements in child problem behaviour. Using qualitative case study methods, Fox et al. (1997) examined the mother’s perspectives on the behaviour support process. The mother also served as a co-author of both studies, indicating a high degree of parent–professional partnership in the behaviour support and research process, a hallmark of a PBS approach. Other FCPBS studies, such as one undertaken by Duda, Clarke, Fox, and Dunlap (2008), have highlighted the benefits of addressing the entire family system during intervention. Duda et al. collaborated with the parents of three children to improve their behaviour in three home routines. One child had a DD while the other two children were typically developing. A multiple baseline design across routines showed improvements in behaviour for all three children. A final example of research investigating FCPBS at the tertiary level is a longitudinal study with 10 families of children with DDs and severe problem behaviour (Lucyshyn, Fossett, et al., 2015). Within a multiple baseline design across two to four routines for each family, eight of 10 children demonstrated substantial reductions in problem behaviour and improvements in routine participation. Unique contributions included a lengthy period of
follow up and a sequential analysis of parent–child interaction. For eight of 10 families for whom follow up data were gathered, maintenance was documented at 1 to 2 years postintervention in 24 of 25 routines observed. Sequential analysis results documented statistically significant decreases in coercive processes and increases in constructive processes from baseline to intervention for nine of 10 families.

Two studies to date have investigated a three-tiered service delivery approach to behavioural support with families of young children. The results provided a preliminary comparison of the effectiveness of each tier as families moved across tiers based on need. McCart, Wolf, Sweeney, and Choi (2009) developed the first multitiered approach to positive behaviour support with families. They conducted a pilot study of the approach with 24 families who were of low income and who qualified for Early Head Start services. Compared to SWPBIS studies, the families presented a very different distribution in regard to tiered support. The authors estimated that 42–46% of families would benefit from universal support, 25–33% would benefit from secondary support, and 29–33% would need tertiary-level support. All 24 families participated in the universal level of support, delivered in the format of five large-group training sessions. Thirteen families continued on to receive secondary-level support, provided to families in their homes by case managers who received additional training. Four families continued on to receive tertiary-level support in which an individualized behaviour support plan was developed for each child and her or his parents were supported in its implementation. Descriptive results showed that families viewed the multitiered program to be satisfactory and that 60% of parents reported reduced stress levels by the end of the program. However, this change was not statistically significant at the group level of analysis from pre- to postintervention.
Phaneuf and McIntyre (2011) investigated the use of a three-tiered model of behaviour support aimed at improving child behaviour and parenting practices with eight families of children with DDs. They began with a universal-level support strategy in which parents were given reading materials derived from the Incredible Years Parent Program – Developmental Disabilities (Webster-Stratton, 2005). Improvements in parenting were measured by a ratio of positive to negative parenting strategies used by the parents. During universal-level support, only one mother showed an improved ratio of positive to negative parenting. Interestingly, this universal level of support was not only insufficient for most of the parents, but also contributed to worsened parent–child interaction in 50% of cases. This may indicate that primary-level supports are not sufficient or appropriate for most families of children with DDs. Following universal support, the other seven mothers were provided with secondary-level training and support in the form of group parent training. Following the implementation of this level of support, three mothers showed an improved ratio of positive to negative parenting. Three of the four mothers who did not respond to the universal or secondary levels of support then were provided with tertiary-level support in the form of an additional in-home session of individualized video feedback training. Following this, these mothers also showed improvements in their parenting. At the conclusion of the multitiered behaviour support program, all participating mothers decreased the use of negative parenting strategies, and these improvements maintained at follow up. In addition, child problem behaviour was significantly reduced from pre- to postintervention. The distribution of participants of this study amongst the three tiers was as follows: 12% of families needed only universal support; 38% needed secondary, targeted support; and 50% needed tertiary, individualized support.
These two initial studies suggested that few families who have complex issues resulting from living on low income and/or having a child with a DD will benefit from universal-level supports, unlike the distribution found within whole populations of school children (McCart et al., 2009; Phaneuf & McIntyre, 2011). Further, the studies suggested that a secondary prevention model of positive behaviour support with families of children with DDs and problem behaviour may be an effective approach to empowering families to implement positive parenting practices and decrease child problem behaviour. As Phaneuf and McIntyre (2011) stated, “A tiered model of intervention may allow practitioners to achieve the delicate balance between effectiveness and efficiency in providing interventions to parents and children” (p. 205). In other words, a public health model of service delivery to families of children with DDs and behavioural health issues shows promise. Given the strong evidentiary base for individualized, tertiary FCPBS, it is time to turn attention to the secondary level to see what it may offer families of children with DDs.

Besides the dearth of research in this area, another reason to investigate a secondary tier of FCPBS service delivery is that, for young children, prevention or early intervention is often indicated. Addressing problem behaviour in young children with DDs is likely to be more efficient and cost-effective in the long term compared to waiting until tertiary-level support is necessary. It will be easier and less expensive to remediate mild-to-moderate problem behaviour than behaviour challenges that are severe, pervasive, and firmly entrenched. Tertiary-level intervention is burdensome in terms of both time and cost to parents. Government or private organizations who support families financially, or the families themselves, may spend thousands of dollars per family during a tertiary process of behaviour support. For example, one group of researchers found that the average cost for individual behavioural intervention for three children who exhibited severe problem behaviour was $6,900 USD (Hanley, Jin, Vanselow, & Hanratty,
In addition, it is not unusual for tertiary support to last for several months or even a year or two (Lucyshyn, Author, et al., 2015). By contrast, secondary-level interventions, such as group parent training programs, typically last between a few weeks to a few months. As an example, one organization in British Columbia provides the Group Stepping Stones Triple P program for nine sessions at a cost of $250 CND per couple (K. Zhao, personal communication, November 21, 2019).

In addition, parenting interventions delivered via a secondary prevention model may have beneficial effects on families’ mental health. If child behavioural issues are left unchecked, parents may suffer clinical levels of stress, anxiety, and/or depression (Neece, Green, & Baker, 2012). Addressing problem behaviour before tertiary-level support is indicated for both child problem behaviour and parent mental health may help parents of children with DDs and problem behaviour steer clear of this undesirable pathway, and instead build a pathway of child development that is replete with rewarding parent–child interactions and mental wellness.

**Content and Process Elements of a Secondary Prevention Model of FCPBS**

As it appears that a secondary model of FCPBS is worth investigating, the following questions arise: What might this model look like, and how might it be delivered? One model of targeted intervention with a strong evidentiary base is behavioural parent training (BPT). Although BPT programs are numerous and varied in their specific approach, they share “a common set of behavioural strategies for parents to help them become change agents for their own children” (Wang, Lam, Kim, Singer, & Dodds, 2016, p. 74). They are an established practice for families who have children with DDs and problem behaviour (Wang et al., 2016). Behavioural family intervention (BFI) is closely related to BPT, but as the name suggests, it encompasses elements that address the family as a whole. While BPT provides tools to support
children, BFI includes additional features such as tools to support marital communication and satisfaction, strategies to address sibling relationships, or counselling to alleviate depression or anxiety. In BFIs, there is a focus on how family variables shape children’s behaviour, allowing for interventions that are more tailored to the unique needs of each family (Sanders & Dadds, 1993). Although BFIs often are provided on an individualized basis, I discuss only group parent training approaches in this section, as they are more aligned with a secondary tier of intervention.

Three well-established BFI group parent training programs include features that have been incorporated into tertiary-level FCPBS since its inception. Therefore, these are good models for considering what a secondary prevention model of FCPBS might encompass. First, I provide an overview of the three approaches and next discuss elements of the programs that overlap with tertiary-level FCPBS. Last, I propose features of FCPBS that may augment the current BFI models.

**Current models of group-delivered BFI.** The three models of BFI delivered in a group format are as follows: (a) Parent Management Training – Oregon Model (PMTO; Forgatch & Domenech Rodríguez, 2016); (b) the Incredible Years Parent Training (IYPT; Webster-Stratton, 2005); and (c) the Positive Parenting Program (Triple P; Sanders, Mazzucchelli, & Studman, 2009).

These programs were originally intended for children at risk for or with a behaviour disorder such as a conduct disorder or attention deficit hyperactivity disorder (ADHD), but who possessed typical intellectual ability. The programs, which are available for delivery in either an individual or a group format, address prevention of future behaviour problems and intervention on current behaviour problems. Strategies taught to parents are varied across programs, but all share an emphasis on teaching and consequence-based strategies. Teaching new skills, such as
negotiating, problem solving, and emotion regulation are common. All three programs emphasize consequences for both positive behaviour (e.g., praise and rewards) and problem behaviour (e.g., planned ignoring, time out, natural consequences; Forgatch & Domenech Rodríguez, 2016; Sanders et al., 2009; Webster-Stratton, 2005). The three programs are juggernauts in the world of behavioural parent training. They have amassed an impressive number of efficacy and effectiveness studies (Leijten et al., 2018; Lundahl, Risser, & Lovejoy, 2006; Ruane & Carr, 2019). All three programs have a rating of 1 or “Well supported by Research Evidence” according to the California Evidence-Based Clearinghouse for Child Welfare (n.d.).

For all three programs, the BFI component (i.e., whole-family care) comes into play in optional modules that the family may take after completing the core components of the group parent training program. For example, PMTO teaches mindfulness to parents as part of their “Supporting Skills” component. The IYPT program has two modules, BASIC and ADVANCE. ADVANCE is optional and comprised of supplemental skills, such as strategies for coping with unhelpful or upsetting thoughts and for developing marital problem solving skills (Posthumus, Raaijmakers, Maassen, van Engeland, & Matthys, 2012). The Triple P program also offers an additional set of optional modules for families who need them. These modules are called Enhanced Triple P and include more intensive focus on family functioning, such as development of coping skills, teamwork between parents, and communication within the marital relationship (Plant & Sanders, 2007; Roberts, Mazzucchelli, Studman, & Sanders, 2006).

Regarding applicability of these programs to the population of children with DDs, the IYPT and Triple P programs include adaptations that address the needs of these families. McIntyre and Phaneuf (2011) and McIntyre (2008) have conducted research on such a version,
called the IYPT-DD, and results have been promising, as noted earlier in this chapter. Triple P has a version called Stepping Stones Triple P (SSTP), which has a strong evidentiary base and is widely available clinically (Roberts et al., 2006; Whittingham, Sofronoff, Sheffield, & Sanders, 2009). DD-specific adaptations in these programs include (a) additional teaching strategies, such as functional communication training; (b) incorporation of behaviour analytic principles and techniques focused on common challenges in supporting children with DDs (e.g., treating stereotypy); and (c) topics relevant to parents of children with DDs (e.g., coping with increased caregiving demands; McIntyre, 2008; Roberts et al., 2006).

What have current models contributed to FCPBS? As noted earlier in this chapter, since its inception, tertiary-level FCPBS has integrated several elements from the three parent training models described in the previous section. The PMTO program has informed the integration of coercion theory into FCPBS assessment and plan design activities (Forgatch & Domenech Rodríguez, 2016; Patterson, 1982). The aim is to empower parents of children with DDs to transform coercive into constructive patterns of parent–child interaction (Lucyshyn, Fossett, et al., 2015). Parents are taught to recognize coercive patterns of interaction (e.g., parent makes request/demand – child engages in problem behaviour – parent withdraws demand – child terminates problem behaviour) and to use positive behaviour supports to build constructive patterns of interaction in valued but problematic family routines (e.g., parent makes request/demand – child complies – parent gives positive attention – child continues task engagement).

Triple P has contributed the concept of behavioural family intervention, in which, in addition to behaviour supports focused on the child who engages in problem behaviour, supports are provided to the family as a whole (Sanders & Dadds, 1993). Within FCPBS, family-focused
supports may include sibling support strategies, individual counselling to a parent, or behavioural marital therapy (Lucyshyn, Dunlap, et al., 2015). The IYPT has contributed cognitive-behaviour change methods, such as defusion or cognitive restructuring, when parents engage in negative thought processes that interfere with their ability to effectively prevent or respond to child problem behaviour (Webster-Stratton & Hancock, 1998). Clinicians who implement tertiary-level FCPBS often discover that parents are depressed, stressed, or anxious due to the chronic nature of their child’s problem behaviour. Helping parents to recognize and change unhelpful patterns of thought is often indicated. In addition, another contribution to FCPBS is the IYPT’s emphasis on developing a therapeutic alliance with family members in which a partnership is established that is composed of an affective bond, and agreement and collaboration on goals, tasks, and methods (Webster-Stratton & Herbert, 1993).

A secondary model of FCPBS necessitates the integration of two additional features from the parent training programs described in this section. These are PMTO’s active training method and IYPT’s attrition prevention methods. The founders of PMTO have developed an active training approach to group parent program in which parents are directly engaged in the learning process, the didactic provision of information is minimized, and Socratic questioning is employed to teach parents to discriminate between effective and ineffective parenting behaviour. Active training also includes the liberal use of demonstration, role-play, and movement in each session (Forgatch & Domenech Rodríguez, 2016).

The importance of attrition prevention cannot be underestimated with respect to group parent training programs. Current estimates are that half of all parents who start a group program do not finish it (Wang et al., 2016). Four barriers to the effectiveness of group parent training programs may help explain nonsustained attendance: marital problems, high stress levels,
increased levels of depression, and day-to-day issues accompanying single motherhood or low socioeconomic status (Wang et al., 2016). Webster-Stratton and Hancock (1998) have outlined several key recommendations for the prevention of attrition. Structural elements of the parent training program have been shown to aid consistent parent attendance. These include the provision of childcare, snacks and beverages, and ample parking. In addition, attrition is minimized when meetings are held at a time and day that are convenient for families. Most crucial to retaining participants is ensuring that sessions are useful, relevant, engaging, and fun. This can be accomplished by strong interaction skills on the part of the clinician, including a substantial amount of empathy, a sense of play, and a respectful use of humour. In addition, small prizes can be given to parents as rewards for participation. Ensuring that the lead clinician keeps the group on topic also is important, as parents become disengaged if other participants’ discussion is tangential or largely comprises complaints (Forgatch & Domenech Rodríguez, 2016; Webster-Stratton & Herbert, 1993).

**What could FCPBS add to current group-delivered BFI models?** The effectiveness of group parent training programs in ameliorating behaviour problems in cognitively typical children is well established in the literature (e.g., Leijten et al., 2018). However, for families who have children with DDs and problem behaviour, group parent training is likely to be further enhanced by the addition of FCPBS principles and methods. Lucyshyn et al. (2018) outlined seven characteristics of tertiary-level FCPBS, all of which are relevant and applicable to a secondary approach to FCPBS within a group parent training format: (a) functional assessment; (b) family routines as a unit of analysis; (c) multicomponent behaviour support plans that emphasize prevention, teaching, and positive reinforcement; (d) contextual fit; (e) collaborative partnership with family members; (f) implementation support, including one-to-one coaching
with individual families in real time; and (g) measurement of social validity in addition to child behaviour. Taken together, these features may lend a more customized and contextually informed approach to group parent training than the models described above. To be sure, social validity is used consistently within group BFI studies in the form of treatment acceptability or consumer satisfaction questionnaires both during and after intervention (e.g., Kazdin et al., 2018; McIntyre, 2008). The characteristics that each of the six remaining attributes may contribute to a secondary prevention group parent training program are discussed below.

**Functional assessment.** The process of FCPBS begins with an assessment of the functions of the child’s problem behaviour. Functional assessment of behaviour allows both the family and clinician to develop an understanding of the reasons why the child engages in problem behaviour as well as other contextual factors at play (O’Neill, Albin, Storey, Horner, & Sprague, 2015). Contextual factors include setting events that set the stage for problem behaviour (e.g., child skill deficit, illness), antecedent events that occasion problem behaviour (e.g., parent request/demand), and consequences that maintain problem behaviour (e.g., parent removes request/demand contingent on problem behaviour). A secondary approach would include the following process to address functions of behaviour: (a) teach parents about the four functions of behaviour as well as how to take antecedent-behaviour-consequence (A-B-C) data; (b) assign parents home practice in which they take A-B-C data during one specific problematic family routine; and (c) collaboratively problem solve with parents about the potential primary function or functions of their child’s problem behaviour.

**Activity settings.** FCPBS makes use of the activity setting as a primary unit of analysis and intervention. Activity settings are the valued daily routines of family life that take place in the home and community (e.g., afternoon playtime with siblings, grocery shopping with parents;
Families who might benefit from a secondary approach to FCPBS are not likely to experience child problem behaviour pervasively across all home and community routines. In this approach, then, the family may be asked to choose one or more home or community routines in which problem behaviour is present as a focus during group parent training.

**Multicomponent behaviour support plans.** The FCPBS approach offers a wider range of antecedent supports than current group parent training models, which often emphasize the use of consequences in response to adaptive and problem behaviour. A main focus of PBS is on preventing problem behaviour from occurring in the first place, lessening the need for consequence-based strategies for problem behaviour. Problem behaviour is always connected to the context in which it occurs, including the ecological context and the antecedent events that immediately preceded the behaviour (Dunlap & Kern, 1996). A focus on antecedents may be especially necessary for children with developmental disabilities, who very often engage in problem behaviour to escape aversive antecedents such as parent demands or difficult tasks. Examples of antecedent interventions include offering choices, incorporating preferences, safety signals, enhancing predictability via the use of visual supports, precorrections, and positive contingency statements. Teaching strategies would be tailored to children with DDs. Current parent training programs include strategies such as teaching the child negotiation and problem solving skills, which require a high degree of cognition and language ability on the part of the child. Instead, FCPBS teaching strategies might include errorless learning techniques for teaching life skills and functional communication training. Regarding consequence-based strategies, FCPBS focuses mainly on positive reinforcement for desired behaviour, the positive
redirection of minor problem behaviour and the nondelivery of reinforcement for major problem behaviour (i.e., extinction).

**Contextual fit.** Professionals engaged in tertiary FCPBS ensure that behaviour support plans are a good contextual fit for families (Lucyshyn et al., 2002). This may include consideration of each family’s distinctive set of home and community routines, as well as their unique set of strengths, resources, and cultural and family values. Secondary FCPBS would embrace contextual fit via, for example, the provision of culturally sensitive program materials and exercises that identify and incorporate family strengths, resources, goals, and values.

**Collaborative partnerships.** True partnerships between clinicians and families are characterized by commitment, competence, equality, clear and open communication, and respect (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004; Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011). Together, these qualities culminate in a trusting relationship between family and clinician. Throughout the process of tertiary FCPBS, collaboration between families and professionals is paramount. A secondary-tiered approach would place equal emphasis on building collaborative partnerships with participating families during parent training sessions and while assisting families to design routine-specific behaviour support plans that best fit their context and goals and values.

**Implementation support.** For interventions to be used with fidelity by families and to be sustainable over time, implementation support must be provided. In a process of tertiary FCPBS, implementation support includes a behaviour support plan, a one- to two-page implementation checklist, as well as ongoing modelling and coaching by the clinician in the family’s home or in a community setting that the family frequents. In vivo coaching is considered to be central to the success of interventions (Fixsen, Blasé, Duda, Naoom, & Van Dyke, 2010; Joyce & Showers,
In a secondary model of FCPBS, although in vivo coaching would not occur as often, it could be feasibly incorporated into group parent training. Families could, for example, receive one or two in-home coaching visits at the midpoint of the group parent training program. To increase parents’ use of PBS strategies at home, home practice exercises would be given each week. Parents would use implementation checklists to self-monitor and self-evaluate their use of PBS strategies. At the start of each group parent training session, home practice activities would be discussed as a group.

**Additions to the current model of FCPBS.** Recently, Lucyshyn and colleagues have outlined two additional practices that could further improve the effectiveness of FCPBS at the tertiary or secondary level of support: mindfulness training and general case programming (Lucyshyn, Fossett, et al., 2015; Lucyshyn et al., 2018). The benefits of mindfulness training for parents of children with DDs has garnered research support in recent years, with the advantages extending to both children’s behaviour and parental stress (Beer, Ward, & Moar, 2013). Singh et al. (2007) conducted a single case research study using a multiple baseline design with four mothers of children with DDs and aggressive behaviour. In a 12-week program, the mothers were taught to engage in a set of mindfulness practices. Results showed that across 1 year of daily practice, the children’s aggressive behaviour decreased to near zero levels. In addition, mothers’ stress levels decreased and parenting satisfaction levels increased. Dykens, Fisher, Taylor, Lambert, and Miodrag (2014) employed an RCT design and found that parents of children with DDs who took a Mindfulness-Based Stress Reduction course fared better than parents taking a positive psychology program with respect to improvements in depression, anxiety, overall well-being, and sleep. Given that a mindfulness practice adopted by parents has been shown to improve child behaviour and parental stress, it seems a worthwhile addition to a
secondary prevention approach to FCPBS. This is particularly relevant given that parent training programs have not been shown to reliably produce decreases in parenting stress (Wang et al., 2016).

General case programming (GCP) is an instructional technology that has been shown to produce generalized outcomes among students with DDs learning life skills (Horner, Albin, & Ralph, 1986), vocational skills (Horner, Eberhard, & Sheehan, 1986), and academic skills (Chezan, Drasgow, & Marshall, 2012). The GCP approach also has been shown to promote generalized teaching skills in staff working in group homes of adults with DDs (Ducharme & Feldman, 1992) and to teach generalized discrete trial instructional skills to parents of children with autism (Ward-Horner & Sturmey, 2008). To apply GCP, researchers must define an instructional universe, analyze the range of stimuli and responses associated with a skill, select examples that sample the full range of stimuli and response requirements, and teach these examples to a high level of proficiency. Doing so has been shown to produce correct responding to nontrained examples within the instructional universe. In a secondary FCPBS program, GCP logic can be employed to select and teach examples of PBS strategy use that sample the full range of relevant stimuli (e.g., settings, routines, functions) and parent and child responses (e.g., variations of strategy use and routine-related tasks). Parents then may be able to generalize the use of strategies to nontrained family routines in the home and community. In addition, if parents during the group parent training program selected three family routines to target for intervention, and these routines were quite different from each other, the process of parents learning to use PBS strategies to build success in each routine may further promote generalized improvements in child behaviour in nontargeted family routines.
All of the above FCPBS features, with the addition of mindfulness training and general case programming, integrated into a secondary-tier, group parent training program may result in durable, generalized improvements in child behaviour and parental stress for parents of children with DDs.

Secondary FCPBS as Informed by Implementation Science

Implementation science involves the study of the uptake of findings from clinical research into clinical practice (Ogden & Fixsen, 2014). The emergence of implementation science as a discipline in its own right grew out of the persistent gap that has existed between the scientific development of an empirically supported treatment (EST) and its adoption by stakeholders in real-world settings. Fixsen (2016) estimated that from the inception of an intervention to its validation as an EST and adoption by practitioner, typically 30 years is required. Given this, are there ways to structure a systematic program of research of secondary-level FCPBS and to design the elements of the approach so that it may be adopted by practitioners in a short period of time, implemented with fidelity, and adapted based on client and context without loss of effectiveness? It stands to reason to incorporate knowledge from implementation science before embarking on program development and research. Four recommendations from implementation science are relevant to the development of secondary-tier FCPBS: (a) interventions are built in collaboration with stakeholders, or knowledge users; (b) intervention components are operationally defined and kept at a low level of complexity; (c) interventions are delivered in modular form; and (d) during implementation there is a focus on implementation fidelity (Chorpita, Becker, & Daleiden, 2007; Fixsen et al., 2010).

First, to maximize the potential of uptake by consumers of ESTs, they should be built collaboratively with the consumer. This can be accomplished by adopting an IKT approach,
described at the start of this chapter. In general, clinical research that examines the efficacy of interventions is far more common than effectiveness studies (Chorpita, 2003). By contrast, SWPBIS research has included collaboration between researchers and knowledge users (e.g., teachers, administrators, and policymakers) from its inception; in fact, research on SWPBIS is characterized by effectiveness studies in which researchers support knowledge users in schools and school districts to implement the elements of the approach within real-world conditions (Horner et al., 2010). Similarly, a foundational characteristic of FCPBS research is collaboration with family members by sharing decision making in regard to setting selection, PBS plan design, data collection, study pace, and dissemination of findings (Albin, Dunlap, & Lucyshyn, 2002; Clarke, Dunlap, & Vaughn, 1999; Vaughn, Dunlap, et al., 1997). There are significant advantages of involving knowledge users (Chorpita & Daleiden, 2014). They bring different insights and skills to the research team and offer a unique understanding of the research questions, intervention procedures, and results. Members of the team make contributions based on their respective areas of knowledge and strength. When collaborating with family members during a lengthy process of behavioural intervention research, another benefit is that they may be more likely to maintain their participation in the study due to increased buy-in and commitment to the research as well as clinical process (Albin et al., 2002). In sum, an IKT approach can enhance the relevance, validity, and utilization of intervention research (Albin et al., 2002; Turnbull, Friesen, & Ramirez, 1998).

Second, implementation science emphasizes the importance of identifying and operationally defining the core elements of an intervention; that is, the components of the intervention that are essential to obtaining intended outcomes. Each component of the intervention needs to be clearly and thoroughly described, something that is not often seen within
peer-reviewed journal articles that describe the intervention that was investigated. In addition, if interventions are to be available, acceptable, and usable to practitioners, then they need to be relatively low in complexity (Chorpita et al., 2007).

Third, while all ESTs contain core components that are essential to their effectiveness, a modular approach, in contrast to a manualized approach, increases the likelihood of uptake by practitioners (Chorpita et al., 2007; Chorpita & Daleiden, 2014). A modular approach offers three advantages related to practitioner utilization. First, a modular approach allows for adaptation of components, without loss of effectiveness, based on the resources and skills of practitioners and the specific needs of clients. Second, a modular approach allows practitioners to update components based on new advances in research. Third, a modular approach can include optional components that allow for greater individualization to clients. When clinicians are able to customize and update intervention components and provide optional components that meet the unique needs of a subset of clients, they will be more apt to adopt the intervention. Some empirically supported approaches to parent training have incorporated features of a modular approach in addition to the core components of the intervention essential for treatment integrity. For example, as noted above, Triple P and the IYPT programs include optional modules that are provided to families on an as-indicated basis (Chorpita et al., 2007).

Finally, implementation science emphasizes the importance of implementation fidelity from the outset of adoption of an EST. In reference to PMTO uptake, Forgatch and Domenech Rodriguez (2016) noted, while implementation fidelity by clinicians is not typically an issue during highly controlled efficacy trials, it becomes challenging the moment the program is set free into the more variable world of community-based effectiveness research. This is the reason behind the development of PMTO’s fidelity of implementation (FIMP) rating system, which
rates clinicians on five scales related to skillful implementation of the approach: structure, process, knowledge, teaching, and overall development.

Given this knowledge from implementation science, the development of a secondary prevention approach to FCPBS is more likely to bridge the gap between research and practice if these four considerations are incorporated into the intervention design and research process. In the next section, I synthesize the information presented earlier—contributions of other models of group parent training to FCPBS, core features of FCPBS, new additions to FCPBS, and implementation science knowledge—into a secondary prevention model of FCPBS and a program of research. This synthesis is designed to maximize (a) buy-in and uptake by clinicians; (b) implementation fidelity; and (c) effectiveness in promoting meaningful, durable, and sustainable improvements in parenting skills and child behaviour in family contexts. Prior to the introduction of the proposed secondary approach to FCPBS, I introduce the focus population, families of children with Down syndrome (DS), and provide a rationale for a program of intervention development and research focused on this population.

**Children with Down Syndrome and their Families**

While the proposed model may be of benefit to a wide variety of individuals with developmental disabilities, the target population of this proposed program is families of young children with DS. Children with DS are largely underserved with respect to access to behavioural supports, particularly when compared to children with autism (Government of British Columbia, Ministry of Children and Family Development, 2017). This may be due to misconceptions about children with DS, including that they are “socially competent,” “always happy,” and, generally, that they do not engage in problem behaviour to the degree that it warrants intervention. Their lack of access to clinical behavioural support is mirrored in the research literature. In the
collection of 28 FCPBS studies noted earlier in this chapter, none of this research has included children or adults with DS. Participants in this group of studies incorporated people with a variety of diagnoses other than DS, including autism, cerebral palsy, and other developmental disabilities (e.g., Blair et al., 2011; Erbas, 2010; Lucyshyn, Fossett, et al., 2015).

**Behaviour in Down syndrome.** As the most common chromosomal cause of intellectual disability, DS affects an estimated one in 700–900 Canadians (Down Syndrome Resource Foundation, n.d.). Despite lingering public perceptions that people with DS are agreeable and sociable, a growing number of studies have shown that problem behaviour is often severe enough to warrant a comorbid diagnosis, such as autism, attention deficit hyperactivity disorder or obsessive compulsive disorder in up to 38% of cases (Capone, Goyal, Ares, & Lannigan, 2006).

Relevant to all children with DS, whether they have a comorbid behavioural health diagnosis or not, one line of research has focused on the Down syndrome phenotype. A phenotype is a distinct profile of development and behavioural outcomes associated with a particular syndrome. Fidler (2005) reported, amongst other areas of development, that children with DS demonstrate a specific pattern in the area of personality-motivation. In particular, when presented with cognitive work tasks of varying kinds, children with DS tend to show lower levels of task persistence and higher levels of off-task behaviour compared to typically developing children. The off-task behaviour often takes the form of the overuse of social attempts, such as engaging in lengthy periods of eye contact and smiling in place of completing the task at hand (Fidler, 2005; Pitcairn & Wishart, 1994; Wishart, 1993).

According to behavioural theory, problem behaviour always serves a function for the person engaging in it. Four main functions of behaviour have been identified: access to attention,
access to tangibles, escape or avoidance of undesired events, and automatic reinforcement (O’Neill, Albin, et al., 2015). There is evidence, then, that children with DS are behaving problematically in learning situations as a means of escape from demands and to receive attention from others (Kasari & Freeman, 2001; Wishart, 1993). If allowed to continue, these escape- and attention-motivated problem behaviours will have a detrimental effect on learning over time. Indeed, reports from parents, clinicians, and educators frequently indicate that the behavioural challenges in children with DS are often prominent enough to negatively affect the children’s ability to learn in school, home, or therapy settings, as well as the child and family’s quality of life (Feeley & Jones, 2006). Clinical findings have been supported by research: a recent study found that 94% of 274 children with DS exhibited at least some problem behaviour, the most common typologies being noncompliance, running away, sitting down and refusing to move, and aggression (Patel, Wolter-Warmerdam, Leifer, & Hickey, 2018). Two studies indicated that problem behaviour often is still evident, if not worse, at later ages for children with DS (Dykens, Shah, Sagun, Beck, & King, 2002; Patel et al., 2018). Given these findings, a secondary, preventative approach may prove to be the “just right” level of intervention sufficient to ameliorate problem behaviour in this population of young children.

**Parent-child interactions.** Challenging behaviour may corrode parent–child relationships. Patterson (1982) first noted this over 30 years ago with typically developing children who were at risk for developing behaviour problems. He described a reciprocal process of parent–child interaction in which the parent reinforced the child’s problem behaviour and the child reinforced the parent’s use of ineffective parenting practices (Patterson, 1982). These patterns of parent–child interaction are referred to as *coercive family processes* (Patterson, 1982). For example, after a parent demand, the child engages in problem behaviour. The parent then
withdraws the demand, which negatively reinforces child problem behaviour. The child then terminates problem behaviour, which negatively reinforces the parent for submitting to the child. Sources of stress within the family, such as marital distress or financial issues, may make coercive family processes even more likely (Capaldi, DeGarmo, Patterson, & Forgatch, 2002).

Coercive processes also operate within families who have children with developmental disabilities and problem behaviour (Lucyshyn, Fossett, et al., 2015). Due to cycles of positive and negative reinforcement, parents may inadvertently strengthen escape- and attention-motivated behaviours in their children. For example, in escape-motivated coercive processes, when the parent makes a demand of the child, the child engages in problem behaviour. The parent then allows the child to delay or end the task, which negatively reinforces the child’s problem behaviour. The child then terminates problem behaviour, which negatively reinforces the parent for allowing the child to escape the task. Left unaddressed, coercive family processes may have devastating effects on family structure and functioning.

It is well documented that parents of children with autism experience heightened levels of stress compared to parents of children who are typically developing or those who have DS (Sanders & Morgan, 1997). However, parents of children with any intellectual disability, DS included, experience more stress compared to parents of typically developing children (Woodman, Mawdsley, & Hauser-Cram, 2015). Further, parental stress has been shown to be mediated by the presence of problem behaviour, rather than the disability per se (Baker et al., 2003; Neece, 2014); that is, child problem behaviour is associated with heightened parental stress, regardless of the diagnostic category of the child. A final important note is that the relationship between parent stress and child problem behaviour is a transactional one (i.e., as parental stress increases, so does child problem behaviour, and as child problem behaviour
increases, so does parenting stress; Neece et al., 2012). Therefore, a secondary prevention model of FCPBS should address both the problem behaviour of children and the stress of parents.

Providing intervention when children with DS are young, before behavioural issues and parent stress levels become unmanageable, is key. Early intervention approaches such as a secondary-level, group parent training program are indicated and most likely to be effective before child problem behaviour becomes severe and entrenched. When children with DS are between the ages of 3 and 8 years, many often engage in mild to moderate levels of problem behaviour (Patel et al., 2018). Therefore, this is the age range for the secondary-level parent training program being proposed. At this stage in the child’s development, parents will have an opportunity to implement positive behaviour supports and change coercive into constructive patterns of parent–child interaction in family contexts before coercive processes become automatic and resistant to intervention. In doing so, a positive and successful pathway for both child and family development may be initiated.

Researchers examining the effectiveness of group parent training programs designed to ameliorate problem behaviour in children with developmental disabilities (e.g., Stepping Stones Triple P; Plant & Sanders, 2007; Roberts et al., 2006) have noted the inclusion of families of children with DS. However, children with DS in these studies were among children with other diagnoses, and so it is not possible to separate out the effects for them and their parents, even when an intervention was found to be effective for the participating families and their children. These results suggest that a secondary approach to FCPBS in the form of a group parent training program designed for families of children with DS, in addition to holding promise, also is important to better understand the effects of parent training with this population. In the Chapter
that follows, I describe the design and results of a Stage 1 study that was conducted to inform development of such a program.
CHAPTER 2: STAGE 1 STUDY

This chapter outlines the research questions, method, and results from the Stage 1 study of the FCPBS group parent training program. It concludes with a list of amendments to this program based on participants’ feedback, and research questions for the next study, an RCT.

Research Questions

The long-term goal of this research is to empirically develop a FCPBS group parent training program at the secondary level of prevention that is maximally beneficial to families of children with DS. As a first step to achieve this goal, we conducted an IKT multi-method intervention study with two families and one professional. A quasi-experimental, pretest, posttest design investigated whether implementation of the first eight sessions of the approach was associated with improvements in child behaviour, parenting stress and parental locus of control. In addition, focus groups conducted with participants before, during and after intervention yielded parent and professional perspectives on the acceptability, effectiveness, feasibility and sustainability of the FCPBS group parent training program.

The pilot study addressed two quantitative research questions:

1. Is implementation of the group-based FCPBS training program for parents of children with Down syndrome associated with improvements in child behavior?
2. Is implementation associated with improvements in parenting stress and parental locus of control?

In addition, the study addressed three qualitative research questions:

1. What are facilitators of the program’s acceptability, effectiveness, feasibility, and sustainability?
2. What are hindrances to the program’s acceptability, effectiveness, feasibility and sustainability?

3. What revisions or adaptations may enhance the acceptability, effectiveness, feasibility and sustainability of the parent training program?

Method

Participants. Two parent dyads, each with a child with Down syndrome, and one special education professional who worked with children with developmental disabilities and problem behaviour participated in the study. Inclusion criteria for parents were that (a) both mother and father were willing to participate in the group FCPBS parent training program; (b) both were willing to participate in three focus group sessions; and (c) both were willing and able within the focus groups to offer their perspectives on the group FCPBS approach before, during and after its delivery. The children (a) had a formal diagnosis of Down syndrome; (b) were between ages 3 and 8 years; and (c) had mild-to-moderate behaviour problems for at least 6 months. Table 1 summarizes the parent participant demographic information.

Table 1

<table>
<thead>
<tr>
<th>Role</th>
<th>Age</th>
<th>Education level</th>
<th>Marital status</th>
<th>Ethnicity</th>
<th>Child age</th>
<th>Child sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother 1</td>
<td>35</td>
<td>University</td>
<td>M</td>
<td>Caucasian</td>
<td>6</td>
<td>Female</td>
</tr>
<tr>
<td>Father 1</td>
<td>36</td>
<td>University</td>
<td>M</td>
<td>Caucasian</td>
<td>6</td>
<td>Female</td>
</tr>
<tr>
<td>Mother 2</td>
<td>48</td>
<td>University</td>
<td>M</td>
<td>Chinese</td>
<td>5</td>
<td>Male</td>
</tr>
<tr>
<td>Father 2</td>
<td>55</td>
<td>University</td>
<td>M</td>
<td>Chinese</td>
<td>5</td>
<td>Male</td>
</tr>
</tbody>
</table>

Inclusion criteria for the professional were that the person (a) had knowledge and skills in the area of PBS; (b) was willing and able to provide constructive feedback on the intervention program during three focus groups, and within debriefs after each parent training session; and (c) was willing and able to assist me in conducting a selection of the program activities. The
professional participant was a certified teacher who had just completed her Master’s degree at the University of British Columbia in the area of Special Education, with a focus on developmental disabilities and autism. The professional participant was working toward becoming a Board Certified Behaviour Analyst.

**Participant recruitment.** There were four steps in the recruitment process for family participants: (a) in my role as head Speech-Language Pathologist at the Down Syndrome Resource Foundation (DSRF), I provided members of the DSRF therapy and education team with a written description of the study, including inclusion and exclusion criteria, and asked them to nominate families who they thought might be a good fit for the study; (b) nominated families were sent an introductory letter that described the study and invited them to participate; (c) families who expressed an interest in the study and provided permission to be contacted were emailed to set up a screening interview; and (d) the first two families who met the inclusion criteria based on the interview were invited to read and sign an informed consent form for study participation. For participating in the study, each parent was paid a $100 honorarium, and the professional was paid a $300 honorarium.

The recruitment process for the professional also had four steps: (a) I asked my research supervisor to nominate professionals who might meet the inclusion criteria; (b) these professionals received a recruitment letter; (c) interested professionals who provided permission to be contacted were emailed by me for screening; and (d) one professional was chosen based on this interview.

**Setting and materials.** All parent training sessions and focus groups took place at DSRF. The sessions occurred in the DSRF boardroom, which is a large, private room with a conference table that comfortably seats 10-12 people. Audiovisual equipment needed for instructional
purposes included a laptop computer, overhead projector and speakers. A digital Sony IC Recorder was used during the three focus groups to audio-record the sessions.

**Measurement.** Three quantitative assessment instruments were used to investigate the effects of the FCPBS group parent training program on child problem behaviour, parenting stress, and parental locus of control. These were (a) the Child Behavior Checklist (Achenbach & Rescorla, 2000); (b) the Parenting Stress Index – Short Form (Abidin, 1995); and (c) the Parent-Child Locus of Control Scale (Campis, Lyman, & Prentice-Dunn, 1986).

**Child Behavior Checklist.** The Child Behavior Checklist (CBCL), a 99-item parent report questionnaire, served as an indirect measure of child problem behaviour (Achenbach & Rescorla, 2000). Items consist of a behavioural problem that may occur in childhood and an associated 3-point Likert-type rating scale: 0 (not true), 1 (somewhat true), and 2 (very true or often true). The checklist results in scores on two subscales of types of problem behaviour, externalizing and internalizing behaviours, as well as a total behaviour score. Due to the lower developmental level of children with Down syndrome and the age range in this study, the CBCL 1½ – 5 version was used regardless of the children’s chronological age. The CBCL 1½ – 5 is a psychometrically sound measure, showing high test-retest reliability, content validity, and criterion validity.

**Parenting Stress Index – Short Form.** The Parenting Stress Index – Short Form (PSI-SF; Abidin, 2012) is a 36-item self-report questionnaire designed to measure the relative magnitude of stress in the parent-child system. From a normative sample of 2,633 mothers, the PSI has been standardized for use with parents of children one to twelve years of age. Parent responses generate a total stress score that is converted into a percentile score, which is derived from the frequency distribution of a normative sample. Total stress scores between the 15th and 80th
percentile are normal and scores at or above the 85th percentile (i.e., a score of 86 or above) are considered within the clinical range. The PSI-SF has been found to have good test-retest and internal consistency reliability. The short form correlates highly with the full-length form, which has substantial evidence to support both predictive and construct validity (Abidin, 2012; Haskett, Ahern, Warn, & Allaire, 2006).

**Parent-Child Locus of Control Scale.** The Parent-Child Locus of Control Scale (PLOC; Campis et al., 1986) is a 47-item self-report questionnaire designed to measure parent locus of control (i.e., the parent’s or child’s power in a given child-rearing situation). Although actual norms are not reported, means for a group of 60 parents who did not report difficulties in the parenting role are distinguished from means of 45 parents who requested counselling services for parenting problems. The PLOC measures five factors: parent efficacy, parent responsibility, child control of the parent’s life, parent belief in fate or chance, and parental control of child’s behavior. A 5-point Likert-type scale is used (1 = Strongly disagree; 5 = Strongly agree). Parent responses yield a total rating of locus of control for each of the five factors; lower scores indicate more perceived power in the parenting role. Psychometric properties of the PLOC include acceptable reliability, construct validity, and discriminant validity.

**Research design.** The study employed a mixed-methods design that consisted of a quasi-experimental group design and a qualitative analysis of focus group data. These are described below.

**Quasi-experimental group design.** A quasi-experimental, pretest/posttest design with no control group was used. There were two periods of assessment in which the parent participants were given 2-3 weeks to complete the three questionnaires: preintervention and postintervention.
**Qualitative focus group analysis.** Three, hour-long focus groups occurred: before the parent training program began, at the midpoint of the program, and after the program concluded. At the start of each group, I gave a brief introduction regarding the purpose of the groups; i.e., to gain information from parent and professional participants that could be actively incorporated into the parent training program in real time, as well as into future iterations of the program. Encouragement was given to participants to give critical feedback, and to think about both their own direct experiences with the program as well as how the general population of families with young children with DS might react to the program when providing comments.

After the introduction, I asked a series of questions. These questions stemmed directly from the overarching goal of the study and the research questions, and spanned the topics of logistics, content of sessions, process of sessions, and home practice. During all focus groups, the questions were used as a guide to elicit feedback from participants, but were not strictly adhered to in a script-like manner. Open-ended questions or choice questions were most often used, as these resulted in a more conversational discussion (Krueger & Casey, 2000). When more information was needed, I followed up participant comments with follow-up questions such as, “Could you please tell us more about that?” I also often directly elicited comments from participants who had not yet spoken on a particular topic by asking, “Do you have any comments about ___?” Core and supplemental questions are presented in Tables 2, 3, and 4. Focus groups were audio-recorded. The audio-recordings were transcribed and analyzed within a week after each group.

**Data analysis.** Descriptive analysis of pretest and posttest scores on the parent questionnaires was completed. For the qualitative portion of the study, I transcribed and coded the focus group data using the NVivo software program. NVivo is used for analysis of text-based
qualitative data, and is particularly well suited to organization and analysis of open-ended question responses from interview and focus group transcripts (QSR International, 2017).

A directed content analysis approach was used to analyze the qualitative data (Hsieh & Shannon, 2005). Each transcript was coded into NVivo nodes using the predetermined themes of acceptability, effectiveness, feasibility, and sustainability. Subthemes were determined by grouping like comments together, and then assigning a label to each subtheme. For example, all comments relating to how long the participants felt was necessary for each training session were assigned a sub-theme of “Dosage level” under the main theme of “Effectiveness.” A summary of findings was produced for each focus group. For the first focus group, my supervisor and I completed the analysis together, and he checked the analysis that I completed for the second and third groups. Themes that emerged related to improving the program were immediately incorporated where feasible and scientifically sound. Each analysis summary was emailed to participants for member checking (Krueger & Casey, 2000). After all focus group analyses were completed, the results were consolidated into a final summary highlighting the most common subthemes under each predetermined theme.

**Procedures.** Research procedures of the multimethod study were conducted in the following sequence: (a) screening for study eligibility, (b) preintervention quantitative assessment, (c) first preintervention focus group session, (c) intervention Phase 1, (d) midintervention focus group session, (e) intervention Phase 2, (e) postintervention quantitative assessment, and (f) postintervention focus group session. Throughout the study, I administered all quantitative assessments, facilitated all group parent training sessions, and served as the facilitator for all focus group sessions. The study occurred over a span of approximately 5
months from screening to final assessments. Focus groups and intervention sessions occurred for 12 consecutive weeks during this time.

**Assessment I.** Three assessment instruments were administered to each parent participant prior to the program start: (a) Child Behaviour Checklist, (b) Parenting Stress Index, and (c) Parent-Child Locus of Control Scale.

**Preintervention focus group.** In preparation for participation in the first focus group session, all 5 participants were given materials from the parent training program to review one week prior to the session: (a) an overview and rationale for the program, (b) a brief outline of sessions and content, (c) a program schedule, (d) two sample sets of presentation slides, (e) three samples of homework, and (f) a list of questions and topics to be covered during the focus group. The first focus group was 1 hour and 5 minutes in length. Specific questions posed to the group were designed to elicit group members’ views about the acceptability, effectiveness, feasibility and sustainability of the group parent training program. Topics and questions included the length and timing of sessions, the activities and content within sessions, the language level used, and home practice activities. A complete list of core topics and questions is provided in Table 2.

Comments provided by focus group members were audiotaped and later transcribed and analyzed using directed content analysis (Hsieh & Shannon, 2005). Results of the qualitative analysis then informed revisions to the parent training program that were feasible to do prior to the first group parent training session (e.g., simplifying language in presentations, allowing more time for discussion, and sending parents a midweek check-in email). Upon completion of the qualitative analysis, member checks were conducted with all participants. Participants largely agreed with the themes that emerged from the qualitative analysis. One participant asked for one
revision to improve accuracy, and the analysis was immediately amended to accommodate this feedback.

Table 2

*Core Questions Used to Guide Discussions Across All Focus Groups*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics</td>
<td>How do you feel about the length and timing of sessions?</td>
</tr>
<tr>
<td></td>
<td>How do you feel about the provision of childcare?</td>
</tr>
<tr>
<td>Content</td>
<td>What strategies or topics are most or least helpful to you?</td>
</tr>
<tr>
<td></td>
<td>What strategies or topics are not covered that you think you might need?</td>
</tr>
<tr>
<td></td>
<td>How is the language level?</td>
</tr>
<tr>
<td>Process</td>
<td>What types of learning are most or least helpful to you?</td>
</tr>
<tr>
<td>Home practice</td>
<td>How are the home practice activities in terms of doability?</td>
</tr>
<tr>
<td></td>
<td>How are the home practice activities in terms of usefulness?</td>
</tr>
</tbody>
</table>

*Intervention phase 1.* During intervention phase 1, the first four weekly sessions were conducted. Each session was 2.5 hours in length. During all sessions, I served as primary facilitator, while the professional participant served as cofacilitator. The cofacilitator was given all sets of presentation slides before the program to review. Prior to each session, a 1-hour meeting between the cofacilitator and me took place during which we practiced demonstrations and role-plays, and planned discussion topics.

*Prevention of attrition.* Active steps were taken to prevent attrition (Webster-Stratton & Herbert, 1993). Sessions were held on a day and at a time that was convenient for parents. Both parents attended the sessions, which gave them an opportunity to strengthen their relationship by problem solving their child’s behavioural issues together as a team, and provided them with quality time together as a couple. Childcare was provided for the duration of the program.
Snacks and beverages were provided each session. Small prizes and rewards were given to families in each session to encourage participation and engagement.

**Content of sessions.** Across the four sessions, the following topics were covered: (a) understanding problem behaviour, (b) child and family strengths and child positive contributions, (c) mindfulness, (d) using praise to positively reinforce behaviour, (e) Down-syndrome-specific setting event strategies and supports, (f) values-based house rules, (g) incorporating preferences into difficult activities, (h) effective requests, (i) offering choices, (j) positive contingencies and visual supports, (k) functional communication training, (l) safety signals, (m) active ignoring and positive redirecting minor problem behaviour, and (n) using reinforcement menus to positively reinforce desired behaviour.

**Process of sessions.** At the start of each session, we engaged in a review of the previous week’s home practice assignment, focusing on successes achieved. We then completed a 5-minute mindfulness practice. After I presented the overview and objectives of the session, we began learning the new material for that day. Each session covered 1 to 2 strategies or topics. Each strategy was taught using the following set of activities: (a) information provision, (b) examples and nonexamples, (c) scripted role play practice, (d) questions and group discussion, (e) small group activities, and (f) videos or live demonstrations. At the end of each session, a home practice assignment was given.

During all sessions, I embodied a collaborative role with parents. Although didactic instruction occurred as new knowledge and skills were explicitly taught, emphasis in each parent training session was on discussion, group activities, and role play practice.

**Midintervention focus group.** The second focus group was 1 hour and 14 minutes in length. The core questions from the first focus group were discussed, along with several
supplemental questions that were developed as a result of parents having experienced the first four sessions. Table 3 provides a list of supplemental questions used in the midpoint focus group. The audio-recorded information from this focus group discussion was transcribed, analyzed, and integrated into the second half of the program prior to the fifth session. Upon completion of the qualitative analysis, member checks were conducted with all participants. Participants as a whole expressed agreement with the themes that emerged from the analysis.

Table 3

<table>
<thead>
<tr>
<th>Topic</th>
<th>Questions</th>
</tr>
</thead>
</table>
| Process           | Tell me about how you feel during the sessions in terms of feeling safe and comfortable.  
                     | How do you feel about the delivery of the program by the instructors?     |
| Home practice     | How would you feel about a midweek email reminder about the current strategy we are practicing? |
| Overall impressions | Tell me about whether you feel you are learning, and whether or not you are having fun doing it. |

**Intervention phase II.** The feedback from the midterm focus group qualitative analysis was integrated into the program, and the final four sessions of the weekly parent training program were conducted.

**Assessment II.** All families were reassessed immediately after the conclusion of the program. Each parent participant was administered the same three assessment instruments at this time: (a) Child Behaviour Checklist, (b) Parenting Stress Index, and (c) Parent-Child Locus of Control questionnaire.

**Postintervention focus group.** The final focus group was 1 hour and 18 minutes in length. One parent was not able to attend due to working out of the country. I interviewed him using the same protocol 1 week later. Discussion questions for this final group included...
additional questions aimed at parents’ perspectives on the effectiveness of the program and on the next iteration of the program. Several of these questions were suggested by Dr. Ann Turnbull (personal communication, June 19, 2017). Table 4 provides a list of supplemental questions used in this final group.

Table 4

*Supplemental Questions: Focus Group 3*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>What strategies have been easiest and hardest to use at home?</td>
</tr>
<tr>
<td>Process</td>
<td>Tell me about how you think your feedback from the first two focus groups was incorporated.</td>
</tr>
<tr>
<td>Home practice</td>
<td>What could have made the home practice more useful to you?</td>
</tr>
<tr>
<td></td>
<td>What could have made the home practice more efficient?</td>
</tr>
<tr>
<td></td>
<td>Tell us how you feel about the amount of home practice you were given.</td>
</tr>
<tr>
<td>Overall impressions</td>
<td>What accomplishment were you the most proud of during this program?</td>
</tr>
<tr>
<td></td>
<td>If you could change one thing about the program, what would it be?</td>
</tr>
<tr>
<td></td>
<td>Would you recommend this program to others? Why or why not?</td>
</tr>
<tr>
<td>Moving forward</td>
<td>What can we do if you feel your skills start to slip?</td>
</tr>
<tr>
<td></td>
<td>Do you feel like you have enough strategies and sessions at this point to help keep your household running smoothly, or do you need more?</td>
</tr>
</tbody>
</table>

During the last portion of this final focus group, parents were given a list of topics that could potentially be added to the next iteration of the program in the form of six more sessions. I provided a written list of the topics as well as a brief verbal explanation for each. All participants were asked to rank order the topics. The proposed additional topics were as follows:

1. *In-home coaching session*. Following the first eight sessions of the expanded program, I would visit each family during a problematic routine for the purpose of giving them feedback about their use of strategies with their child.
2. *Teaching desired behaviour.* While teaching alternative replacement behaviour was included within the 8 sessions, parents would ideally also learn how to teach their children new, desired behaviours (e.g., self-care skills).

3. *Building successful routines.* After getting one initial routine running more smoothly through the first 8 weeks of the program, parents would choose another problematic routine to focus on for the next 6 weeks. This routine would become a problem-solving project in which parents would apply strategies they had already learned to the new routine. They would make a plan, implement it at home, video-record their use of strategies, and present this to the group on the final day of the program.

4. *Social supports and natural resources.* Types of social support and their importance, as well as information about accessing community resources would be included in this session.

5. *Cognitive-behaviour change strategies.* Parents may engage in problematic patterns of thinking that undermine their ability to effectively implement PBS strategies. This session would focus on changing these patterns of thinking.

6. *Whole family support.* This session would include how to take care of all of the relationships within the family: couples/marriage, siblings, and extended family.

Member checks were completed for the final focus group analysis summary. Participants expressed their agreement with the themes within the analysis summary.

**Results**

**Quantitative findings.** Pre- and postintervention results for child problem behavior, parenting stress, and parental locus of control are presented in Table 5. Results are summarized below.
Table 5

Total Scores and Percentile Rankings for the Child Behavior Checklist and Parenting Stress Index-Short Form, and Total Scores for the Parental Locus of Control Scale Pre- to Postintervention

<table>
<thead>
<tr>
<th>Role</th>
<th>Total CBCL</th>
<th>Total PSI</th>
<th>Total PLOC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre (%)</td>
<td>Post (%)</td>
<td>Pre (%)</td>
</tr>
<tr>
<td>Mother 1</td>
<td>56 (73)</td>
<td>41 (18)</td>
<td>74 (62)</td>
</tr>
<tr>
<td>Father 1</td>
<td>33 (5)</td>
<td>31 (3)</td>
<td>64 (32)</td>
</tr>
<tr>
<td>Mother 2</td>
<td>52 (58)</td>
<td>46 (34)</td>
<td><strong>100</strong> (95)</td>
</tr>
<tr>
<td>Father 2</td>
<td>56 (73)</td>
<td>50 (50)</td>
<td>85 (84)</td>
</tr>
</tbody>
</table>

Note. Bolded values indicate clinical levels.
CBCL = Child Behavior Checklist; PLOC = Parent-Child Locus of Control Scale; PSI = Parenting Stress Index – Short Form.
The PLOC does not show percentile ranks because this assessment is not norm-referenced.
* Incomplete results for PLOC for Mother 2 at preassessment (missing 2 of 4 questionnaire pages); compared only questions that were completed at both pre- and postassessment periods.

**Child problem behaviour.** Table 5 presents the Total Behavior scores for each child from the CBCL pre- to postintervention, as reported by their mother and father, and the associated percentile ranking for each child in comparison to a normative group of children. Results showed that three of the four parents’ reports of Total Behavior scores and percentile rankings decreased from pre- to postintervention. This represented a reduction in child problem behaviour and a lower ranking compared to a normative sample of children. One parent’s Total Behavior score and percentile ranking were very low prior to intervention, and did not change at the postintervention. Improvements pre- to postintervention in the three parent reports of Total Behavior scores and percentile rankings, as well as the absence of improvement for one child pre- to postintervention are tempered by the fact that all four parents ranked their children’s behaviour as well within the normative range of problem behavior at preintervention.

**Parenting stress.** Table 5 presents the Total Stress scores and associated percentile rankings for each parent from the PSI-SF pre- to postintervention. Results indicated a noticeable
discrepancy between the two families. Total Stress scores for Mother 1 and Father 1 decreased from pre- to postintervention, indicating a lessening of parental stress at postintervention. Both parents were in the normative range prior to intervention and remained in the normative range, postintervention, albeit at a lower level of parental stress and percentile ranking. In contrast, Total Stress scores for Mother 2 and Father 2 increased from pre- to postintervention, indicating an increase in parental stress at postintervention. Mother 2 was in the clinical range at preintervention and showed an increase in parental stress within the clinical range at postintervention. Father 2 was slightly below the clinical range at preintervention but showed an increase in parental stress to slightly above the clinical range at postintervention. Although this increase in parental stress was associated with the intervention, parental report indicated that the increase also was associated with other environmental events in the family’s life. At the time of postintervention assessment, Mother 2 and Father 2 reported that they were in the midst buying a home, and were experiencing increased workloads at their jobs.

**Parent locus of control.** Table 5 presents the total score for each parent across the five subscales of the PLOC pre- to postintervention. Lower scores indicate an increase in parental locus of control. Results evidenced a decrease in total scores from pre- to postintervention for three of the four parents (Mothers 1 and 2 and Father 1). This represented an increase in the parents’ perception of their effectiveness in the parenting role and power in the parent-child relationship. In contrast, Father 2’s parental locus of control total score began at an elevated level and increased at postintervention, suggesting a decrease in the father’s perception of effectiveness and power in the parent-child relationship.

**Qualitative findings.** The qualitative analysis of participant comments across the three focus groups revealed themes and subthemes that largely conformed to the semistructured
questions that I asked during focus group sessions. Three major themes emerged from this
analysis: (a) facilitators of the FCPBS group parent training program, (b) hindrances to the
program, and (c) recommended revisions and adaptations to the program. Within each theme,
four subthemes were apparent: acceptability, effectiveness, feasibility, and sustainability. It is
important to note that there was a great deal of overlap among the four subthemes; for example,
many comments were relevant to both acceptability and effectiveness. To avoid redundancy,
comments were sorted into the subtheme to which it was most strongly associated. For example,
comments regarding content fit best with the subtheme of effectiveness, while comments
regarding what activities participants preferred fit best with acceptability. In addition to these
themes and subthemes, a novel theme of “perceived outcomes” emerged during the qualitative
analysis. These themes and subthemes are summarized below.

Facilitators of the program. Across the three focus groups, participants talked at length
about qualities of the program that helped them benefit from and attend the program. These
included sessions with diverse learning experiences and valued content, and having home
practice activities that were viewed as enhancing their acquisition of program content.
Facilitators are organized below by the subthemes of acceptability, effectiveness, feasibility, and
sustainability.

Acceptability. Two properties characterized the parents’ comments related to the
program’s acceptability. These were psychological comfort and a mix of activities is best.
Regarding psychological comfort, parent participants reported feeling safe and comfortable in the
group and during group activities. They found the delivery of the program by the instructors to
be clear and organized, and instructors were described as “great,” “wonderful,” and “helpful.”
Regarding a mix of activities during training, parent participants commented on the value of
discussion, sharing, and problem solving together: “I enjoy sharing, I enjoy your guys’ sharing … I think it’s really important to make time for that, too.” Parents also talked at length about the merits of learning from one another:

I also want to hear … [my child] is doing in this way, how about [your child]? And then how do you deal with that, and what [are] your strategies? … So I think the experience [of] sharing is really good.

Examples and nonexamples of the use of strategies were endorsed unanimously by participants as a valuable learning tool. Listening to information was useful, as long as not too much information was presented all at once. Other activities that were noted to be helpful were the home practice review at the start of sessions (one parent said it kept him accountable), as well as watching videos on strategy use.

Overall, parents enjoyed having several activities woven into each session, “I think it’s good, because it’s difficult for me to just sit here and listen to somebody talking for 2.5 hours,” and “I think a combination [is best] … have your talk, we can understand the theory, then we have some discussion or example, and then role play.”

Effectiveness. The three properties under the subtheme of effectiveness with respect to the program facilitators were dosage level, content, and attendance by both parents. Regarding dosage, parents said that 2-2.5 hours weekly was a necessary and sufficient amount of time that facilitated a relaxed atmosphere and ample time for discussion. One parent dyad had attended a previous parenting group that was 1.5 hours in length per session and they commented that this was not long enough.

Regarding content, the professional participant felt that all content areas were necessary and helpful. For parent participants, the most frequently mentioned helpful strategy was house
rules, “the kids were way more into it than I thought … I think it’s been good to help us identify as a family what our values are.” Another parent commented on the child’s motivation regarding the house rules, “When I came home [from my business trip] … [my child] show[ed] me. The poster in the sitting room, he show[ed] me … we [went] through it together, one by one!” Positive reinforcement in the form of praise was another strategy that was cited frequently by parent participants as beneficial, “framing everything positively has been good for me … it's such a simple thing but it’s probably the one thing we don’t do enough of” and “Before, I [used quite a lot of] punishment. But now I use more positive … [my child] like[s] it!” Mindfulness also ranked among the strategies that parents found most beneficial: “I think it's good for me to calm down and relax … to relieve some stress.” In addition, some parents found the unit on understanding problem behaviour to be valuable, including the explanation of coercive and constructive processes.

It was very helpful to understand that four-term contingency … helpful to know and recognize. I thought [coercive and constructive processes] was a key lesson … I think you could elaborate on that one even more. Because it was one of those ones that if you get this right now, the dividends last a lifetime, but if you get it wrong now, you will have negative dividends for a lifetime. So it’s a pretty important lesson.

Finally, parents endorsed house rules, positive reinforcement via praise and rewards, effective requests, and offering choices as the strategies they would recommend to other families of young children with Down syndrome.

One parent noted that it may have been difficult for the parents to fully evaluate the strategies learned in the last half of the program, because they were still in the initial stages of learning these at the end of the program. In contrast, they were more comfortable using, and
therefore evaluating, strategies presented in the first half of the program. All of the strategies that parents reported as being most helpful were covered in the first four sessions.

Regarding *attendance by both parents*, all participants discussed the importance of both parents’ attendance to sessions in dual-parent families. Participants agreed that it could be divisive to a parenting situation if only one parent was learning the strategies. Participating together made the program more effective and enjoyable:

Because for the most part, I take [our child] to all the programs … and I’ve done other programs … and it’s great, but it’s been so much better to be on the same page. I’ve read more about Down syndrome, I’ve been more in that world than [my husband] has in that sense, so it’s been really neat to connect on these issues … so I think it’s really beneficial … if there’s a two-parent home, both parents should come.

**Feasibility.** There were three properties fitting with the subtheme of feasibility of the program: *attendance facilitators; home practice, not homework; and ease of implementation.* Regarding *attendance facilitation*, all parents attended all eight sessions except for one father, who missed the final session due to having to go out of town for business. For this final session, he was not able to Skype or FaceTime in to the session because he was midflight in an airplane during the session time. Parents expressed that childcare was helpful during the first focus group, but in the second and third focus groups, all agreed that it turned out to be a necessary condition for them to be able to attend consistently. Parent participants appreciated that refreshments were provided at each session. Also valued was the option to Skype or FaceTime in to sessions when they were not able to come in person. Both fathers did this twice during the program due to work or travel commitments.
Regarding *homework/home practice*, parents expressed that they preferred the term “home practice” over “homework,” to reflect the fact that they were be engaged actively in using the strategies at home between sessions. They viewed the term “homework” as associated with “busy work” or “paperwork,” neither of which would be helpful or accurate in classifying what parents would be doing between sessions:

Because my experience with my kid … my idea of raising him is like walking with him … I would expect the strategies or the practical skills will be those in our daily life situations, not something very special, not related to our daily life. I hope it would be like that.

All parents completed the home practice activities to varying degrees each week. One to two strategies to practice each week were seen as reasonable. At the end of each strategy taught during a session, parents would begin planning their practice with their child at home using the home practice sheet (e.g., a list of effective requests they could try during a particular routine). Beginning this process of completing the home practice before leaving each session was valued:

You know when you go home and … you have a million other things to do … normally we would set that up here and that was really helpful. If we wouldn’t have done that here, I wouldn’t have really thought about it or been able to take the time to fill it all in at home. So I liked doing that here … you know, kind of thinking that through.

Finally, regarding *ease of implementation*, parents reported that the two easiest strategies to use right away at home were positive reinforcement / praise and mindfulness. For example, one parent noted, “Mindfulness was easy, didn’t require a lot.” Two aspects of the program that participants commented might help them maintain skills during and after the program were midweek email reminders about which strategies to practice, and the use of role-play as a group
activity. One father commented that role play not only helped him to understand the strategies better in the moment, but that it also helped the concepts make more of an impression on him, and that he would remember them longer as a result.

**Hindrances to the program.** Many of participants’ comments during the focus groups were about obstacles to learning or participating. These included using complex language, not individualizing the program enough by using parents’ own examples, and not allowing enough time for absorption and practice of presented strategies. Hindrances are outlined by each subtheme below.

**Acceptability.** Properties of hindrances to the acceptability of the program were complex language and culture, rushing through, and insufficient incorporation of parents’ own examples.

Regarding complex language, a recurring theme was ensuring that the language used by the facilitators of the parent training sessions was as simple as possible. As one parent noted, “When you’re explaining something to someone, if you can do it like you’re explaining it to an 8-year-old, that’s … the most effective way to get it across.” Two parents learned English after their first language (Mandarin), and felt that much of the terminology was difficult to understand. One parent noted some improvement in this by the end of the program: “I think [it] improved; especially for us because English is not our first language. So if it’s easy, [then we are] not looking in [the] dictionary.” Along similar lines, all participants felt that Canadian or pop culture references needed to be briefly explained to enhance the understanding for people from other cultures (e.g., explaining that Justin Bieber is a Canadian pop star).

Regarding rushing through, a concern of all participants in the second focus group was feeling like we were going too quickly at times. This “rushing through” had two distinct negative impacts. First, parent participants felt they did not have enough time to discuss or share with one
another. As one parent stated, “I don’t like feeling like okay, ‘move on, move on, move on.’ I think it’s valuable to hear each other’s stories.” Second, participants were concerned that there was not enough time to fully learn the material, as illustrated by these comments: “Because you present quite a lot of information … it takes time to go through all of it. And also for us, we need time to absorb and understand;” and “We just don’t want to miss it, right? Because there’s so much good information.” In addition, all participants felt there needed to be more time allotted to practice the strategies:

Because all the strategies [are] very good, but we just don’t have time to practice and input them in our daily life. And then next week you have another one coming. And then I still did not finish, or practice the previous one and then the new [one is] coming … then we miss some things. Because we want to make it work, we have to use and practice it in the daily life. I’m sure these are all very good strategies, but we need [to] take time to practice. And many times our life is so rush[ed], and because so rush[ed], it’s not working!

All participants reported that the “rushed” quality during sessions improved in the second half of the program. However, the concern with not having enough time to practice remained.

Regarding insufficient incorporation of parents’ own examples, a common theme across all three focus groups was the need to use more of parents’ own situations, problems, or examples during the sessions. As noted by one parent, “Even we can provide example[s]. We can bring up our own example to match what [strategy] you are talking about.” All participants expressed that infusing the examples and non-examples, as well as role-play, with more of their own individual examples was needed. One parent suggested posing questions to the group with each strategy taught, e.g., “Have you used this strategy before?” or “Do you recognize a time
when this would have been helpful?” Parent participants also requested more evaluative feedback from the instructors about situations they were dealing with at home.

I know you don’t necessarily want to give us the answer. But I still think your input’s really valuable. If we’re identifying, “Oh, this was really tough, I don’t know if I did the right thing”… you could open it up [and say] … “That sounded awesome, can you think of another way you could have approached that?”

Effectiveness. Regarding content of sessions, parent participants expressed the view that the section of Session 2 on child and family strengths and child positive contributions was the least helpful. At the same time, all agreed that keeping this topic in the program would be helpful, as some families may struggle with these concepts, but that it could be shorter in length. The use of positive contingencies with visual supports were helpful to everyone except Father 1 and offering choices to motivate cooperation were seen as helpful preventive strategies to the all parents except Father 2.

Feasibility. Three properties characterized the parents’ comments related to the hindrances to the program’s feasibility. These were sessions too long, completing self-monitoring checklists not preferred, and impediments to implementation. Regarding the length of sessions, although 2.5 hours was viewed as doable for parents in regard to finding time within their lives to attend the parent training sessions, they noted two hindrances to this length of time. First, 2.5 hours was approaching too long for their children in childcare, with one parent reporting that their children were not excited to attend the program. Second, this length of time was felt by some parents to be tiring for the parents themselves, making it difficult to remain focused throughout the session.
The subtheme, *completion of self-monitoring checklists not preferred*, refers to the home practice sheets with one- to three-page checklists that parents were asked to complete, to self-monitor their use of PBS strategies at home with their child after each parent training session. Each sheet described the steps in each strategy that they would need to implement to maximize strategy effectiveness. Use of the checklists was not preferred by any of the parents. Although one parent enjoyed “ticking a box” when she completed her daily mindfulness practice, the self-monitoring checklists appeared to be a burden for others. For example, one parent commented, “For me I don't like to do homework, or paperwork – it's a lot of work for me at home already.” These parents reported that they completed many of the home practice tasks, but also reported that they did not fill out the self-monitoring checklists when doing so. As one parent noted, “I’m not the greatest at filling out … I’ll do the mindfulness as a matter of habit but I’m not documenting that I am doing it.”

Finally, regarding *impediments to implementation*, parents viewed three of the 11 PBS strategies that they were taught as difficult to apply at home. First, parents indicated that the use of effective requests was difficult because their child often did not respond to a request shortly after it was delivered, and they were not sure what to do while waiting for the child to respond. Second, parents reported difficulty in using positive contingencies paired with visual supports, such as a visual sequence of a task followed by a picture of a reward that would be delivered after the task was completed. Finally, some parents viewed incorporating preferences into tasks and activities as effortful, despite its effectiveness. As one parent stated, “It work[s] for [my child]. I put something in to make it fun in order to attract him to do something. Yeah, it work[s]. It make[s] me so tired to [do it].”
Sustainability. Not having enough time to practice each strategy after it was presented was seen as a possible hindrance to the maintenance of skills over time. As one parent noted, “There was enough to do on our part early on; it may have been difficult to [fully learn] those other things on top of it because we were still busy focusing on the initial things.”

Promising revisions or adaptations to the program. Recommended revisions were suggestions that were seen by parents as likely to improve the existing program, while recommended adaptations were suggestions that parents felt could make the program more suitable with new groups of parents. Across the three focus groups, participants offered recommendations for revisions or adaptations that they perceived would improve the acceptability, effectiveness, feasibility and/or sustainability of the group-based FC-PBS parent training program. Consistent with an Integrated Knowledge Translation approach to intervention research, after completing the qualitative analysis for the first two focus groups, I incorporated into the program recommended revisions and adaptations that my research supervisor and I agreed were promising; that is, changes that when enacted would likely improve the acceptability, effectiveness, feasibility, and/or sustainability of the program. Participant recommendations for revisions and adaptations are presented below, organized by those that focus on improving the program’s acceptability, effectiveness and feasibility.

Enhancing program acceptability. Parent participants noted that some of the content in the presentation slides were academic in appearance, including technical terms used and the inclusion of citations. As one parent noted:

Even just to see some of the references here … that’s such a student thing to do … it doesn’t matter to me, I’m not going to fact check you … you’re not presenting to
researchers. I mean, I’m sure we are all educated in different ways but that’s probably a fair assumption that we are all just coming as parents.

Given this view, participants expressed support for removing citations from presentation slides and simplifying the language used in the slide show and in my oral presentation during sessions. The professional also noted that some of the definitions of terms and strategies were long and would benefit from being written more concisely. Parent participants also noted that references to “pop culture” that I used to explain concepts might not be understandable to parents from different cultural backgrounds. Given this, it was suggested that pop culture terms be minimized and/or explained.

Participants expressed support for the inclusion in the program of mindfulness training for parents but also offered feedback about how best to present the concept of mindfulness meditation so that it is comfortable for people coming from a variety of spiritual backgrounds, As one parent noted, “You’re going to get a lot of parents that come from different backgrounds … our Christian faith is really important to us and how we approach parenting.” Given this observation, it was recommended to focus on the secular definition of mindfulness, rather than introducing it as originating from Buddhism. One parent recommended that emphasis should be on “all the scientific benefits of meditation, and taking the time for that space.” This change was made prior to the introductory lesson on mindfulness.

As noted previously, participants expressed concern with the use of the term “homework” as it had negative connotations and seemed to imply that parents would be engaged in paper work in between sessions rather than directly implementing strategies with their child. Given this, parents agreed with the suggestion to change the term to “home practice” as this more accurately portrayed what parents would be doing.
Enhancing program effectiveness. Across the three focus groups, parents made several recommendations that would likely improve the effectiveness of the program, with a number of these suggestions occurring after participants had experienced the first four or full eight sessions. Participants expressed the value of increasing time engaged in group discussion, problem solving, and role-play activities and of reducing any tendency of the group facilitator to “rush through the slides” to ensure all content was covered. To effect these changes, it was suggested that the content of slide presentations be reduced and that a visual reminder be added to presentation slides to prompt a break from the presentation to engage in discussion. Participants also offered three recommendations aimed at strengthening their understanding and use of strategies in their daily lives in between sessions: (a) providing key take home messages at the end of every session and on home practice materials (i.e., self-monitoring checklist), (b) providing a midweek “reminder to practice” email, and (c) providing a midweek reminder of the specific strategy to focus on after parents have been introduced to a number of strategies during previous sessions.

Enhancing program feasibility. During the first focus group, participants recommended that the schedule of group parent training sessions be moved from a weekday evening to a weekend afternoon that was more feasible for the parent participants.

Incorporation of participant recommendations into the program. Following qualitative analysis of participant recommendations for revision and adaptation from the first two focus groups, I was able to readily incorporate many of these changes into the program. In the final focus group, participants reported that the recommendations that they offered in the first two focus groups were adequately incorporated. Parents noted, for example, that they appreciated the incorporation of their suggested additions of take-home or key messages at the end of every
session and on their home practice sheets, and of a midweek, “reminder to practice” email. Revisions that were incorporated into the program after the preintervention focus group and after the midpoint focus group are summarized below.

Specific changes to program from preintervention focus group. After the initial, preintervention focus group, I made the following recommended changes and applied them to all sessions of the program: (a) moved program from a weekday evening to a weekend afternoon that was feasible for parent participants, (b) decreased the “academic” appearance of presentation slides, (b) replaced in-text citations and reference lists with a bibliography at the end of each presentation, (c) simplified the language used and provided more concise definitions of technical terms and strategies, (d) used culturally respectful language with regard to the basis for and description of the mindfulness practices, and (e) referred to homework activities as “home practice” and emphasized the program’s emphasis on parents’ direct use of strategies with their child in their daily life.

Specific changes to program from midpoint focus group. After the second, midpoint focus group, I made the following recommended changes and applied them to the last four parent training sessions of the program: (a) added visual reminders on presentation slides to break for brief discussion; (b) included more discussion, sharing, and problem solving time within sessions; (c) minimized the number of presentation slides to avoid rushing through program material; (d) further simplified language and provided an explanation of pop culture references; (e) included a “take-home” message slide at the end of each session and on home practice sheet; and (f) sent midweek reminder emails to parents about what strategies they were to focus on that week.
Moving forward: Participant perspectives on the next iteration of program. During the last focus group, a substantial proportion of the discussion was on how to improve the next version of the program. In addition, as these parents only participated in the first eight sessions of the proposed 14-week full program, they shared their views about the content proposed for the six additional sessions. Participant recommendations based on the subthemes of acceptability, effectiveness, feasibility and sustainability are presented below.

Acceptability. With regard to the additional six proposed sessions, most parents stated that they could benefit from more sessions. They indicated that this would be acceptable and useful to them directly following the eight sessions they had just completed. One parent offered the contrasting view that additional sessions might be more welcome and useful after a 6-month break. This parent commented:

I don’t need any more information. I just need help with the implementation and the accountability and the review process … I would do this course again in a year’s time because there’s enough useful information in each [session], it’s just a matter of doing it.

Other suggestions related to the acceptability of the additional sessions included offering the sessions in an “a la carte” manner, and incorporating certain aspects of the additional content earlier on in the program (e.g., cognitive behavioural strategies).

Effectiveness. Parents were asked to rank order the six additional proposed sessions from 1 (most) to 6 (least) appealing. The average ranking across the five participants is presented in Table 6.
Table 6  
*Rank Ordering of Proposed Additional Topics Averaged Across All Participants*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Session</th>
<th>Participant reactions, example, and comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In-home coaching session</td>
<td>“You could become like … “Supernanny”* … you could be the “Supernanny” to this area!”</td>
</tr>
<tr>
<td>2</td>
<td>Building successful routines</td>
<td>Parent participants liked the idea of having this assignment as an “end-of-program special project.”</td>
</tr>
<tr>
<td>3</td>
<td>Whole-family support</td>
<td>The two mothers ranked this session very highly. One felt she needed more help with cooperative parenting:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Sometimes I’m a bad guy. [My husband]’s the good guy. The parents both need to … cooperate … me and [husband] don’t discuss after [we] finish the session … can we discuss more, something about that?”</td>
</tr>
<tr>
<td>4</td>
<td>Cognitive-behaviour change strategies</td>
<td>One parent suggested incorporating this topic earlier on in the program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The professional participant commented that this might only apply or be helpful to some parents.</td>
</tr>
<tr>
<td>5</td>
<td>Teaching desired behaviour</td>
<td>The professional participant felt that this would be beneficial for parents, but was concerned that the topic was too complex to be adequately addressed in a group parent training setting.</td>
</tr>
<tr>
<td>6</td>
<td>Social supports and natural resources</td>
<td>Parents had access to this information through other means, and so this was universally ranked very low.</td>
</tr>
</tbody>
</table>

*“Supernanny” is a television show in which a nanny visits parents’ homes to provide behavioural support. During the program, we watched two clips from the “Supernanny” show to demonstrate parents using strategies with their children.*

Some parent training sessions felt rushed, and also that they did not have sufficient time to practice and consolidate what they had learned. Based on that view, participants proposed stretching the 8-week program out to 10 or 12 weeks. Further, they suggested a 2- or 3-week break in the middle of the program during which they would not learn new material, but would be able to practice what they had learned up to that point. Along a similar line, one parent suggested that the final session not contain any new strategies, but instead be solely a review of the program.
While parents reported that the home practice was doable, most participants also indicated that it was difficult to find the time to complete the home practice sheets with self-monitoring checklists. Given this, one parent suggested that an online version of the self-monitoring checklist might be more convenient. Parents could, for example, access and complete the checklist via their cell phones.

Childcare was seen as necessary and very much valued by all parents. They suggested that enhancing the childcare might make it even more likely that parents would attend the program regularly. One parent stated that, “You may have to beef up the childcare aspect… that it’s not just free time or play time … maybe a little bit more structured … but get the kids excited to come, too?” Another parent agreed: “Totally. That would be my ideal, there’s a program for us and for the kids.”

*Sustainability.* All participants felt that follow-up, or “booster” sessions every 3 to 6 months would be beneficial for them to help maintain and develop fluency with the strategies, and to help each other problem solve new situations as they arose.

*Perceived outcomes of the program.* An additional theme emerged from the focus group qualitative data pertaining to perceived and potential benefits of attending the program. This final theme from the qualitative data is described below.

*Positive feelings about program attendance.* After reviewing program materials in preparation for the first focus group, participants expressed hope and excitement about the program. Parent comments include, for example, “I found reading through [the program materials] I was a better parent already,” “This is supposed to make our lives easier,” and “I’m excited for the mindfulness lesson.” At the midpoint of the program, parent participants shared that they enjoyed attending the program, felt they were benefitting from it, and wished to learn
more. During the final focus group, all parents enthusiastically agreed that they had benefitted from the program, and that they would recommend the program to others. One parent participant stated at the midpoint focus group, “I think it’s great and it’s better than I thought it was gonna be!” At the final focus group, the same parent concluded, “Thank you … I was a skeptic and now I am saying I want to take the program again!”

*Early indicators of generalization.* During the second and third focus groups, parent participants made comments that indicated their understanding and use of newly learned strategies in their daily lives. In regard to understanding, parents expressed an increased awareness of past and present mistakes in regard to the use of strategies. As one parent noted, “I found out I [made so many mistakes] in the past.” Parent participants also reported a newfound ability, when observing other parents and children, to recognize use and non-use of strategies such as making effective requests and offering choices.

In regard to the use of strategies in their daily lives, two parents reported that they were engaging in the mindfulness practices taught and indicated that they would continue to do so after the eight-session program was completed. Other parents stated that they considered their engagement in the mindfulness practices as a newly established habit. Parents also stated that they had begun to apply the strategies learned during the parent training sessions in family routines that were not discussed during sessions.

And just incorporating it … when we were biking last weekend … it's helped me to be a bit more creative and … “what strategy can I use here?” because this is what I want her to do. It’s helped me in various areas that I know are important for her.

*Accomplishments.* During the final focus group, parent participants described accomplishments that they had achieved in using positive behavior supports with their child with
DS that they attributed to participation in the eight-session program. Parents indicated that they had learned and employed many new skills, and that they had seen them work with their children. For example, one mother noted that her son was going to bed earlier due to the use of a visual schedule during the bedtime routine, and positive reinforcement for getting into bed in the form of story time with Dad. A father reflected on the ways he had changed through the course of the program and his enhanced bond with his child: “Seeing how many ways I was ineffective in my communication and requests and expectations … switching that has been really good and it has deepened my relationship with [my child].”

Summary and Research Questions

The aim of the Stage 1 study was to conduct and evaluate the effectiveness of an initial version of a FCPBS secondary prevention program designed for parents of young children with Down syndrome. Quasiexperimental pre- and postintervention results showed positive changes in child behaviour for all participants. Improvements in parent locus of control were found for three of the four parents, and decreases in parenting stress were found for only two of the four parents. Based on the qualitative analysis of focus group input and perspectives, the following changes were made to the program (a) inclusion of weeks with no new strategies taught during the program to allow parents more time to practice; (b) spreading out content of sessions across more weeks to allow discussion time for parents within sessions, as well as to aid learning and consolidation of content; (c) including midweek reminder emails and a presentation slide with take-home messages to help parents remember strategies; and (d) inclusion of additional sessions based on what all five participants felt would be most helpful to parents of children with DS (e.g., an in-home coaching session and teaching self-care skills).
Based on the Stage 1 results, these revisions to the program were made and an investigation of the expanded, improved version of the group parent training intervention via a randomized controlled trial (RCT) with a waitlist group was conducted. The RCT addressed the following research questions:

1. Is there a statistically significant improvement in parent implementation fidelity of PBS strategies as a result of the group-based, secondary prevention model of FCPBS delivered to families of young children with DS and problem behaviour?

2. Did the group parent training program result in statistically significant (a) decreases in child problem behaviour, (b) increases in child positive engagement, (c) increases in parents’ sense of parenting competence, (d) decreases in parenting stress, and (e) increases in family quality of life?

3. Was implementation of the group parent training program associated with statistically significant maintenance of child and family outcomes at 6 months follow up?

4. Was implementation of the group parent training program with the waitlist control group associated with statistically significant improvements in (a) parent implementation fidelity, (b) child problem behaviour, (c) child positive engagement; (d) parents’ sense of parenting competence, (e) parenting stress, and (f) family quality of life.

5. Did families view the approach as socially valid with respect to goals, procedures, and outcomes?
CHAPTER 3: METHOD FOR THE RANDOMIZED CONTROLLED TRIAL

This chapter describes the method of the final stage of the IKT process: an RCT of the revised FCPBS group parent training program.

Participants

Twelve families of children with DS and problem behaviour participated in the study. Participants included 12 mothers, 11 fathers, and 12 children with DS. One mother was a single parent. Siblings were also observed in eight of the families; however, no data were collected with regard to siblings. Participants were recruited through the Down Syndrome Resource Foundation (DSRF). The inclusion criteria for children were as follows: (a) a primary diagnosis of DS (additional diagnoses were permitted); (b) between 3 and 8 years old; (c) exhibition of mild-to-moderate problem behaviour with regard to intensity and potential harm to self, others, or property (e.g., noncompliance/defiance, leaving assigned area, whining or crying); and (d) the problem behaviour was present for at least 6 months. The inclusion criteria for the parents were as follows: (a) willingness to answer questionnaires and participate in assessments within the family home at three time points during the study and to take part in direct, videotaped observation of parent and child behaviour in one target family routine in the home or community; (b) willingness to commit to attend weekly sessions and complete weekly assigned homework for the duration of the program; (c) both members of each parent dyad (when two parents were present) were able to attend all sessions of the program; (d) both members of each parent dyad were fluent in oral and written English; and (e) levels of parenting stress were below the clinical cutoff on the Parenting Stress Index – Short Form (Abidin, 2012).

Interested families were contacted for a brief phone interview to determine whether they met basic criteria for study participation. These families then were taken through an informed
consent process for screening to determine whether they met study criteria. The screening comprised a brief functional assessment of child problem behaviour, a family routine assessment to determine priority routines for intervention, the selection of a primary problematic routine that would serve as a focal point during group parent training sessions, direct observation of the primary routine, and completion of a PSI-SF (Abidin, 2012). The functional assessment consisted of a brief version of the functional assessment interview (FAI; O’Neill, Albin, et al., 2015) followed by a functional assessment observation (FAO) in the primary routine to confirm hypotheses about the function or functions of behaviour (O’Neill, Albin, et al., 2015). Given a high level of confidence in the hypothesized functions of children’s problem behaviour in the primary routine for each family (i.e., a confidence rating of 4 or higher on a 6-point scale), a functional analysis was not deemed necessary (O’Neill, Albin, et al., 2015; O’Neill, Hawken, & Bundock, 2015). At the conclusion of the screening process, 12 families were selected to take part in the study and completed informed consent for study participation. Participating families were stratified by child sex, and then randomly assigned to either the experimental group or the waitlist control group. Figure 1 presents a flow chart of participants’ progress through study. Tables 7 presents child demographics by individual family, Table 8 presents parent demographics by individual family, and Table 9 presents the average demographic characteristics of participants.

All 12 families participated throughout the first assessment, the experimental control group’s parent training program, and the second assessment period. During the waitlist control group’s participation in the program, one family dropped out of the study due to the inability of both parents to attend the groups, yielding a retention rate of 92%. Average attendance across
families for the duration of the program was 99% for the experimental group, and 93% for the waitlist control group.

Figure 1. Flow of participants through each stage of randomized controlled trial.
Table 7

Child Demographics by Individual Family

<table>
<thead>
<tr>
<th>Family</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnostic Information</th>
<th>Receptive Language (PPVT raw score)</th>
<th>Expressive Language (MLU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Experimental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4;7</td>
<td>F</td>
<td>Down syndrome; autism</td>
<td>52</td>
<td>1.48</td>
</tr>
<tr>
<td>2</td>
<td>4;9</td>
<td>F</td>
<td>Down syndrome</td>
<td>62</td>
<td>1.27</td>
</tr>
<tr>
<td>3</td>
<td>5;11</td>
<td>F</td>
<td>Down syndrome</td>
<td>79</td>
<td>2.22</td>
</tr>
<tr>
<td>4</td>
<td>6;11</td>
<td>M</td>
<td>Down syndrome</td>
<td>49</td>
<td>1.76</td>
</tr>
<tr>
<td>8</td>
<td>6;6</td>
<td>M</td>
<td>Down syndrome</td>
<td>46</td>
<td>1.40</td>
</tr>
<tr>
<td>9</td>
<td>5;11</td>
<td>M</td>
<td>Down syndrome; autism</td>
<td>81</td>
<td>1.64</td>
</tr>
<tr>
<td><strong>Waitlist</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>6;3</td>
<td>M</td>
<td>Down syndrome</td>
<td>46</td>
<td>2.04</td>
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<td>6</td>
<td>5;7</td>
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<td>Down syndrome</td>
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<td>6;1</td>
<td>M</td>
<td>Down syndrome</td>
<td>79</td>
<td>1.52</td>
</tr>
<tr>
<td>10</td>
<td>6;2</td>
<td>F</td>
<td>Down syndrome; autism</td>
<td>39</td>
<td>1.20</td>
</tr>
<tr>
<td>11</td>
<td>7;1</td>
<td>M</td>
<td>Down syndrome</td>
<td>78</td>
<td>2.08</td>
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<td>12</td>
<td>5;7</td>
<td>F</td>
<td>Down syndrome</td>
<td>78</td>
<td>1.86</td>
</tr>
</tbody>
</table>

*Note. MLU = Mean length of utterance (Johnston, 2001); PPVT = Peabody Picture Vocabulary Test (Dunn & Dunn, 2007).*
<table>
<thead>
<tr>
<th>Family No. &amp; Role</th>
<th>Age</th>
<th>Ethnicity</th>
<th>Primary Language</th>
<th>Level of Education</th>
<th>Occupation</th>
<th>Work Status</th>
<th>Annual Household Income</th>
<th>No. of Children in Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 M</td>
<td>38</td>
<td>Chinese</td>
<td>Cantonese</td>
<td>Bachelor’s degree</td>
<td>Pharmacist</td>
<td>PT</td>
<td>N/A</td>
<td>2</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>F 37</td>
<td></td>
<td>Chinese</td>
<td></td>
<td>Bachelor’s degree</td>
<td>Respiratory Therapist</td>
<td>FT</td>
<td>$120,000+</td>
<td>2</td>
</tr>
<tr>
<td>2 M</td>
<td>42</td>
<td>Latin</td>
<td>English</td>
<td>Bachelor’s degree</td>
<td>Full-time parent</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 39</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Some college or university</td>
<td>Animator</td>
<td>FT</td>
<td>$120,000+</td>
<td>2</td>
</tr>
<tr>
<td>3 M</td>
<td>50</td>
<td>Caucasian</td>
<td>English</td>
<td>Graduate degree</td>
<td>High school teacher</td>
<td>FT</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>F 44</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Some college or university</td>
<td>Caregiver; musician</td>
<td>FT</td>
<td>NR</td>
<td>2</td>
</tr>
<tr>
<td>4 M</td>
<td>38</td>
<td>Caucasian</td>
<td>English</td>
<td>Bachelor’s degree</td>
<td>Full-time parent</td>
<td>N/A</td>
<td>$120,000+</td>
<td>2</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 39</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Bachelor’s degree</td>
<td>Commercial real estate broker</td>
<td>FT</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>5 M</td>
<td>40</td>
<td>Caucasian</td>
<td>English</td>
<td>Bachelor’s degree</td>
<td>Childlife Specialist</td>
<td>PT</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>F 41</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Trade school</td>
<td>Mechanical Estimator</td>
<td>FT</td>
<td>$120,000+</td>
<td>2</td>
</tr>
<tr>
<td>6 M</td>
<td>43</td>
<td>Caucasian</td>
<td>English</td>
<td>Graduate degree</td>
<td>Registered Nurse</td>
<td>PT</td>
<td>N/A</td>
<td>N/A</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>F 46</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Diploma – Accounting</td>
<td>Accountant</td>
<td>FT</td>
<td>$120,000+</td>
<td>2</td>
</tr>
<tr>
<td>Family No. &amp; Role</td>
<td>Age</td>
<td>Ethnicity</td>
<td>Primary Language</td>
<td>Level of Education</td>
<td>Occupation</td>
<td>Work Status</td>
<td>Annual Household Income</td>
<td>No. of Children in Household</td>
</tr>
<tr>
<td>------------------</td>
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<td>-----------</td>
<td>------------------</td>
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</tr>
<tr>
<td>7 M</td>
<td>37</td>
<td>Caucasian</td>
<td>English</td>
<td>Doctoral degree</td>
<td>Associate Dean</td>
<td>FT</td>
<td>$120,000+</td>
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<tr>
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<td></td>
<td>Caucasian</td>
<td></td>
<td>Doctoral degree</td>
<td>Postsecondary Instructor</td>
<td>FT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 M</td>
<td>49</td>
<td>Caucasian</td>
<td>English</td>
<td>High school</td>
<td>Full-time parent</td>
<td>N/A</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>F 49</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>High school</td>
<td>Concrete finisher</td>
<td>FT</td>
<td>$120,000+</td>
<td></td>
</tr>
<tr>
<td>9 M</td>
<td>35</td>
<td>Latin</td>
<td>English/ Spanish</td>
<td>Bachelor’s degree</td>
<td>Full-time parent</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 32</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>High school</td>
<td>Carpenter</td>
<td>FT</td>
<td>$80,000-120,000</td>
<td>3</td>
</tr>
<tr>
<td>10 M</td>
<td>49</td>
<td>Caucasian</td>
<td>English</td>
<td>Bachelor’s degree</td>
<td>911 Operator</td>
<td>PT</td>
<td>$30,000-80,000</td>
<td>1</td>
</tr>
<tr>
<td>11 M</td>
<td>49</td>
<td>Caucasian</td>
<td>English</td>
<td>N/A</td>
<td>Writer</td>
<td>PT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 47</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>N/A</td>
<td>General Manager</td>
<td>FT</td>
<td>N/A</td>
<td>3</td>
</tr>
<tr>
<td>12 M</td>
<td>41</td>
<td>Caucasian</td>
<td>English</td>
<td>Graduate degree</td>
<td>Vocational Coach</td>
<td>PT</td>
<td>$80,000-120,000</td>
<td></td>
</tr>
<tr>
<td>F 48</td>
<td></td>
<td>Caucasian</td>
<td></td>
<td>Graduate degree</td>
<td>Pastor</td>
<td>FT</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Note. F = Father; FT = Full time; M = Mother; N/A = Not available; NR = No response; PT = Part time.
Table 9

Average Demographic Characteristics of Participants

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child characteristics (n = 12)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
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<tr>
<td>Male</td>
<td>6 (50)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>6 (50)</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down syndrome</td>
<td>9 (75)</td>
<td></td>
</tr>
<tr>
<td>Down syndrome &amp; autism</td>
<td>3 (25)</td>
<td></td>
</tr>
<tr>
<td><strong>Age in Years; Months (SD in months)</strong></td>
<td>5;10 (9.00)</td>
<td></td>
</tr>
<tr>
<td><strong>Receptive vocabulary (PPVT standard score)</strong></td>
<td>60.64 (15.14)</td>
<td></td>
</tr>
<tr>
<td><strong>Mean length of utterance</strong></td>
<td>1.64 (.35)</td>
<td></td>
</tr>
<tr>
<td><strong>Parent characteristics (n = 23)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age in Years</strong></td>
<td>42.26 (5.24)</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>19 (82.60)</td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>2 (8.70)</td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>2 (8.70)</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>18 (78.26)</td>
<td></td>
</tr>
<tr>
<td>Common law</td>
<td>2 (8.70)</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>1 (4.35)</td>
<td></td>
</tr>
<tr>
<td>Single/Coparents</td>
<td>2 (8.70)</td>
<td></td>
</tr>
<tr>
<td><strong>Parent education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or less</td>
<td>3 (14.28)</td>
<td></td>
</tr>
<tr>
<td>Some college or Bachelor’s degree</td>
<td>12 (57.14)</td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td>6 (28.57)</td>
<td></td>
</tr>
</tbody>
</table>

*Note. M = mean; PPVT = Peabody Picture Vocabulary Test; SD = standard deviation.*

**Settings**

All parent training sessions took place in the boardroom at the DSRF. A second setting was a valued but problematic home or community routine for each family (i.e., the primary
routine identified during the screening process). Each family was visited in their home two times during each of three observation periods across the course of the study for assessments that involved direct observation of child and parent behaviour in the primary routine. In addition, during the intervention phase, each family was visited in their home or community setting once for individualized coaching in the primary routine.

Procedure

Prior to intervention, families all selected primary routines for intervention. The selection process as well as details regarding the FCPBS group parent training intervention are provided in the subsections that follow.

Primary routines selected for intervention. Families were first asked to think about routines that were particularly frustrating due to problem behaviour, and then asked the following question: “If we could get one routine functioning more smoothly, which one would make the most positive impact on your stress levels and your quality of life as a family?” The routine selected became the primary routine for intervention. See Table 10 for a list of primary routines chosen by each family. In addition, families were asked to choose two additional problematic routines to be addressed later in the program: a transition routine and a generalization project routine.
<table>
<thead>
<tr>
<th>Family No.</th>
<th>First Priority Primary routine</th>
<th>Examples of Topography of Behaviour</th>
<th>Primary Functions of Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Dinner</td>
<td>Noncompliance, throwing items, whining</td>
<td>Escape</td>
</tr>
<tr>
<td>2</td>
<td>Walk home from school</td>
<td>Noncompliance, stopping, whining, yelling</td>
<td>Escape</td>
</tr>
<tr>
<td>3</td>
<td>Grocery store</td>
<td>Yelling, touching items, running away</td>
<td>Tangible/attention</td>
</tr>
<tr>
<td>4</td>
<td>Walk and playground</td>
<td>Noncompliance, hitting, yelling</td>
<td>Escape</td>
</tr>
<tr>
<td>8</td>
<td>Grocery store</td>
<td>Touching items, running away, noncompliance</td>
<td>Tangible/attention</td>
</tr>
<tr>
<td>9</td>
<td>Parent busy/playtime with siblings</td>
<td>Aggression toward siblings, stereotypy</td>
<td>Attention</td>
</tr>
<tr>
<td><strong>Waitlist</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Grocery store</td>
<td>Aggression toward parent, yelling, noncompliance</td>
<td>Tangible/attention</td>
</tr>
<tr>
<td>6</td>
<td>Hygiene</td>
<td>Noncompliance, crying, whining</td>
<td>Escape</td>
</tr>
<tr>
<td>7</td>
<td>Parent busy/playtime with siblings</td>
<td>Noncompliance, leaving assigned area, aggression toward sibling</td>
<td>Attention</td>
</tr>
<tr>
<td>10</td>
<td>Parent busy/playtime</td>
<td>Climbing on furniture, stereotypy</td>
<td>Tangible/automatic reinforcement</td>
</tr>
<tr>
<td>11</td>
<td>Playground</td>
<td>Noncompliance, leaving assigned area</td>
<td>Escape/attention</td>
</tr>
<tr>
<td>12</td>
<td>Parent busy/playtime with siblings</td>
<td>Noncompliance, disruptive behaviour</td>
<td>Attention/escape</td>
</tr>
</tbody>
</table>

*Note.* Noncompliance = not following through with demand from parent within 10 seconds, e.g., saying “no,” turning away from parent, pouting, sitting down and refusing to move, whining, yelling, turning away from parent, aggression toward parent.
<table>
<thead>
<tr>
<th>Week</th>
<th>Title of Session</th>
<th>Targeted Concepts/Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understanding Problem Behaviour I</td>
<td>Introductions; group rules; behaviour in DS; 4-term behavioural contingency; functions of behaviour</td>
</tr>
<tr>
<td>2</td>
<td>Understanding Problem Behaviour II</td>
<td>Coercive/constructive family processes; child &amp; family strengths</td>
</tr>
<tr>
<td>3</td>
<td>Foundational skills; Building a Healthy Mindset</td>
<td>Mindfulness overview; helpful/unhelpful thought patterns overview; positive reinforcement via praise</td>
</tr>
<tr>
<td>4</td>
<td>Setting Event Strategies</td>
<td>DS-specific setting event strategies; House Rules</td>
</tr>
<tr>
<td>5</td>
<td>Preventative Strategies I</td>
<td>Acknowledgment system for House Rules; rationale re: prevention; effective requests</td>
</tr>
<tr>
<td>6</td>
<td>Caring for the Whole Family</td>
<td>Couples; cooperative parenting; siblings; extended family</td>
</tr>
<tr>
<td>7</td>
<td>Preventative Strategies II</td>
<td>Offering choices; positive contingencies; visual supports</td>
</tr>
<tr>
<td>8</td>
<td>In-home Coaching (no group session)</td>
<td>Interventionist visited each family to observe and give feedback on primary routine</td>
</tr>
<tr>
<td>9</td>
<td>Preventative Strategies III</td>
<td>Incorporating preferences; safety signals</td>
</tr>
<tr>
<td>10</td>
<td>Building Successful Routines</td>
<td>Rationale re: targeting routines; transition routine strategies; final project introduction (generalization project routine)</td>
</tr>
<tr>
<td>11</td>
<td>Teaching &amp; Consequence Strategies I</td>
<td>Teaching via play; rationale re: positive reinforcement of desired behaviour via tangible rewards; reinforcement menus</td>
</tr>
<tr>
<td>12</td>
<td>Teaching &amp; Consequence Strategies II</td>
<td>Functional communication training; actively ignore and positively redirect minor problem behaviour</td>
</tr>
<tr>
<td>13</td>
<td>Teaching &amp; Consequence Strategies III</td>
<td>Teaching new skills via errorless learning; review of the importance of reinforcement during learning of new skills</td>
</tr>
<tr>
<td>14</td>
<td>Review and Wrap up</td>
<td>Final presentations by each family on generalization project routines; concept review game; brainstorming re: ongoing support</td>
</tr>
</tbody>
</table>
**Intervention: FCPBS parent training program for families of children with DS.**

Parent dyads attended one 2.5-hour group session per week for 14 weeks. I was the lead facilitator for all sessions, with support from one assistant facilitator who had practical experience as a behavioural consultant and/or a special education teacher. To provide more individualized service to each family, as well as to suit varied scheduling needs of families, two groups of two to three parent dyads were conducted each week. Table 11 presents the scope and sequence of the program (more details on each session are provided in Appendix A).

**Structure of sessions.** The first two sessions focused on information delivery about problem behaviour in children with DS. After these introductory sessions, all parent training sessions began with a review of weekly home practice activities and celebration of family progress and successes. This was followed by 5 minutes of mindfulness practice and a short activity on increasing awareness of problematic cognition patterns and changing them into helpful ones. Four mindfulness practices, adapted from Singh et al. (2007), were taught over the course of the program: sitting, walking, loving-kindness, and compassionate abiding meditations. A Microsoft PowerPoint presentation was then conducted on the topic of the session, incorporating didactic information, group discussions, and interactive activities. Role-play activities of behaviour support strategies (e.g., effective requests, offering choice, descriptive praise) were modelled after the Parent Management Training – Oregon (PMTO; Knutson et al., 2009) model. For each strategy, parents watched the facilitators role-play or a video of the strategy, engaged in scripted role-play, and then created their own individualized role-play based on a situation they encountered at home. During role-play, parents evaluated examples and nonexamples of the effective use of a behaviour support strategy either by using a checklist with
guidelines for the strategy or by filling out a “right-way, wrong-way” chart in pairs or as a larger group.

*Process of sessions.* During all sessions, the facilitators embodied a collaborative role with parents. Although didactic instruction occurred as new knowledge and skills were explicitly taught, emphasis in each parent training session was on participation in activities and role-play as well as discussion. Parent empowerment was a key theme, with each session designed to equip parents with knowledge and skills to increase their self-awareness and self-confidence, their ability to effectively parent their child with DS, self-regulate their own thoughts and emotions, and solve new problems on their own. Throughout the parent training program, every effort was made to ensure sessions were useful, motivating, and enjoyable for participants via beneficial content, varied activities, humour, and prizes (Webster-Stratton & Herbert, 1993).

*Monitoring of facilitator use of process skills.* Prior to each parent training session, I reviewed a “Process Skills Implementation Checklist” to allow to me to fully attend to the 21 process skills necessary to deliver an effective group parent training program (see Appendix B). This checklist was adapted from the PMTO (Knutson et al., 2009), a well-established parent training program dedicated to delivering efficacious intervention for parents struggling with their children’s problem behaviour (Forgatch & Domenech Rodriguez, 2016). The process skills included “normalize,” “encourage/support,” and “interrupt supportively.” After each training session concluded, I completed the checklist, indicating either “yes” or “no” for the implementation of each skill. Not all process skills were relevant to each session. For example, if no conflict or resistance arose, items such as “manage resistance” or “use paradox” did not apply, and were indicated as “no.” Across all 22 sessions in which the use of the checklist was applicable, I used an average of 14 strategies (67%) per session.
**Prevention of attrition.** Active steps were taken to prevent attrition (Webster-Stratton & Herbert, 1993). Sessions were held on days and at times that were convenient for parents. In dual-parent families, both parents attended sessions, which gave them an opportunity to strengthen their relationship by problem solving their child’s behavioural issues together as a team and by providing them with quality time together as a couple. Childcare was provided at the DSRF for each session for the duration of the program. Snacks and beverages were provided during each session. Small prizes and rewards (e.g., chocolates, pencils, small toys, gift cards) were given to families at each session to encourage participation and engagement.

**Products of program.** By the end of the program, parents had a workbook of FCPBS strategies as well as a customized behaviour support plan for their primary routine that they developed collaboratively with the facilitators and other parents in their group. The plan consisted of between 10–15 strategies that covered all components of the four-term contingency: setting event, antecedent, teaching, and consequence strategies. To facilitate implementation fidelity, parents were provided with a checklist of FCPBS strategies in both full-page and pocket-sized versions. In addition, parents addressed a second problematic routine by way of a generalization project that they presented to the group on the final day of the program. For the generalization project routine, parents were instructed to include a four-term contingency diagram for the child’s problem behaviour, the function of the behaviour, strategies they applied from the implementation checklist, what was working well, and what adjustments they needed to make going forward. The nature of the project routine’s presentation was left up to the individual family, but across participants, the presentations included Microsoft PowerPoint presentations, before-and-after videos, puppet shows, and role-plays. Finally, families had a collection of visual
supports that were designed to clarify behavioural expectations as well as enhance predictability and motivation for their child, both in the three targeted routines and throughout the day or week.

**Unique features of program.** Innovative features of the group-based parent training program designed to strengthen its effectiveness included the collaborative, strength-based process described above, provision of universal FCPBS strategies, training in mindfulness and in changing problematic thought patterns, and focus on programming generalization and maintenance (Dunlap, Wilson, Strain, & Lee, 2013; Durand, Hieneman, Clarke, Wang, & Rinaldi, 2013; Singh et al. 2007). Parents were taught: (a) a set of four mindfulness practices adapted from Singh et al.’s (2007) work to help decrease stress and anxiety and increase presence during parenting tasks; (b) cognitive behaviour therapy methods to reduce problematic thought patterns and increase positive ones (Durand et al., 2013; Webster-Stratton & Hancock, 1998); and (c) a problem-solving approach to independently address new behavioural issues as they arise.

Focus on generalization and maintenance of learned skills was attained via the use of general case programming features. Generalization is the ability of learners to apply newly learned skills across novel or nontrained conditions and environments (Stokes & Baer, 1977). To promote parent generalization of positive behaviour support strategies with their child with DS in the home and community, the parent training program included the following strategies: (a) examples and role-play activities that were designed using general case programming logic (i.e., defining an instructional universe of examples of a universal PBS strategy, selecting examples that sample the range of situations in the home and community in which the use of the strategy is likely to be relevant and helpful, and teaching through role-play the selected examples; Sprague & Horner, 1984); (b) weekly home practice that included parents’ use of
strategies in the primary routine as well as in two additional problematic routines (i.e., the generalization project routine identified by the family and a transition routine); (c) a midweek reminder email prompting parents to use the strategy, re-presentation of the checklist of guidelines for strategy usage, and words of encouragement for efforts to use strategies and for attending sessions; (d) families’ selection of three routines in which to implement PBS strategies they applied strategies, an example of multiple exemplar training (Stokes & Baer, 1977); (e) families’ selection of one generalization project routine in which to implement PBS strategies, an example of training to generalize (Stokes & Baer, 1977); and finally, (f) one-on-one coaching sessions in each family’s primary routine. Parents received one individual within-routine coaching session. In vivo coaching has been shown to improve the effectiveness of training programs for implementers of interventions (Fixsen et al., 2010; Joyce & Showers, 2002). Further, changes in parents’ knowledge that may result from a training program do not often correspond to improvements in child behaviour; coaching is considered the necessary intermediary step between knowledge and practice (Wang et al., 2016).

In lieu of a group training session during Week 8, I implemented an in vivo coaching session with each family in their primary routine. Visits lasted the length of the routine plus time for feedback, and ranged between approximately 1 to 2 hours. Parents were coached on their implementation of behaviour support strategies relevant to the primary routine that they had learned up to that point in time. During a coaching session, I first explained the process of the coaching session. I then observed parents’ implementation of the strategies in the primary routine aided by an implementation checklist tailored to each family’s routine. On the checklist, I recorded whether or not and how many times the parent used each strategy as well as specific examples of both correct and incorrect strategy use. I did not provide in vivo modelling or
feedback unless the parent asked me a direct question. After the routine was completed, I asked parents to engage in self-evaluation about the routine and their use of each of the strategies. I provided parents with feedback that included positive reinforcement for strategies that they implemented well and for their overall effort during the routine, as well as corrective feedback for strategies that were not yet being implemented with fidelity. As a means of encouraging continued effort, feedback was weighted heavily toward what parents were doing well. Coaching sessions also included time for discussion, questions, and collaborative problem solving. After each coaching session concluded, I made a note to myself about which strategies I could teach during the final half of the program that might be the most useful to further improve the parent’s primary routine.

Maintenance refers to the extent to which a learner continues to perform targeted behaviours and skills over time after the interventionist has stopped providing training and support. Maintenance also refers to the sustainability of the treatment approach over time; that is, the extent to which natural agents such as parents are able to continue to implement an intervention with fidelity over time (Cooper, Heron, & Heward, 2007). Three strategies were used to promote maintenance. First, throughout the parent training program, families developed a customized packet of information that included the following: (a) a binder of printouts of Microsoft PowerPoint slides with room for notes from each session, (b) home practice exercises that were individualized to each family’s child and routine, and (c) a customized behaviour plan for the primary routine. Second, parents were actively encouraged to support one another’s use of PBS strategies with their child with DS both during the parent training program sessions and outside of the sessions in their respective homes and communities. Third, parents were actively encouraged to develop social support networks with the other parent dyads within their parent
training group that could serve as a small community of practice aimed toward supporting each other in the continued use of FCPBS strategies with their children. Six months after the waitlist control group completed intervention, a final maintenance-promotion feature was added: booster sessions. At the time of this research, one 2-hour booster session had taken place, with the remaining scheduled to occur once every 3 months. Booster sessions include an opportunity for parents to ask questions and engage in group problem solving regarding new behavioural issues.

Measurement

Dependent measures included direct observation of parent implementation fidelity, child problem behaviour and child positive engagement in the primary routine, as well as questionnaire-based parent report about child behaviour and global family functioning. Among these measures, child problem behaviour and child positive engagement were the core outcome variables for this study. Several authors have discussed the importance of including direct observation of the child’s interactions with family members when assessing child problem behaviour, and not relying on parent report measures alone (Forgatch & Domenech Rodríguez, 2016; Whittingham et al., 2009). Dependent variables and measurement procedures are described in the subsections that follow.

Instructor implementation fidelity. By way of interobserver agreement for instructor implementation fidelity, Session 7 of the waitlist control group was video recorded and evaluated by an expert observer. For this session, Laura Rains, from the PMTO program, supplemented my self-evaluation of process skill use. She used an adapted version of the Fidelity of Implementation Rating System (FIMP) manual to evaluate the session (Forgatch, Patterson, & DeGarmo, 2005). The categories of the FIMP rating system are knowledge, structure, teaching, process, and overall skills. Each category is assigned a colour according to the FIMP score
achieved: green (6–9 points), yellow (4–5 points), and red (1–3 points). The FIMP system has strong predictive validity, demonstrated by high instructor FIMP scores’ association with improvements in parenting practices (Forgatch et al., 2005).

**Direct dependent measures.** Direct dependent measures were gathered through direct (i.e., in vivo) observation using a high-definition video camera or camera phone. During each assessment time point, direct observations were conducted twice; these occurred at least 1 week apart, and the day was selected in collaboration with each family. During observations, child behaviour was video-recorded in the primary routine for each family. The routine was observed until it was completed. On two occasions, one family attempted to complete the routine, but abandoned it due to problem behaviour. Primary routines lasted between 10 and 75 minutes. Behavioural training and support were not provided during video recorded observations. Two child behavioural measures were observed: problem behaviour and positive engagement. In addition, parent accuracy of implementation of PBS strategies was observed. After observation sessions, the digital video files of the observation were downloaded onto an encrypted external hard drive in preparation for coding. Observation sessions were coded using a computer screen, QuickTime media player (Apple, 2016), and a paper and pencil coding system.

**Child problem behaviour.** Problem behaviour was defined as child behaviours that interfered with their participation in the primary routine. These included noncompliance or defiance; leaving assigned area; inappropriate talk; whining, crying, or yelling; and mild (i.e., low intensity) levels of disruptive, destructive, or aggressive behaviour. The unit of measurement was percentage of intervals of problem behaviour. A partial interval recording procedure was used with a 10-second interval. If problem behaviour occurred during any point in an interval, it was recorded as an occurrence. If no problem behaviour occurred during an interval, it was
recorded as a nonoccurrence. For each of the two observation sessions that were observed, a percentage of intervals of problem behaviour was calculated by dividing intervals with problem behaviour by the total number of intervals, multiplied by 100. Across the two observation sessions for the assessment period, the two percentages of intervals of problem behaviour were combined to yield an average percentage of intervals of problem behaviour.

**Child positive engagement.** Positive engagement was defined as the child engaging in adaptive behaviour that exemplified the child’s positive participation in the primary routine and that contributed to the routine’s success. Examples of positive engagement included child participating in an activity approved by parents (e.g., helping to put items in a grocery cart, drawing, walking beside a family member, playing a game on an iPad). Examples of nonengagement included the child participating in a behaviour or activity not approved by their parents (e.g., staying in one place when the parent had indicated it was time to move; watching TV while a “no screen-time” rule was in effect), and nonfunctional play with toys (e.g., dangling a doll by its arm; placing an iPad on feet and holding feet and iPad in the air). The unit of measurement was percentage of 10-second intervals of positive engagement. Problem behaviour, as described above, was coded first. If a child engaged in problem behaviour during an interval, this automatically corresponded to nonengagement in that same interval. If there was no problem behaviour, a modified whole interval recording procedure was used. The modification was that the child had to be engaged for at least 7 seconds of the 10-second interval for it to be scored as engaged (Vaughn, Clarke, & Dunlap, 1997). If the child was engaged for at least 7 seconds out of the 10-second interval, then it was recorded as an occurrence. If the child was not engaged for at least 7 seconds of the interval, it was recorded as a nonoccurrence. For each of the two observation sessions that occurred during an assessment period, a percentage of intervals of
engagement was calculated by dividing intervals with engagement by the total number of intervals, multiplied by 100. Across the two observation sessions for the assessment period, the two percentages of intervals of engagement were combined to yield an average percentage of intervals of engagement.

**Parent implementation of FCPBS strategies.** Implementation fidelity was defined as parent accurate implementation of PBS strategies taught during the parent training program. Implementation fidelity was assessed using a checklist of strategies that was individualized to each family’s primary routine. Observers marked “yes,” “no,” or “not applicable” for each strategy. To be marked as “yes,” the parents had to use the strategy at least once correctly. If they attempted the strategy more than once, 70% or more of the instances of use were required to be accurate. Seventy percent was deemed to be a reasonable target for parents to achieve, given that they were new to learning and using the strategies. This minimal level of accuracy across strategies was associated with children’s successful participation in the primary routine as measured by child problem behaviour and positive engagement, and parent ratings of the social validity of goals, procedures and outcomes.

A percentage of strategies that were accurately implemented was calculated (Fettig, Schultz, & Sreckovic, 2015). See Appendix C for examples and nonexamples of FCPBS strategies used by parents.

**Interobserver agreement procedures.** A second observer was trained to observe and code video-recorded occurrences of child problem behaviour and positive engagement as well as parent implementation fidelity. The observer was procedurally blind to the study’s phases and the families’ group memberships. The second observer was provided with a scoring manual containing operational definitions, examples and non-examples of child target behaviours and
parent PBS strategy use, and a scoring protocol. During an interobserver agreement (IOA) training session, the primary coder began by coding the video while the second coder watched the procedure. Then, both observers independently scored the data and compared the results. If the scores did not meet the criteria, the observers compared and discussed operational definitions, examples and non-examples, and conducted another IOA session with the same training observation until the criteria were reached. Observer training continued until the second observer achieved 90% accuracy across two consecutive IOA trials. The second observer was trained on both pre- and postintervention videos for each family. After training, independent IOA sessions were conducted on a random sample of 30% of the videos (22 videos in total). IOA session videos were balanced across the three assessment periods and the 12 families.

Only data recorded by the primary researcher were used for data analysis, though disagreements were reevaluated. Percentage of total agreement for each measure was calculated by dividing the number of agreements by the total number of agreements and disagreements, multiplied by 100. For child problem behaviour, average agreement was 88.5%, ranging from 81.9% to 95.9%. With regard to child engagement in the routine, average agreement was 86.7%, ranging from 74.3% to 96.1%. For parent implementation fidelity, average agreement was 85.4%, ranging from 62.5% to 100.0%. The lower end of this range represents fewer strategies used by the parent during a short routine.

**Indirect dependent measures.** Parent report measures included one questionnaire on child problem behaviour and three questionnaires examining global family functioning. All parents were also given a social validity questionnaire and a program feedback form. Parents were given only two questionnaires at a time to avoid fatigue, and mothers and fathers were
instructed to complete the questionnaires separately (i.e., in separate rooms or at different times from one another).

**Behaviour rating scales.** An adapted version of Behaviour Rating Scales from Dunlap et al. (2013) were used to track positive and adaptive behaviours in the generalization project and transition routines. Behaviour rating scales measure parents’ overall perception of their children’s behaviour, and were developed as an easier way for parents to track behaviours. Behaviour Rating Scales are typically developed on an individual basis, using descriptions of the specific topographies, as well as what dimension of measurement best fits (e.g., frequency, intensity, duration). Anchor points on a scale of one to five are determined, and parents are asked to rate the behaviour on a regular basis; for example, once per morning or after a specific routine. In this group design study, anchor points were kept the same across families: for problem behaviour, this was based on frequency and ranged from “nonstop” to “none,” and for engaged behaviour, this was based on degree of participation and ranged from “did not participate” to “participated fully.” Descriptions of the problem and adaptive behaviours specific to each child’s routine were noted on the scale. See Appendix D for an example of the Behaviour Rating Scales used in this study. The primary parent recorded their ratings after the completion of each routine. During each assessment period, parents recorded their ratings of behaviour between three and 14 times, depending on the frequency of the routine’s occurrence.

**Eyberg Child Behavior Inventory.** The Eyberg Child Behavior Inventory (ECBI), a 36-item parent report questionnaire, served as an indirect measure of child problem behaviour across all family settings (Eyberg & Pincus, 1999). The questionnaire has two subscales: Intensity and Problem for ages 2–16 years. The Intensity subscale requires parents to rate the frequency of each statement about their child’s behaviour using a 7-point Likert-type scale (1 =
Never, 4 = Sometimes, 7 = Always). For the Problem subscale, parents also indicate for each statement whether or not the behaviour bothers them by circling either “Yes” or “No.” Scores for Intensity at or above 131 points and Problem at or above 13 points are considered clinically significant behavioural issues. The ECBI has been used to measure behavioural issues in children with autism and other developmental disabilities, including within studies evaluating behavioural parent training programs (Jeter, Zlomke, Shawler, & Sullivan, 2017). This assessment has been found to be psychometrically sound, including an internal consistency coefficient of .98 for both subscales (Eyberg & Robinson, 1983).

**Parenting Sense of Competence Scale.** The Parenting Sense of Competence Scale (PSOC) comprises 17 items that assess two areas of parenting competence: Parenting Efficacy and Parenting Satisfaction (Gibaud-Wallston & Wandersman, 1978). Parents rate each item on a Likert-type scale from 1–6 points (Strongly Agree, Agree, Somewhat Agree, Somewhat Disagree, Disagree, and Strongly Disagree). Internal consistency of both the Efficacy and Satisfaction subscales ranged from .77 to .80 for both mothers and fathers (Johnston & Mash, 1989). The measure has also been found to correlate with other assessments of family functioning; for example, high levels of child problem behaviour as measured by the Child Behavior Checklist (Achenbach & Rescorla, 2000) was found to negatively correlate with Parenting Satisfaction (Ohan, Leung, & Johnston, 2000).

**Parenting Stress Index-Short Form.** The PSI-SF (Abidin, 2012) is a 36-item self-report questionnaire designed to measure the relative magnitude of stress in the parent–child system. From a normative sample of 2,633 mothers, the PSI has been standardized for use with parents of children one to 12 years of age (Abidin, 2012). Parent responses generate a total stress score that is converted into a percentile score, which is derived from the frequency distribution of a
normative sample. Total stress scores between the 15th and 80th percentile are normal and scores at or above the 85th percentile (i.e., a raw score of 110 or above) are considered within the clinical range. The PSI-SF has been found to have good test-retest and internal consistency reliability. The short form correlates highly with the full-length form, which has substantial evidence to support both predictive and construct validity (Abidin, 2012; Haskett, Ahern, Warn, & Allaire, 2006).

**Beach Center Family Quality of Life Scale.** The Family Quality of Life (FQOL) scale (Park et al., 2003) is comprised of 25 items that assess five family quality of life domains: family interaction, parenting, emotional wellbeing, physical/material wellbeing, and disability-related support. For each item, parents rate the level of importance and satisfaction on a Likert-type scale (1 = Very Dissatisfied, 5 = Very Satisfied). Parent responses yield an average rating of quality of life quality within and across domains. Psychometric properties include satisfactory test-retest reliability and convergent validity (Hoffman, Marquis, Poston, Summers, & Turnbull, 2006).

**Social validity.** The social validity of the parent training program was measured by administering a 10-item questionnaire (see Appendix E). The social validity questionnaire evaluated the acceptability and importance of the program’s goals, procedures, and outcomes (Schwartz & Baer, 1991). Questions were rated on a Likert-type scale from 1 to 5 (1 = Disagree, 5 = Agree). Each parent completed the questionnaire. For each evaluation, an average social validity rating across the total number of items was calculated and used as a rating of social validity.

In addition to the social validity questionnaire, parents were also given a lengthier program feedback questionnaire. This was intended to elicit more detailed information from
parents that could be incorporated into future program iterations. The question topics included which strategies were easiest and hardest to use right away, what accomplishments parents were most proud of, and whether they felt the length of the sessions and full program were adequate. The feedback form is included in Appendix F.

**Research Design**

I employed a randomized controlled trial design with a waitlist control group to evaluate the effectiveness of the FCPBS group parent training intervention. Participating families were stratified by child sex and then randomly assigned to either the experimental group (EG) or the waitlist control group (WG). The study had five phases: (a) Assessment I – baseline for all families; (b) Intervention I – EG families; treatment as usual – WG families (c) Assessment II – postintervention for EG; second baseline for WG; (d) Intervention II – WG families; treatment as usual – EG families; and (e) Assessment III – postintervention for WG; follow up for EG. For WG families, “treatment as usual” included therapies commonly given to children with DS, such as weekly speech and language or occupational therapy sessions. The WG families did not receive behavioural or parenting support during this time. All assessment periods included video-recorded observations of the primary routine as well the administration of all questionnaires regarding child behaviour and family functioning. The social validity questionnaire and the program feedback form were only given once to each parent during the process (immediately after they completed the program). Figure 2 presents a diagram of the study design and phases.

<table>
<thead>
<tr>
<th>Study Phases</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental Group</strong></td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td><strong>Waitlist Control Group</strong></td>
<td>O</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>
Figure 2. The randomized controlled trial research design represented in chronological order.

Note. O = Observation/Assessment; X = Intervention (Parent Training Program).

Data Analysis

The data analysis strategy for this study was modelled after a research paper by Whittingham et al. (2009). While many studies within the parent training literature employed waitlist control groups, they typically analyzed the data as a two-by-two design and then reported only the interaction effect of group X time to demonstrate treatment effectiveness (e.g., Fabiano et al., 2012; Roberts et al., 2006). Whittingham et al. examined the comparative analysis of the treatment effect between the experimental and waitlist control groups, the maintenance effect for the experimental group, and a pre–post measure of the waitlist control group only to determine if participants benefitted from the treatment.

Due to the small sample size and high probability of nonnormality of the data in the current study, I employed nonparametric statistics throughout. For each dependent measure, I began with a comparative analysis of the treatment effect. Given that there is no nonparametric equivalent to a two-by-two ANOVA, I used difference scores between Assessment I and II for both groups and then ran a Mann-Whitney U test to determine whether one group changed significantly more than the other between the two assessment points (Maxwell & Howard, 1981). A Mann-Whitney U test was used because it is the nonparametric counterpart to an independent samples paired t-test. If a significant comparative effect of intervention was present, I employed a Wilcoxon Signed-ranks test between Assessment I (Preintervention) and III (Follow up) for the EG only to test for a maintenance effect. Wilcoxon Signed-ranks test is preferable as a nonparametric repeated-measures test over the Friedman test if there are only two data points, as it possesses a slight power advantage (Zimmerman & Zumbo, 1993).
The final two analyses were conducted separately from the RCT design in that they did not involve a comparison group. First, if there was no significant effect of treatment efficacy given by the Mann-Whitney U test above, I ran a Friedman test across all three assessment points for the EG only to determine whether there was change over time. If this was significant, I used a series of Wilcoxon Signed-ranks tests as post hoc measures to determine which of the pairwise comparisons were significant (i.e., Assessment I & II, Assessment I & III, or Assessment II & III). Second, a Wilcoxon Signed-ranks test between Assessment II (Baseline 2) and Assessment III (Postintervention) for the waitlist control group only was done on each dependent variable to determine whether they benefitted from the treatment.

All reported p-values from Mann-Whitney U and Friedman tests are one-tailed due to the directional hypotheses of each research question. Wilcoxon signed-rank test p-values are two-tailed, as this is the sole option in the statistical analysis software used (SPSS v. 25).
CHAPTER 4: RESULTS OF THE RCT

This chapter describes the results of the RCT investigation of the FCPBS group parent training program. Results for the experimental group (EG) and waitlist control group (WG) were analyzed using nonparametric statistics across three assessment points in which dependent variables were measured: (a) preintervention for EG and WG; (b) postintervention for EG and treatment as usual for WG; and (c) follow up for EG and postintervention for WG. Dependent variables measured at each assessment point were parent implementation fidelity, child problem behaviour and positive engagement in a primary routine, problem behaviour and positive engagement in two generalization routines, a questionnaire of problem behaviour, and three measures of global family functioning. Social validity was measured at postintervention for both groups. In regard to participant retention, all 12 families participated in the first and second assessment points, with all 6 families in the EG participating in the intervention. During intervention with the WG, one family dropped out due to the inability of the father to continue participation. This yielded an overall retention rate of 92%.

Before beginning analyses with respect to the research questions, a series of Mann-Whitney U tests were conducted on all Assessment I measures to determine whether children and parents in the experimental and waitlist control groups differed significantly. No statistically significant differences were found across the full set of dependent variables, as well as for child age, parent age, child receptive language level, child expressive language level, and number of children in the household, indicating that participants were equally matched between the two groups (all comparisons \( p > .05 \)).

Results are presented in the following order, consistent with the study’s experimental and descriptive research questions: (a) parent implementation fidelity; (b) child problem behaviour;
(c) child positive engagement; (d) family functioning; (e) facilitator implementation fidelity; and (f) parent social validity. A Mann-Whitney U test was conducted for each experimental dependent variable to determine whether there was a comparative effect of intervention between the EG and WG. If a significant difference between the groups was found, an effect size was computed to determine the magnitude of the difference between the groups. The effect size is an important indicator of clinical significance (Hojat & Xu, 2004). The effect size measure employed was eta squared ($\eta^2$), which is a widely used statistic in the intervention literature, including the behaviour parent training literature (Cohen, 1988; Whittingham et al., 2009). For eta squared, a small effect = .01, a medium effect = .06, and a large effect = .14 (Cohen, 1988). A Wilcoxon Signed-Ranks test was conducted for each significant experimental dependent variable to examine whether there was a maintenance effect for the EG. The Wilcoxon Signed-Ranks test also was conducted for each experimental variable to determine whether there was an intervention effect for the WG when comparing Preintervention 2 with postintervention measurement. Lastly, if a comparative intervention effect between the EG and WG was not evidenced, a Friedman Test was conducted to examine whether a within group effect occurred for the EG.

**Parent Implementation Fidelity: Use of Strategies**

Parents’ accurate use of PBS strategies was measured via direct observation of video-recorded primary routines at all three assessment points for both groups. Parents’ average percentage of accurate use is presented in Tables 12 and 13, and Figure 3 for each assessment point. In regard to the comparative effect of the intervention on parents’ accurate use of PBS strategies, results of the Mann-Whitney U test demonstrated a statistically significant difference in the change in average percentage of parents’ accurate use of PBS strategies between
Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +55.56$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = -3.59$; $U = .00$, $Z = -2.88$, $p = .002$). This difference represented a large effect ($\eta^2 = .75$). In other words, parents in the EG showed a significant improvement in their use of PBS strategies compared to parents in the WG. In regard to maintenance of the intervention effect for parents’ accurate use of PBS strategies, the Wilcoxon Signed-Ranks test for the EG revealed a significant increase in parents’ accurate use between Assessment I (Preintervention, $Mdn = 23.91\%$) and Assessment III (Follow up, $Mdn = 72.55\%$; $Z = -2.20$, $p = .028$). Regarding an intervention effect for the WG, the Wilcoxon Signed-Ranks test also showed a significant increase in parents’ accurate use of PBS strategies between Assessment II (Preintervention 2, $Mdn = 14.11\%$) and Assessment III (Postintervention, $Mdn = 80.91\%$; $Z = -2.02$, $p = .043$).

Table 12

Parents’ Accurate Use of PBS Strategies

<table>
<thead>
<tr>
<th>Group</th>
<th>Assessments</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>Mean</td>
<td>22.98</td>
<td>75.33</td>
<td>71.58</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>11.98</td>
<td>10.76</td>
<td>8.35</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>9.55–38.46</td>
<td>59.09–92.31</td>
<td>60.26–81.82</td>
</tr>
<tr>
<td>Waitlist</td>
<td>Mean</td>
<td>19.39</td>
<td>16.37</td>
<td>77.59</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.52</td>
<td>10.58</td>
<td>19.41</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>15.00–27.27</td>
<td>3.85–29.17</td>
<td>50.00–100.00</td>
</tr>
</tbody>
</table>

Note. Assessment I = Preintervention for Experimental Group (EG), Preintervention 1 for Waitlist Group (WG); Assessment II = Postintervention for EG, Preintervention 2 for WG; Assessment III = Follow up for EG, Postintervention for WG; $SD = \text{Standard deviation}$.

Table 13

Percentage of PBS Strategies Used by Parents Postintervention: Most to Least Successful Usage
Table 14. Average percentage of parents’ accurate use of PBS strategies for the two groups across three assessment points.

<table>
<thead>
<tr>
<th>PBS Strategy</th>
<th>Percentage of accurate usage after intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive reinforcement: praise after desirable behaviour</td>
<td>100</td>
</tr>
<tr>
<td>Responding to functional communication phrase</td>
<td>100</td>
</tr>
<tr>
<td>Incorporating preferences</td>
<td>91</td>
</tr>
<tr>
<td>Environmental setting event strategies (e.g., ensuring backpack straps are tight prior to a walk)</td>
<td>82</td>
</tr>
<tr>
<td>Offering choices</td>
<td>82</td>
</tr>
<tr>
<td>Safety signals</td>
<td>78</td>
</tr>
<tr>
<td>Positive contingency statements</td>
<td>67</td>
</tr>
<tr>
<td>Effective requests</td>
<td>64</td>
</tr>
<tr>
<td>Visual supports (e.g., to enhance predictability)</td>
<td>60</td>
</tr>
<tr>
<td>Positive reinforcement: reward at end of routine</td>
<td>60</td>
</tr>
<tr>
<td>Actively ignore and positively redirect minor problem behaviour</td>
<td>36</td>
</tr>
</tbody>
</table>

Figure 3. Average percentage of parents’ accurate use of PBS strategies for the two groups across three assessment points.

**Child Problem Behaviour**

Child problem behaviour was measured both directly and indirectly across the three assessment points for the two groups. Average scores on each measure across the three assessment points are provided in Table 14.
**Direct measures.** Direct observation of child problem behaviour consisted of two video-recorded observations of each family’s primary routine at each assessment point. Figure 4 shows the average percentage of intervals of problem behaviour for the two groups across the three assessment points. In regard to the comparative effect of intervention on directly observed child problem behaviour, the Mann-Whitney U test showed a statistically significant difference in the change in median percentage of intervals of problem behaviour between Assessments I and II for the EG (Preintervention to Postintervention, Mdn = -25.48) compared to the WG (Preintervention 1 to Preintervention 2, Mdn = +5.81; U = .00, Z = -2.88, p = .002). This difference represented a large effect (η² = .75). In other words, children in the EG showed a significant decrease in problem behaviour compared to children in the WG. In regard to maintenance of the intervention effect on directly observed child problem behaviour, the Wilcoxon Signed-Ranks test for the EG showed a significant decrease in the percentage of intervals of child problem behaviour between Assessment I (Preintervention, Mdn = 37.85%) and Assessment III (Follow up, Mdn = 12.33%; Z = -2.20, p = .028). With respect to the average percentage of child problem behaviour for the WG, the Wilcoxon Signed-Ranks test also showed a significant decrease between Assessment II (Preintervention 2, Mdn = 35.40%) and Assessment III (Postintervention, Mdn = 9.60%; Z = -2.02, p = .043).
Table 14

Direct Observation and Behaviour Rating Scale Measures of Child Problem Behaviour: Means, SDs, and Ranges

<table>
<thead>
<tr>
<th>Child Problem Behaviour</th>
<th>Behaviour Rating Scale: Generalization Project Routine Problem Behaviour</th>
<th>Behaviour Rating Scale: Transition Routine Problem Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td><strong>Direct Observation: Child Problem Behaviour</strong></td>
<td><strong>Experimental</strong></td>
<td><strong>Waitlist</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>39.09</td>
<td>34.96</td>
</tr>
<tr>
<td>SD</td>
<td>9.22</td>
<td>16.75</td>
</tr>
<tr>
<td>Range</td>
<td>27.12-</td>
<td>21.38-</td>
</tr>
</tbody>
</table>

*Note.* Numerals I, II, and III refer to assessment points. I = Preintervention for Experimental Group, Preintervention 1 for Waitlist Control Group; II = Postintervention for Experimental Group, Preintervention 2 for Waitlist Control Group; III = Follow up for Experimental Group, Postintervention for Waitlist Control Group. SD = Standard deviation.

**Figure 4.** Average percentage of intervals of problem behaviour in the primary routine for the two groups across three assessment points.
**Indirect measures.** Indirect measures of child problem behaviour included parent report via a Behaviour Rating Scale (Dunlap et al., 2013) by the primary parent in two generalization routines: the generalization project routine and the transition routine. In all cases, the primary parent was the mother. On the Behaviour Rating Scales, parents rated child problem behaviour on a scale of one to five (e.g., regarding problem behaviour, 1 = None and 5 = Nonstop). In addition, both mothers and fathers completed the Eyberg Child Behavior Inventory (ECBI: Eyberg & Pincus, 1999). Results for the Behaviour Rating Scale measures are presented in Table 14 and Figures 5 and 6.

**Behaviour rating scale: Generalization project routine.** In regard to the comparative effect of intervention on average parent ratings of child problem behaviour in the generalization project routine, results of the Mann-Whitney U test revealed a significant difference in the change in average parent ratings of child problem behaviour between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = -1.40$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = -.15$; $U = .00$, $Z = -2.89$, $p = .002$). This difference represented a large effect ($\eta^2 = .76$). In other words, parents in the EG rated their child as showing a significant decrease in problem behaviour compared to children in the WG. In regard to maintenance of the intervention effect on average parent ratings of child problem behaviour in the project routine for the EG, the Wilcoxon Signed-Ranks test showed a significant decrease in average parent ratings between Assessment I (Preintervention, $Mdn = 3.30$) and Assessment III (Follow up, $Mdn = 2.05$; $Z = -2.00$, $p = .046$). With respect to average parent ratings of child problem behaviour in the project routine for the WG, results of the Wilcoxon Signed-Ranks test did not show a significant decrease in parent ratings of child problem behaviour between Assessment II
(Preintervention 2; $Mdn = 2.50$) and Assessment III (Postintervention; $Mdn = 2.50$; $Z = -0.94$, $p = .345$).

![Graph showing average parent ratings of problem behaviour across assessment points](image)

Figure 5. Average parent ratings of problem behaviour in the generalization project routine for the two groups across three assessment points.

**Behaviour rating scale: Transition routine.** In regard to the comparative effect of intervention on average parent ratings of child problem behaviour in the transition routine, the Mann-Whitney U test showed no significant difference in the change in parent average ratings of child problem behaviour between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = -1.00$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = 0.00$; $U = 8.50$, $Z = -1.54$, $p = .132$).

Given that no comparative effect of treatment was documented between the EG and the WG, the Friedman test was conducted to determine whether the EG alone showed changes in average parent ratings of child problem behaviour in the transition routine across time. Results of the within-subjects test indicated a statistically significant difference in average parent ratings of child problem behaviour across Assessment I (Preintervention, $M = 2.17$), Assessment II (Postintervention, $M = 1.80$), and Assessment III (Follow up, $M = 1.74$; $\chi^2 = 6.52$, $p = .038$).
Post hoc Wilcoxon Signed-Ranks tests indicated one significant comparison: a decrease in average parent ratings of child problem behaviour from Assessment I to Assessment III ($Z = -2.20, p = .028$).

With respect to average parent ratings of child problem behaviour in the transition routine for the WG, results of the Wilcoxon Signed-Ranks test did not show a significant decrease in parent ratings of child problem behaviour between Assessment II (Preintervention 2, $Mdn = 3.00$) and Assessment III (Postintervention, $Mdn = 2.0$; $Z = -1.79, p = .074$).

![Figure 6. Average parent ratings of problem behaviour in the transition routine for the two groups across all three assessment points.](image)

**Eyberg Child Behavior Inventory: Intensity subscale – Mothers.** Mothers’ average ECBI scores for intensity of problem behaviour across the three assessment points are shown in Table 15 and Figure 7. The Mann-Whitney U test was utilized to test whether there was a difference in change scores between the EG and WG in mothers’ average scores for intensity of problem behaviour across the first two time points. Results revealed a significant difference in the change in mothers’ scores for intensity of child problem behaviour between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = -22.00$) compared to the WG.
(Preintervention 1 to Preintervention 2, $Mdn = +13.00$; $U = 4.50$, $Z = -2.17$, $p = .026$). This difference represented a large effect ($\eta^2 = .43$). In other words, mothers in the EG rated their child as showing a significant decrease in the intensity of problem behaviour compared to children in the WG. In regard to maintenance of the intervention effect on mothers’ average scores of intensity of child problem behaviour for the EG, the Wilcoxon Signed-ranks test indicated that there was no significant difference between Assessment I (Preintervention, $Mdn = 125.00$) and Assessment III (Follow up, $Mdn = 95.00$; $Z = -1.57$, $p = .116$).

Table 15
Mothers’ Questionnaire Data for Child Problem Behaviour: Means, SDs, and Ranges

<table>
<thead>
<tr>
<th>Group</th>
<th>ECBI Intensity</th>
<th></th>
<th></th>
<th>ECBI Problem</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>Experimental</td>
<td>122.83</td>
<td>99.50</td>
<td>99.00</td>
<td>9.00</td>
<td>6.33</td>
</tr>
<tr>
<td>Mean</td>
<td>19.31</td>
<td>23.50</td>
<td>23.44</td>
<td>6.03</td>
<td>4.32</td>
</tr>
<tr>
<td>SD</td>
<td>51.00-145.00</td>
<td>77.00-145.00</td>
<td>77.00-144.00</td>
<td>3.00-17.00</td>
<td>0.00-12.00</td>
</tr>
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<td>Range</td>
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<td>125.8</td>
<td>9.33</td>
<td>10.17</td>
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<tr>
<td>SD</td>
<td>29.80</td>
<td>27.32</td>
<td>23.03</td>
<td>4.59</td>
<td>5.91</td>
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<tr>
<td>Range</td>
<td>86.00-155.00</td>
<td>73.00-154.00</td>
<td>56.00-142.00</td>
<td>5.00-15.00</td>
<td>5.00-20.00</td>
</tr>
</tbody>
</table>

Note. Numerals I, II, and III refer to assessment points. I = Preintervention for Experimental Group (EG), Preintervention 1 for Waitlist Control Group (WG); II = Postintervention for EG, Preintervention 2 for WG; III = Follow up for EG, Postintervention for WG. SD = Standard deviation.

To determine whether there was an effect of intervention on the WG mothers with regard to average scores of intensity of child problem behaviour, the Wilcoxon Signed-Ranks test was conducted. Results showed no significant difference between Assessment II (Preintervention 2, $Mdn = 140.50$) and Assessment III (Postintervention, $Mdn = 137.00$; $Z = -.68$, $p = .498$).
Figure 7. Mothers’ average scores for intensity of problem behaviour for the two groups across three assessment points.

*Eyberg Child Behavior Inventory: Intensity subscale – Fathers.* Fathers’ average ECBI scores for intensity of problem behaviour across the three assessment points are shown in Table 16 and Figure 8. The Mann-Whitney U test was used to test whether there was a difference in change scores between the EG and WG in fathers’ average scores for intensity of problem behaviour across the first two time points. Results showed no significant difference in the change in fathers’ scores for the intensity of child problem behaviour between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +5.00$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = -2.00$; $U = 8.50$, $Z = -1.19$, $p = .247$).

Given that no comparative effect of treatment was documented between the two groups, the Friedman test was conducted to determine whether the EG alone showed changes in fathers’ average scores for intensity of child problem behaviour across time. Results of the within-subjects test did not indicate a statistically significant change in ratings of problem behaviour.
across Assessment I (Preintervention, \(M = 113.50\)), Assessment II (Postintervention, \(M = 122.00\)), and Assessment III (Follow up, \(M = 108.50\); \(\chi^2 = 2.33, p = .311\)).

Table 16

*Fathers’ Questionnaire Data for Child Problem Behaviour: Means, SDs, and Ranges*

<table>
<thead>
<tr>
<th></th>
<th>ECBI Intensity</th>
<th></th>
<th>ECBI Problem</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>113.50</td>
<td>122.00</td>
<td>108.50</td>
<td>5.17</td>
</tr>
<tr>
<td>SD</td>
<td>9.97</td>
<td>22.17</td>
<td>27.32</td>
<td>8.89</td>
</tr>
<tr>
<td>Range</td>
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<td>86.00-153.00</td>
<td>68.00-150.00</td>
<td>0.00-23.00</td>
</tr>
<tr>
<td>Waitlist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>128.80</td>
<td>121.40</td>
<td>123.00</td>
<td>10.20</td>
</tr>
<tr>
<td>SD</td>
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<td>5.32</td>
<td>15.88</td>
<td>7.73</td>
</tr>
<tr>
<td>Range</td>
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<td>117.00-129.00</td>
<td>106.00-144.00</td>
<td>6.00-24.00</td>
</tr>
</tbody>
</table>

*Note.* Numerals I, II, and III refer to assessment points. I = Preintervention for EG, Preintervention 1 for WG; II = Postintervention for EG, Preintervention 2 for WG; III = Follow-up for EG, Postintervention for WG. SD = Standard deviation.

*Figure 8.* Fathers’ average scores for intensity of problem behaviour for the two groups across three assessment points.

To determine whether there was an effect of intervention on the WG fathers with regard to average scores of intensity of child problem behaviour, the Wilcoxon Signed-Ranks test was
conducted. Results showed that there was no significant difference between Assessment II (Preintervention 2, $Mdn = 118.00$) and Assessment III (Postintervention, $Mdn = 121.00$; $Z = .00$, $p = 1.00$).

*Eyberg Child Behavior Inventory: Problem subscale – Mothers.* Table 15 and Figure 9 show mothers’ average ECBI scores for the number of perceived problem behaviours across the three assessment points. The Mann-Whitney U was employed to test for a comparative effect of intervention between the EG and the WG. Results showed no statistically significant difference in change scores from Assessment I to Assessment II for the EG in mothers’ perceived number of problem behaviours (Preintervention to Postintervention, $Mdn = 0.00$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = +1.00$; $U = 13.50$, $Z = -.72$, $p = .485$).

Given the absence of a comparative treatment effect, the Friedman test was conducted to determine whether the mothers in the EG showed changes in average number of perceived child problem behaviours across time. The within-subjects test indicated no significant difference across Assessment I (Preintervention, $M = 9.00$), Assessment II (Postintervention, $M = 6.33$), and Assessment III (Follow up, $M = 3.17$; $\chi^2 = 3.90$, $p = .143$).

To determine whether there was an effect of intervention on the WG mothers with regard to average number of perceived problem behaviours, the Wilcoxon Signed-Ranks test was conducted. There was no significant difference between Assessment II (Preintervention 2, $Mdn = 8.50$) and Assessment III (Postintervention, $Mdn = 6.00$; $Z = -1.76$, $p = .078$).
Figure 9. Mothers’ average number of perceived problem behaviours for the two groups across three assessment points.

Eyberg Child Behavior Inventory: Problem subscale – Fathers. Table 16 and Figure 10 show fathers’ average ECBI scores for the number of perceived problem behaviours across the three assessment points. The Mann-Whitney U was employed to test for a comparative effect of intervention between the two groups. Results showed no significant difference in the change in fathers’ report of number of perceived child problem behaviours between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +1.00$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = +1.00$; $U = 12.00$, $Z = -.55$, $p = .662$).

Given the absence of a comparative treatment effect, the Friedman test was conducted to determine whether the fathers in the EG showed changes in the average number of perceived child problem behaviours across time. The within-subjects test indicated no significant difference across Assessment I (Preintervention, $M = 5.17$), Assessment II (Postintervention, $M = 7.83$), and Assessment III (Follow up, $M = 4.67$; $\chi^2 = 2.21$, $p = .331$).

To determine whether there was an effect of intervention on the WG fathers with regard to average number of perceived problem behaviours, the Wilcoxon Signed-Ranks test was
conducted. Results showed no significant difference between Assessment II (Preintervention 2, $Md\bar{n} = 8.00$) and Assessment III (Postintervention, $Md\bar{n} = 4.50$; $Z = -1.60$, $p = .109$).

![Graph showing the average number of perceived problem behaviours for fathers across three assessment points](image)

**Figure 10.** Fathers’ average number of perceived problem behaviours for the two groups across three assessment points.

**Child Positive Engagement**

Child positive engagement was measured both directly and indirectly at all three assessment points for the two groups. Average scores on each measure across the three assessment points are provided in Table 17.
Table 17

Direct Observation and Behaviour Rating Scale Measures of Child Positive Engagement:
Means, Standard Deviations, and Ranges

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>50.37</td>
<td>3.00</td>
<td>3.50</td>
</tr>
<tr>
<td>SD</td>
<td>15.58</td>
<td>.39</td>
<td>.40</td>
</tr>
<tr>
<td>Range</td>
<td>31.16-67.52</td>
<td>2.50-3.60</td>
<td>2.90-3.60-3.50</td>
</tr>
<tr>
<td>Waitlist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>54.68</td>
<td>3.16</td>
<td>3.22</td>
</tr>
<tr>
<td>SD</td>
<td>16.37</td>
<td>.50</td>
<td>1.28</td>
</tr>
<tr>
<td>Range</td>
<td>31.78-76.34</td>
<td>2.50-3.60</td>
<td>1.60-3.00-3.00</td>
</tr>
</tbody>
</table>

Note. Numerals I, II, and III refer to assessment points. I = Preintervention for Experimental Group (EG), Preintervention 1 for Waitlist Control Group (WG); II = Postintervention for EG, Preintervention 2 for WG; III = Follow up for EG, Postintervention for WG; SD = Standard deviation.

**Direct measure.** Direct observation of child positive engagement consisted of two video-recorded observations of each family’s primary routine at each assessment point. Figure 11 presents the average percentage of intervals of child positive engagement for the two groups across the three assessment points. In regard to the comparative effect of intervention on directly observed child positive engagement, the Mann-Whitney U test showed a statistically significant difference in the change in average percentage of positive engagement between Assessments I and II for the EG (Preintervention to Postintervention, \( Mdn = +29.07 \)) compared to the WG (Preintervention 1 to Preintervention 2, \( Mdn = -3.81; U = .00, Z = -2.88, p = .002 \)). This difference represented a large effect \( (\eta^2 = .75) \). In other words, children in the EG showed a significant increase in positive engagement compared to children in the WG. In regard to maintenance of intervention effect on child positive engagement, the Wilcoxon Signed-ranks test
for the EG showed a significant difference between Assessment I (Preintervention, $\text{Mdn} = 53.84\%$) and Assessment III (Follow up, $\text{Mdn} = 84.65\%; Z = -2.20, p = .028$). With respect to the average percentage of child engagement for the WG, the Wilcoxon Signed-Ranks test also showed a significant increase between Assessment II (Preintervention 2, $\text{Mdn} = 44.94\%$) and Assessment III (Postintervention, $\text{Mdn} = 85.55\%; Z = -2.02, p = .043$).

![Figure 11](image.png)

*Figure 11.* Average percentage of child positive engagement in primary routine for the two groups across three assessment points.

**Indirect measures.** Indirect measures of child positive engagement included parent report via the Behaviour Rating Scale (Dunlap et al., 2013) by the primary parent in two routines: the generalization project routine and transition routine. On the Behaviour Rating Scales, parents rated child positive engagement on a scale of one to five (e.g., regarding degree of engagement, 1 = Did not participate and 5 = Participated fully). In all cases, the primary parent was the mother. Indirect measurement results for child positive engagement are presented in Figures 12 and 13.

**Behaviour rating scale: Generalization project routine.** The Mann-Whitney U test was employed to test whether there was a difference in change scores between the two groups in
parents’ rating of child positive engagement in the generalization project routine across time points. A significant comparative effect of intervention was found for the EG between Assessments I and II (Preintervention to Postintervention, $Mdn = +.80$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = +.28$; $U = 2.00$, $Z = -2.58$, $p = .009$). This difference represented a large effect ($\eta^2 = .61$). In other words, parents in the EG rated their child as showing a significant increase in positive engagement compared to children in the WG. In regard to maintenance of the effect on parents’ rating of child positive engagement in the project routine for the WG, the Wilcoxon Signed-Ranks test showed a significant increase between Assessment I (Preintervention, $Mdn = 2.90$) and Assessment III (Follow up, $Mdn = 4.00$; $Z = -2.21$, $p = .027$). With respect to parents’ ratings of child positive engagement in the project routine for the WG, the second Wilcoxon Signed-ranks test did not show a significant difference between Assessment II (Preintervention 2, $Mdn = 3.45$) and Assessment III (Postintervention, $Mdn = 4.00$; $Z = -1.84$, $p = .066$).

![Figure 12](image.png)

*Figure 12.* Average parent ratings of child positive engagement in the generalization project routine for the two groups across three assessment points.
**Behaviour rating scale: Transition routine.** The Mann-Whitney U test also was employed to test whether there was a difference in change scores between the two groups in parents’ rating of child positive engagement in the transition routine across assessment points. No significant difference was found from Assessment I to Assessment II for the EG (Preintervention to Postintervention, $Mdn = +.95$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = +.10$; $U = 10.50$, $Z = -1.20$, $p = .240$).

Given the nonsignificant comparative effect of intervention between the EG and the WG, a Friedman test was conducted to determine whether the EG showed changes in parent ratings of child positive engagement in the transition routine across assessment points. The within-subjects test indicated no statistically significant difference across Assessment I (Preintervention, $M = 3.50$), Assessment II (Postintervention, $M = 4.23$), and Assessment III (Follow up, $M = 4.35$; $\chi^2 = 5.48$, $p = .065$). With respect to parent ratings of child positive engagement in the transition routine for the WG, results of the Wilcoxon Signed-Ranks test did not reveal a significant difference between Assessment II (Preintervention 2, $Mdn = 3.00$) and Assessment III (Postintervention, $Mdn = 4.00$; $Z = -1.60$, $p = .109$).
**Figure 13.** Average parent ratings of child positive engagement in the transition routine for the two groups across three assessment points.

**Family Functioning Measures**

Family functioning measures were completed via questionnaire for mothers and fathers. These included the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978), the Parenting Stress Index (Abidin, 2012), and the Beach Center Family Quality of Life survey (Park et al., 2003). Average scores on each measure across the three assessment points are provided for mothers in Table 18 and for fathers in Table 19.

**Parenting Sense of Competence Scale: Mothers.** Figure 14 shows mothers’ scores on the Parenting Sense of Competence (PSOC) scale for the two groups across the three assessment points. The Mann-Whitney U test did not show a significant difference in the change in mothers’ sense of parenting competence scores between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +4.50$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = -3.00$; $U = 7.00$, $Z = -1.77$, $p = .093$).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the mothers in the EG showed changes in
their sense of parenting competence across assessment points. A statistically significant change was found across Assessment I (Preintervention, $M = 77.00$), Assessment II (Postintervention, $M = 86.17$), and Assessment III (Follow up, $M = 86.67$; $\chi^2 = 6.33, p = .042$). Post hoc Wilcoxon Signed-Ranks tests indicated two significant comparisons: Assessment I to Assessment II (Preintervention to Postintervention, $Z = -2.21, p = .027$) and Assessment I to Assessment III (Preintervention to Follow up, $Z = -1.99, p = .046$).

With respect to WG mothers’ sense of parenting competence, the Wilcoxon Signed-Ranks test indicated a significant difference between Assessment II (Preintervention 2, $Mdn = 68.00$) and Assessment III (Postintervention, $Mdn = 72.00$; $Z = -2.02, p = .043$).

Table 18

*Mothers’ Questionnaire Data for Family Functioning Measures: Means, SDs, and Ranges*

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<thead>
<tr>
<th></th>
<th>PSOC</th>
<th>PSI-SF</th>
<th>FQOL</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td><strong>Experimental</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>77.00</td>
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<td>86.67</td>
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<tr>
<td>$SD$</td>
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<td>97.00</td>
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<tr>
<td><strong>Waitlist</strong></td>
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<td></td>
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</tr>
<tr>
<td>Mean</td>
<td>68.67</td>
<td>66.17</td>
<td>72.80</td>
</tr>
<tr>
<td>$SD$</td>
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<tr>
<td></td>
<td>73.00</td>
<td>71.00</td>
<td>78.00</td>
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</tbody>
</table>

*Note.* Numerals I, II, and III refer to assessment points. I = Preintervention for Experimental Group (EG), Preintervention 1 for Waitlist Control Group (WG); II = Postintervention for EG, Preintervention 2 for WG; III = Follow up for EG, Postintervention for WG; $SD$ = Standard deviation.
Figure 14. Average total score on the Parenting Sense of Competence scale for mothers in each group across three assessment points.

**Parenting Sense of Competence Scale: Fathers.** Figure 15 shows fathers’ scores on the PSOC scale for the two groups across the three assessment points. Results of the Mann-Whitney U test did not show a significant difference in the change in fathers’ sense of parenting competence scores between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +3.50$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = +2.00$; $U = 16.00$, $Z = -.25$, $p = .876$).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the fathers in the EG showed changes in their sense of parenting competence across time. The test indicated no statistically significant change across Assessment I (Preintervention, $M = 77.33$), Assessment II (Postintervention, $M = 78.33$), and Assessment III (Follow up, $M = 81.17$; $x^2 = .61$, $p = .738$).
With respect to the WG fathers’ parenting sense of competence, the Wilcoxon Signed-ranks test showed no significant difference between Assessment II (Preintervention 2, $Mdn = 68.00$) and Assessment III (Postintervention, $Mdn = 63.50$; $Z = -1.51$, $p = .131$).

Table 19

*Fathers’ Questionnaire Data for Family Functioning Measures: Means, SDs, and Ranges*

<table>
<thead>
<tr>
<th></th>
<th>PSOC</th>
<th></th>
<th>PSI-SF</th>
<th></th>
<th>FQOL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>77.33</td>
<td>78.33</td>
<td>81.67</td>
<td>86.17</td>
<td>83.50</td>
</tr>
<tr>
<td>Range</td>
<td>66.00-</td>
<td>71.00-</td>
<td>61.00-</td>
<td>63.00-</td>
<td>53.00-</td>
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<tr>
<td></td>
<td>89.00</td>
<td>88.00</td>
<td>95.00</td>
<td>104.00</td>
<td>103.00</td>
</tr>
<tr>
<td>Waitlist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>66.8</td>
<td>69.6</td>
<td>69.25</td>
<td>82.40</td>
<td>87.20</td>
</tr>
<tr>
<td>SD</td>
<td>11.78</td>
<td>11.50</td>
<td>16.13</td>
<td>18.80</td>
<td>12.44</td>
</tr>
<tr>
<td>Range</td>
<td>58.00-</td>
<td>60.00-</td>
<td>57.00-</td>
<td>56.00-</td>
<td>67.00-</td>
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<tr>
<td></td>
<td>87.00</td>
<td>89.00</td>
<td>93.00</td>
<td>103.00</td>
<td>98.00</td>
</tr>
</tbody>
</table>

*Note.* Numerals I, II, and III refer to assessment points. I = Preintervention for Experimental Group (EG), Preintervention 1 for Waitlist Control Group (WG); II = Postintervention for EG, Preintervention 2 for WG; III = Follow up for EG, Postintervention for WG; SD = Standard deviation.

*Figure 15.* Average total score on the Parenting Sense of Competence Scale for fathers in each group across three assessment points.
Parenting Stress Index – Short Form: Mothers. Results of the PSI-SF average scores for mothers in both groups across the three assessment points is shown in Table 18 and Figure 16. The Mann-Whitney U test did not show a significant difference in the change in mothers’ parenting stress between Assessments I and II for the EG (Preintervention to Postintervention, \( Mdn = -5.00 \)) compared to the WG (Preintervention 1 to Preintervention 2, \( Mdn = +1.00; U = 12.00, Z = -.97, p = .394 \)).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the mothers in the EG showed changes in their parenting stress across time. No statistically significant change was evident across Assessment I (Preintervention, \( M = 81.17 \)), Assessment II (Postintervention, \( M = 74.33 \)), and Assessment III (Follow up, \( M = 73.67; \chi^2 = 5.30, p = .070 \)).

With respect WG mothers’ parenting stress, the Wilcoxon Signed-ranks test indicated a significant decrease between Assessment II (Preintervention 2, \( Mdn = 86.00 \)) and Assessment III (Postintervention, \( Mdn = 82.00; Z = -2.03, p = .042 \)).

*Figure 16.* Average total score on the Parenting Stress Index – Short Form for mothers in each group across three assessment points.
Parenting Stress Index – Short Form: Fathers. Results of the PSI-SF average scores for fathers in both groups across assessment points is shown in Table 19 and Figure 17. The Mann-Whitney U test did not show a significant difference in the change in fathers’ parenting stress between Assessments I and II for the EG (Preintervention to Postintervention, \( Mdn = .00 \)) compared to the WG (Preintervention 1 to Preintervention 2, \( Mdn = +7.00; U = 8.00, Z = -1.28, p = .247 \)).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the fathers in the EG showed changes in their parenting stress across time. No statistically significant change was shown across Assessment I (Preintervention, \( M = 86.17 \)), Assessment II (Postintervention, \( M = 83.50 \)), and Assessment III (Follow up, \( M = 80.33; \chi^2 = 1.00, p = .607 \)).

With respect parenting stress for the WG fathers, the Wilcoxon Signed-ranks test did not show a significant difference between Assessment II (Preintervention 2, \( Mdn = 92.00 \)) and Assessment III (Postintervention, \( Mdn = 87.50; Z = -.37, p = .715 \)).

![Figure 17](image-url)  
*Figure 17. Average total score on the Parenting Stress Index – Short Form for fathers in each group across three assessment points.*
Beach Center Family Quality of Life Scale: Mothers. Results of the FQOL scores for mothers in both groups across the three assessment points are shown in Table 18 and Figure 18. The Mann-Whitney U test did not show a significant difference in the change in average scores of mothers’ perceptions of family quality of life between Assessments I and II for the EG (Preintervention to Postintervention, $Mdn = +4.00$) compared to the WG (Preintervention 1 to Preintervention 2, $Mdn = -2.50$; $U = 7.50$, $Z = -1.70$, $p = .093$).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the mothers in the EG showed changes in their family quality of life scores across time. A statistically significant change was found across Assessment I (Preintervention, $M = 95.50$), Assessment II (Postintervention, $M = 98.33$), and Assessment III (Follow up, $M = 105.50$; $\chi^2 = 9.09$, $p = .011$). Post hoc Wilcoxon Signed-ranks tests indicated one significant comparison: Assessment I to Assessment III (Preintervention to follow up, $Z = -2.21$, $p = .027$).

With respect to family quality of life for the WG mothers, the Wilcoxon Signed-ranks test did not show a significant difference between Assessment II (Preintervention 2, $Mdn = 92.00$) and Assessment III (Postintervention, $Mdn = 97.00$; $Z = -.94$, $p = .345$).
Figure 18. Average total score on the Family Quality of Life survey for mothers in each group across three assessment points.

**Beach Center Family Quality of Life Scale: Fathers.** Results of the FQOL scores for fathers in both groups across the three assessment points are shown in Table 19 and Figure 19. The Mann-Whitney U test did not show a significant difference in the change in average scores of fathers’ family quality of life between Assessments I and II for the EG (Preintervention to Postintervention, \( Mdn = .00 \)) compared to the WG (Preintervention 1 to Preintervention 2, \( Mdn = -3.00; U = 10.50, Z = -.83, p = .429 \)).

Given the nonsignificant comparative effect of intervention between the two groups, the Friedman test was employed to determine whether the fathers in the EG demonstrated changes in family quality of life scores across time. The test indicated no statistically significant change across Assessment I (Preintervention, \( M = 97.67 \)), Assessment II (Postintervention, \( M = 97.33 \)), and Assessment III (Follow up, \( M = 103.50; \chi^2 = 2.55, p = .280 \)).

With respect to family quality of life for the WG fathers, the Wilcoxon Signed-ranks test showed no significant difference between Assessment II (Preintervention 2, \( Mdn = 90.00 \)) and Assessment III (Postintervention, \( Mdn = 95.00; Z = -1.60, p = .109 \)).
Figure 19. Average total score on the Family Quality of Life survey for fathers in each group across three assessment points.

**Facilitator Implementation Fidelity**

Session 7 of the waitlist control group was video recorded and evaluated by Laura Rains from the PMTO program. Categories of the FIMP rating system (Knutson et al., 2009) are knowledge, structure, teaching, process, and overall skills. Each category is assigned a colour according to the FIMP score achieved: Green (6–9 points), Yellow (4–5 points), and Red (1–3 points). Across the categories of knowledge, structure, process, and overall skills, the FIMP scores were in the green category, while the category of teaching was in the yellow category. The median FIMP score across categories for this selected session was in the green zone, indicating acceptable overall performance. Evaluative comments by Ms. Rains included, “Inspiring wealth of knowledge … deep understanding of model content is evident,” “Good example of being responsive and then taking back leadership,” and “There’s lightness and gentle humour during this segment, which creates a comfortable environment… You’re super supportive of their efforts.”
Social Validity

Participating families evaluated the acceptability and feasibility of the goals, procedures and outcomes of the secondary prevention model of FCPBS by completing a social validity questionnaire and a program feedback questionnaire.

Social validity questionnaire. The mean and range of social validity ratings for each group are presented in Table 20. For the experimental group, the average social validity rating was 4.75 (with 1 = Strongly Disagree and 5 = Strongly Agree). For the waitlist control group, the average rating was 4.42. A Mann-Whitney U test was conducted to compare the scores between the two groups. Results showed a nonsignificant difference ($U = 28.00, Z = -1.87, p = .069$). The Mann-Whitney U test also was conducted to see if there was a difference between mothers’ and fathers’ average scores. Results revealed a significant difference between mothers’ average score ($M = 4.79$) and fathers’ average score ($M = 4.41; U = 23.00, Z = -2.28, p = .024$).

On the social validity questionnaire, parents also provided written feedback on the statements they rated. Regarding the statement, “The goals of the group parent training program are consistent with our family’s goals, values, and beliefs,” one father indicated, “We do like positivity!” while another commented, “I didn’t really click with the mindfulness exercises or see a practical way to work them into my life.” The statement, “The behaviour support strategies we have been taught are difficult to carry out with our child,” prompted varied responses by parents. Feedback included the following: “I find them difficult to draw on in stressful situations. My mind goes blank and I find frustration takes over,” and “Learning preventative measures has been very useful.” Other comments included on the social validity questionnaire included, “An awesome program. Enjoyed it very much. Telling everyone to do it!” and “I am so grateful to
have had this opportunity to be a part of this group/study, as I feel so much better equipped to handle challenging behaviours when they arise.”

Table 20
*Parents’ Social Validity Ratings*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>4.75</td>
<td>4.00 – 5.00</td>
</tr>
<tr>
<td>Waitlist control group</td>
<td>4.42</td>
<td>3.60 – 5.00</td>
</tr>
<tr>
<td>Mothers</td>
<td>4.79</td>
<td>4.10 – 5.00</td>
</tr>
<tr>
<td>Fathers</td>
<td>4.41</td>
<td>3.60 – 5.00</td>
</tr>
</tbody>
</table>

**Program feedback questionnaire.** When asked what accomplishment they were most proud of, parents’ answers included the following: “Being able to take B to any place without anxiety,” “We now have confidence and tools to deal with L’s problem behaviour,” and “To see my daughter succeed in daily activities was wonderful.” One mother concluded, “I loved the program and found it to be so beneficial … It was a big commitment on my part, but the outcome has been so worth it.” Parents also were asked what might help them maintain their new skills, and many indicated that regular booster sessions would be helpful. All 21 parents who completed the intervention reported that they would recommend the program to other families who were struggling with their child’s problem behaviour.

**Summary of Results**

A summary of the statistical significance of the results across each of the child behaviour and global family functioning outcome measures is given in Table 21. Compared to families in the WG, families in the EG showed statistically significant improvements in child problem behaviour and child positive engagement in both the primary target family routine and the generalization project routine. Significant improvements for mothers were found across sense of
parenting competence, parenting stress, and perception of family quality of life. On the other hand, fathers did not show improvements in their perceptions of child behaviour or in global family functioning measures.
Table 21

Summary of Results: Statistical Significance

<table>
<thead>
<tr>
<th>Outcome Measures</th>
<th>Comparative effect of intervention: Mann-Whitney U</th>
<th>Maintenance: Wilcoxon Signed-Ranks Test</th>
<th>Experimental group performance (T1-T2-T3): Friedman Test</th>
<th>Waitlist control performance (T2-T3): Wilcoxon Signed-Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct observation: Parent implementation fidelity</td>
<td>√</td>
<td>√</td>
<td>N/A</td>
<td>√</td>
</tr>
<tr>
<td>Direct observation: Child problem behaviour</td>
<td>√</td>
<td>√</td>
<td>N/A</td>
<td>√</td>
</tr>
<tr>
<td>Behaviour Rating Scale – Generalization Project Routine: Problem behaviour</td>
<td>√</td>
<td>√</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Behaviour Rating Scale – Transition Routine: Problem behaviour</td>
<td>N/A</td>
<td></td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>ECBI – Intensity: Mothers</td>
<td>√</td>
<td></td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>ECBI – Intensity: Fathers</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECBI – Problem: Mothers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECBI – Problem: Fathers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct observation: Child positive engagement</td>
<td>√</td>
<td>√</td>
<td>N/A</td>
<td>√</td>
</tr>
<tr>
<td>Behaviour Rating Scale – Gen. Project Routine: Positive engagement</td>
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<td>√</td>
<td>N/A</td>
<td>√</td>
</tr>
<tr>
<td>Behaviour Rating Scale – Transition Routine: Positive engagement</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSOC: Mothers</td>
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<td></td>
<td>√</td>
</tr>
<tr>
<td>PSOC: Fathers</td>
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<td></td>
</tr>
<tr>
<td>PSI-SF: Mothers</td>
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<td></td>
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<tr>
<td>PSI-SF: Fathers</td>
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<td></td>
</tr>
<tr>
<td>FQOL: Mothers</td>
<td>N/A</td>
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<tr>
<td>FQOL: Fathers</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* √ = statistical significance; blank square = no statistical significance; N/A = test did not apply. Shaded cells indicate child behaviour measures; nonshaded cells indicate family functioning measures. T1 = Time 1; T2 = Time 2; T3 = Time 3.
CHAPTER 5: DISCUSSION OF THE RCT

This chapter comprises the interpretation and discussion of the final stage of the IKT process: an RCT of the revised FCPBS group parent training program.

Summary and Interpretation

The purpose of this study was to examine whether a group-based, secondary prevention FCPBS parent training program for families of children with DS would improve child behaviour and, more broadly, family functioning. In this study, I addressed the following five research questions:

1. Is there a statistically significant improvement in parent implementation fidelity of PBS strategies as a result of the group-based, secondary prevention model of FCPBS delivered to families of young children with DS and problem behaviour?

2. Did the group parent training program result in statistically significant (a) decreases in child problem behaviour, (b) increases in child positive engagement, (c) increases in parents’ sense of parenting competence, (d) decreases in parenting stress, and (e) increases in family quality of life?

3. Was implementation of the group parent training program associated with statistically significant maintenance of child and family outcomes at 6 months follow up?

4. Was implementation of the group parent training program with the waitlist control group associated with statistically significant improvements in (a) parent implementation fidelity, (b) child problem behaviour, (c) child positive engagement; (d) parents’ sense of parenting competence, (e) parenting stress, and (f) family quality of life?
5. Did families view the approach as socially valid with respect to goals, procedures, and outcomes?

A summary and discussion of results pertaining to direct observation measures of parent and child behaviour, indirect measures of child behaviour, indirect measures of global family functioning, and social validity is provided in the following sections.

**Direct measures in primary routine.** Three outcome variables were directly measured by video recorded observation in the primary routine: parent implementation fidelity, child problem behaviour, and child positive engagement. Across these measures, evidence for comparative effects of the group parent training intervention were found. Families in the EG showed statistically significant improvements from pre- to postintervention; in contrast, the WG did not show improvements while they waited for intervention to begin. For the EG, direct measures in the primary routine also demonstrated a maintenance effect, as the improvement from preintervention to follow up at 6 months postintervention was also significant. Families in the WG also showed significant improvements in parent implementation fidelity, child problem behaviour, and child positive engagement when comparing pre- to postintervention outcomes for direct measures.

**Parent implementation fidelity.** Parents in the EG showed a significant increase in the primary routine in the percentage of strategies accurately used from preintervention ($M = 23\%$) to postintervention ($M = 75\%$). In contrast, parents in the WG used fewer strategies accurately from Preintervention 1 to Preintervention 2 (i.e., $M = 19\%$ decreasing to $M = 16\%$). At postintervention for both groups, the 11 families who completed the group parent training program increased their accurate use of strategies in the primary routine, ranging from an average of 50\% to 100\%. 

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Some FCPBS strategies appeared to be more easily mastered than others. For example, 100% of parents used praise and either prompted or responded to their children’s functional communication phrases at postintervention. Praise was presented as a foundational skill, and was emphasized early and often throughout the program. Other strategies used accurately by at least 80% of the families included environment-specific setting event strategies, offering choices, and incorporating preferences. One strategy was only used accurately by 36% of families after intervention: actively ignoring and positively redirecting minor problem behaviour. Parents reported that they found withdrawing attention after problem behaviour difficult to implement. During postintervention, video-recorded observations showed that parents frequently continued to either comfort or admonish their children immediately following problem behaviour. For children with DS, whose problem behaviour is often motivated by attention, this is an especially important strategy for parents to master (Feeley & Jones, 2006; Kasari & Freeman, 2001; Wishart, 1993). The difficulty with the application of actively ignoring and positively redirecting, combined with the strategy’s late presentation within the program (Session 12 of 14), likely contributed to this strategy being the least successfully used. Parents may have needed additional training in cognitive-behaviour change strategies, such as reframing or cognitive restructuring of hindering thoughts or beliefs, which could be applied directly to their use of this PBS strategy (Webster-Stratton & Hancock, 1998).

**Child behaviour.** Children in the EG showed considerable improvement in the primary routine in their problem behaviour from pre- ($M = 39\%$) to postintervention ($M = 16\%$). In contrast, children in the WG showed a small deterioration with respect to problem behaviour over the same time period in the primary routine: at Preintervention 1, they exhibited problem behaviour in an average of 35% of intervals, and at Preintervention 2, this increased to 41% of
intervals. Child positive engagement mirrored the results for problem behaviour, with children in the EG showing a substantial increase in their ability to participate successfully in the primary routine from pre- to postintervention ($M = 50\%$ to $M = 79\%$). Again, children in the WG slightly declined in their positive engagement in the primary routine, as they decreased from an average of 55\% positive engagement at Preintervention 1 to 48\% at Preintervention 2. Taken as a whole, these results document that the FCPBS group parent training program was effective at reducing problem behaviour and increasing positive engagement in the primary routine. The findings for Preintervention 1 and 2 for the WG are consistent with research that suggests, unlike typically developing children, the behaviour of children with DS does not naturally improve with the passage of time (Dykens et al., 2002; Patel et al., 2018).

**Indirect measures of child behaviour.** Indirect measures included parent behavioural ratings of child problem behaviour and positive engagement in the generalization project routine and transition routine as well as two subscale scores of the Eyberg Child Behavior Inventory (ECBI): (a) intensity of problem behaviour and (b) number of problem behaviours. Mixed results were found with respect to these global measures of child problem behaviour.

**Generalization project routine and transition routine.** During the group parent training program, a focus on the generalization project routine and transition routine began in Week 10. With respect to the generalization project routine, a comparative effect of intervention was found, with parents’ average ratings of child problem behaviour and positive engagement in the project routine evidencing significant improvements from pre- to postintervention in comparison to the WG from Preintervention 1 to Preintervention 2. These improvements for the EG were maintained at follow up. In contrast, the WG did not show significant improvements in child
problem behaviour and positive engagement in the generalization project routine from pre- to postintervention.

With respect to the transition routine, a comparative effect was not found in parents’ average rating of child problem behaviour and positive engagement in the transition routine. The EG showed no significant improvement from pre- to postintervention in comparison to the WG from Preintervention 1 to Preintervention 2. In addition, the WG did not show significant improvements in child problem behaviour and positive engagement in the transition routine from pre- to postintervention.

Given nonsignificant findings for the transition routine, I conducted a within-group analysis for the EG to determine whether there were any changes across the three assessment points from preintervention to follow up. The significant effect that was revealed for the EG between preintervention and follow up in the transition routine suggests the possibility of a “sleeper effect” (Whittingham et al., 2009, p. 469). Given that a focus on the transition routine did not begin until the 10th parent training session, it is possible that EG parents needed more time to practise and improve the use of PBS strategies in the transition routine. As such, improvements were not present at postintervention but became evident at follow up. Likewise, the absence of a significant effect for the WG from pre- to postintervention may be due to the WG not having an opportunity to improve their ability to use PBS strategies in the transition routine, given that there was no follow-up assessment point for this group.

That the generalization project routine showed more improvement than the transition routine was not surprising for two reasons. First, the project routine was the primary focus for generalization of PBS strategies and was addressed during Sessions 10–13 of the parent training program. The transition routine, in contrast, was addressed during session 10 with modest
attention across subsequent sessions. Second, researchers have noted that transitions between activities are difficult for children with DS (Fidler & Nadel, 2007; Stein, 2016; Wishart, 1993). Impaired memory and inability to predict what will happen next, accompanied by low levels of intrinsic motivation, make it more likely that children with DS will engage in problem behaviour to escape parent demands to transition from one activity to the next. This is particularly true when the child is engaged in an enjoyable activity (e.g., playing with a tablet) and is asked to move to a nonpreferred task (e.g., going to bed).

**Eyberg Child Behavior Checklist.** Of the two subscales of the ECBI, only EG mothers’ average behaviour intensity score evidenced a comparative effect when comparing difference scores between the EG and WG. EG mothers showed significant improvement at postintervention; however, this improvement did not maintain at follow up. Fathers did not evidence comparative effects for both average behaviour intensity score and number of perceived problem behaviours when comparing difference scores between the EG and WG. As the ECBI was employed to examine broad generalization effects in child problem behaviour associated with the FCPBS group parent training program, these results suggest little to no broad generalization outcomes in regard to improvements in children’s problem behaviour. One caution in this interpretation is whether in retrospect the ECBI is an appropriate instrument for measuring changes in problem behaviour among children with DS. The use and interpretation of standardized assessments across developmental domains for children with DDs has been frequently debated (Koegel, Koegel, & Smith, 1997). For example, Patel et al. (2018) pointed out that parent report measures of child problem behaviour include items that are not applicable to children with DS (e.g., lies) and do not include items common to children with DS (e.g., wandering away from adults).
Indirect measures: Family functioning. Global family functioning variables employed were the Parenting Sense of Competence scale (PSOC; Gibaud-Wallston & Wandersman, 1978), the Parenting Stress Index – Short Form (PSI-SF; Abidin, 2012), and the Beach Center Family Quality of Life survey (FQOL; Park et al., 2003). Although improvements in average scores or ratings were shown pre- to postintervention, none of these changes were statistically significant for mothers or fathers when comparing EG to WG groups.

Given these results, within-group analyzes were completed to investigate whether there was an association between the group parent training program and improvements in family functioning for mothers and fathers across the three assessment points. Mothers in both the EG and WG showed significant improvements on some measures of family functioning. For EG mothers, the group parent training program was associated with significant improvements in sense of parenting competence at postintervention and at follow up. EG mothers also showed significant improvements in family quality of life at follow up, suggesting a sleeper effect. However, for EG mothers, no improvements were shown in parenting stress across the three assessment points. For WG mothers, the group parent training program was associated with significant improvements in parenting competence and parenting stress at postintervention. Fathers, in contrast, showed no improvements in the three measures of family functioning when within-group analyzes were conducted across the three assessment points.

Given the absence of experimental effects when comparing EG to WG findings for family functioning measures, the within-group effects that were evidenced for mothers need to be interpreted with caution. It is promising, although not unequivocal, that EG and WG mothers, who were the most active participants in the group parent training program, showed some evidence of significant improvements in family functioning when viewing their progress across
the three assessment points. In regard to the significant within-group improvements in EG and WG mothers’ sense of parenting competence, three aspects of the group parent training program in addition to the PBS skills taught may have played a role. First, during home practise reviews at the start of sessions, knowing the importance of self-efficacy for parent implementation, I consistently praised their efforts and accomplishments in the use of PBS strategies in the primary routine and also in any other family routine that they brought up during the review (e.g., a day trip in the family boat). Second, during group practise of cognitive behaviour change strategies, mothers who expressed negative views of their parenting skills were taught to substitute negative with positive appraisals and to make affirmations of their parenting skills, the evidence of which accrued across sessions. For example, one mother in early sessions reported that she held the belief that she was a “loser” as a parent. However, during final sessions the mother consistently reported her newfound parenting confidence with self-bolstering sayings such as “I can do this!” or “Just find a way to make it fun.” Third, as sessions progressed, mothers began to consistently offer words of encouragement to each other and thus informally assisted me in my effort to build a sense of parenting efficacy.

In regard to the significant but delayed within-group improvement in family quality of life for EG mothers, one aspect of the mothers’ lives may offer insight. In contrast to the fathers, most mothers in the study were much more involved in the daily responsibilities of raising and managing the daily activities of their child with DS. Given this, it is reasonable to consider that their perceptions of family quality of life are tied more closely to their role as a parent. Thus, as their ability to effectively parent their child with DS improved across the three assessment points, their view of family quality of life also improved, albeit at follow up.
In regard to the significant within-group improvement in parenting stress for WG but not EG mothers, an examination of group means and standard deviations may offer a statistical understanding of these contrasting results. Although the EG showed a greater decrease in average parenting stress scores compared to the WG from pre- to postintervention (i.e., 81 to 74 compared to 89.5 to 84), the EG’s standard deviation was larger at postintervention compared to the WG’s (i.e., 11.55 compared to 8.28). This may have rendered it more difficult for the EG to show a significant change despite the larger decrease in average parenting stress score from pre- to postintervention.

In regard to the within-group analyses for fathers, the less than promising results across the three family functioning measures is understandable given that although all 10 fathers participated in the group parent training sessions, only two fathers were consistently involved in the primary routine. In addition, during parent training sessions, in contrast to mothers, fathers for the most part did not actively participate in the cognitive behaviour change discussions and did not as frequently offer words of encouragement to other members of the group. Long (2005) reported a similar effect in a qualitative study about the experiences of fathers of children with autism: the fathers were reluctant to share personal stories, particularly in a group that included both mothers and fathers.

Social validity. Participating parents rated highly the goals, procedure, and outcomes of the FCPBS group parent training program, with an overall average score of 4.6 out of 5 (1 = Strongly Disagree and 5 = Strongly Agree). When comparing average scores for mothers and fathers, although both rated the social validity of the program highly, mothers’ average rating was higher than fathers (M = 4.9 for mothers and M = 4.4 for fathers). Although this difference was statistically significant, it does not appear to be clinically meaningful.
In addition to the quantitative results discussed above, parents also reported positive collateral effects associated with their participation in the FCPBS group parent training program. During follow up assessment, several parents reported that they developed relationships with one another that extended beyond the program, spending time together after the program concluded. This suggests the occurrence of parent-to-parent support (Singer & Wang, 2016). One family reported, due to the confidence gained after learning PBS strategies, they had gone on an overseas vacation. The mother and father reported that their mastery of PBS strategies was sufficient to manage their son’s behaviour in the airports and during the long flights.

**Relation to Literature**

The study offers a modest contribution to the extant literature on the effectiveness of group parent training programs in improving problem behaviour in children with developmental disabilities such as DS (Ruane & Carr, 2019; Skotarczak & Lee, 2015; Tellegen & Sanders, 2013; Wang et al., 2016). The study extends this literature by integrating into group parent training core features of FCPBS, including a focus on the functions of problem behaviour, an emphasis on antecedent preventive strategies, and the use of family activity settings (i.e., routines) as contexts for the implementation and generalization of PBS strategies. Similar to the use of a brief functional assessment in the Check-In/Check-Out (CICO) secondary-tier prevention program within SWPBIS (Crone et al., 2010), this study offers an example of how a brief functional assessment activity can be integrated into the sessions of a secondary-tier prevention approach to FCPBS. Doing so ensured that the universal support strategies taught to parents within the group parent training sessions, such as safety signals, functional communication training, and actively ignore and redirect, were aligned with the function of each child’s problem behaviour. In addition, the study illustrates how core features of FCPBS can be
integrated with other elements of best practice in group parent training such as structural features designed to diminish attrition (Webster-Stratton, 1998), active training that emphasized role-play and the use of therapeutic process skills (Forgatch & Domenech Rodríguez, 2016), and cognitive behaviour change methods that addressed hindering thoughts and beliefs (Durand et al., 2013; Webster-Stratton & Hancock, 1998).

The structural features of the parent training program (e.g., convenient day and time, child care, beverages and snacks) were associated with a higher percentage of participant retention (92%) compared to other group parent training programs (50%; Wang et al., 2016). Although the FCPBS approach to group parent training did not show experimental effects on a global measure of child problem behaviour as reported by both parents, direct observations in family routines targeted for PBS strategy implementation documented positive between and within-group effects on parent implementation fidelity, child problem behaviour, and child positive engagement. These improvements included moderate evidence of generalization and maintenance of outcomes. In addition, improvements in parents’ sense of competence, parenting stress, and family quality of life for mothers, but not for fathers, in the experimental and/or waitlist control group were found. In addition, parents rated the social validity of the group parent training program highly. Taken together, these positive findings are comparable to results found in other studies of group parent training (Skotarczak & Lee, 2015; Tellegen & Sanders, 2013).

The study also extends the group parent training literature by integrating features of Parent Management Training Oregon (PMTO), empirically developed for families of young children at risk for behaviour disorders, to families of children with DS. Findings suggest that the integration of core features of PMTO into the group parent training program (i.e., ameliorating
coercive processes, employing active training methods, and using therapeutic process skills) were viewed as relevant and acceptable to participating parents, and were associated with a high retention rate and positive child and family outcomes. The study thus extends the implementation of core features of PMTO to families of young children with developmental disabilities and problem behaviour.

This study also extends the group parent training literature by conducting direct observations in family contexts to measure parent and child behaviour. Although it has been argued that group parent training research should include direct observation of parent and child behaviour, such measures remain the exception rather than the rule (Forgatch & Domenech Rodriguez, 2016; Whittingham et al., 2009). While direct observation requires more investment in data collection and analysis time, the present study demonstrates the value of including video-recorded observations of parent and child behaviour, given that these measures showed the most evidence of positive change. Perhaps more importantly, the direct observations within home and community settings allowed me, as the researcher and group facilitator, to more fully comprehend the struggles families were facing in problematic routines. This knowledge enhanced my ability to guide families regarding how best to apply FCPBS strategies and to aid them in collaborative problem-solving exercises throughout the program.

Another contribution to the group parent training literature is the measurement of family quality of life. Although previous group parent training studies have measured parent social support and child quality of life, none have examined effects of group parent training using a comprehensive measure of family quality of life such as the Beach Center’s Family Quality of Life survey (FQOL), which addresses five FQOL domains (Park et al., 2003; Wang et al., 2016). This study demonstrated, at least for mothers, group parent training may result in delayed
improvements in perceptions of family quality of life. The possibility of this outcome suggests the inclusion of this measure is worthy of consideration in future studies of group parent training programs.

The study’s mixed parenting stress results are consistent with other group parent training studies that have reported mixed results with respect to the effects of group parent training on parenting stress levels, with some reporting improvements (Leung, Fan, & Sanders, 2013) and others reporting less success (Roberts et al., 2006). For example, Plant and Sanders (2007) employed the enhanced version of SSTP (SSTP + coping skills) and found no decrease in parenting stress. They concluded that this finding was due to nonclinical levels of stress at preintervention (Plant & Sanders, 2007). As noted above, the parents in this study did not show clinical levels of parenting stress at preintervention. Similar to other group parent training studies, mixed results were evident with regard to parenting stress, given that WG mothers were the only parents to show a significant decrease in stress after intervention.

An alternate explanation for why parent training programs do not always result in reductions in parenting stress could be the programs’ primary focus on the education and training of parenting skills. Immediate reductions in stress or improvements in quality of life may not be expected because learning and applying a new set of parenting skills may be a stressor (Wang et al., 2016). If this explanation is valid, improvements in stress and quality of life may come later, after parents have mastered implementing the strategies with their children.

It is well documented that maternal stress is lower in parents of DS compared to parents of children with autism (Dabrowska & Pisula, 2010; Sanders & Morgan, 1997). However, while stress levels may remain stable for mothers of children with autism across years (Zaidman-Zait et al., 2014), research has indicated that maternal stress for mothers of children with DS may
worsen as their children get older. This was demonstrated in two studies: one comparing mothers of children aged 1 year, 2.5 years, and almost 4 years of age (Most, Fidler, Laforce-Booth, & Kelly, 2006) and the other comparing mothers of 3, 4, and 5 year olds (Eisenhower, Baker, & Blacher, 2005). Both the Most et al. (2006) and Eisenhower et al. (2005) studies showed heightened levels of maternal stress over time, which were associated with increases in children’s maladaptive behaviour. Several children in the present study fell at the top of the age range addressed in the Most et al. and Eisenhower et al. studies. Given this, without intervention, the maternal stress of the participants in the current study may have been on an increasing trajectory. Although not a statistically significant finding, EG mothers’ stress levels evidenced a modest decrease from preintervention \(M = 83.7\) to follow up \(M = 77.0\). In light of the two studies above showing worsening stress over time, this may be cautiously interpreted as a promising outcome.

During direct observations in the primary routine, I observed discernable decreases in EG parents’ stress from pre- to postintervention observation sessions. This was particularly evident for the three parents who chose community routines. For example, during preintervention observations, parents appeared visibly nervous at the start of the routine, sometimes verbalizing their anxiety while taking deep breaths and steeling themselves for the difficult task ahead. They often appeared anxious throughout the routine, evidenced by rapid talking and tense facial expressions. After intervention, they were markedly more confident and relaxed both before and during the routine. Some parents, including the mothers in community routines, even appeared to be enjoying the time with their children. Due to these clinical observations with EG parents, I gave WG parents an ad hoc measure addressing parenting stress within the primary routine for the purpose of measuring stress in the routine. The assessment, a Stress Rating Scale, was
modelled after the Behaviour Rating Scale (Dunlap et al., 2013) used to measure child behaviour in the generalization project routine and transition routine (on this new scale, 1 = Relaxed and Confident and 5 = Very Anxious/Stressed). Although this was a pre–post assessment for WG parents only, at postintervention parents showed a decrease in stress levels both before the primary routine began (preintervention $M = 2.46$; postintervention $M = 2.04$) and during the routine itself (preintervention $M = 2.70$; postintervention $M = 2.12$). It is worth noting that these averages did not indicate high ratings of stress at preintervention, suggesting that WG mothers were not as stressed as those in the EG during the primary routines. One WG mother, for example, reported she was “relaxed and confident” throughout all assessments, despite the fact that her child engaged in frequent problem behaviour. Also, in contrast to the EG, only one WG mother chose a community routine as the focus of intervention. It is plausible that parents experienced higher stress in community routines given the high-stakes nature of the settings (i.e., an increased potential for danger such as the child running away or for embarrassment when the public observes the child engaging in problem behaviour). Given these ad hoc findings, it may be useful to include more informal, targeted measures of stress to supplement standardized questionnaires in studies evaluating group parent training programs.

Due to the transactional nature of parent stress and child problem behaviour, high parenting stress during problematic routines may exacerbate child problem behaviour (Hastings, 2002; Neece et al., 2012; Woodman et al., 2015). This may be particularly relevant for children with DS, as some preliminary evidence indicates that these children show increased empathic characteristics compared to typically developing children or those with other developmental disabilities, including an increased tendency to attend to adults’ faces (Kasari, Freeman, & Bass, 2003). If parents are feeling and looking stressed, it is conceivable that children with DS are
more likely to detect this stress. Further, children with DS often possess a “good-imitator-poor-talker” profile; as such, they may possess a strong tendency to imitate the emotions or actions of those around them (Vanvuchelen, 2016, p. 266). When they observe tension on their parents’ faces, this may increase their own level of agitation, which then may escalate into problem behaviour. Thus, families of children with DS may be especially vulnerable to patterns of reciprocal exacerbations in parenting stress and child problem behaviour.

Several studies have described the transactional model of parenting stress and child problem behaviour as it applies to families of children with developmental disabilities (Hastings, 2002; Neece et al., 2012; Woodman et al., 2015). However, none have discussed the possibility that the root mechanism of this reciprocal pattern of increasing stress and problem behaviour may be coercive family processes (Lucyshyn, Fossett, et al., 2015). Fundamentally, negative and positive reinforcement are the behavioural mechanisms responsible for children’s and parents’ responses in reciprocal patterns of interaction. For example, in an escape-driven coercive process (i.e., parent demand – child problem behaviour – parent withdrawal of demand – child terminates problem behaviour), a parent’s stress is likely to be elevated until the child terminates the problem behaviour, at which point, the parent’s stress is likely to decrease. In this interaction, the child’s problem behaviour and the parent’s withdrawal of the demand are both negatively reinforced. Over time, the sequelae of this undesirable pattern of reinforcement is the transactional model of child problem behaviour and parenting stress. This analysis suggests that the coercive process between the parent and child is the core mechanism that fuels parenting stress.
Unique Contributions

This study makes three unique contributions to the current literature. This is the first study to investigate the use of PBS strategies with children with DS. Within the extant PBS literature, PBS strategies have been used with children with DS within school settings (e.g., Feeley & Jones, 2006; McComas et al., 2003) but not in family settings.

Second, this is the first study to examine a Tier 2, or secondary prevention model, of FCPBS. FCPBS studies to date have been with families of children who receive Tier 3 individualized, intensive interventions informed by a functional assessment that guides the design of a multicomponent behaviour support plan. This study demonstrates that FCPBS provided at a Tier 2 level of targeted support may be appropriate and effective for families of children with developmental disabilities who engage low to moderate levels of problem behaviour and for parents who are experiencing moderate levels of parenting stress. The study suggests that FCPBS, like SWPBIS, could offer a multitiered system of support, with this study providing preliminary evidence for a secondary tier of FCPBS.

A third unique contribution is that this is the first FCPBS study to employ a randomized controlled trial design. Individualized interventions, such as those examined in tertiary-level FCPBS studies, lend themselves well to single case research designs that investigate experimental effects. An experimental study of a group parent training program, however, necessitated the use of group design research in order to investigate the causal effects of treatment. Given that I conducted a preliminary IKT study that employed a quasiexperimental design, the next logical step was to employ a more rigorous RCT design.
Clinical Implications

The study offers three clinical implications. First, a secondary prevention model of FCPBS designed to address the behaviour support needs of families of young children with DS appears to be promising given the preliminary, albeit moderate, evidence of effectiveness and acceptability. The promise of the group parent training program is particularly noteworthy when considering the cost of tertiary-level intervention for children with DS should problem behaviours go untreated beyond early childhood. The DSRF has analyzed the organizational costs associated with the group-delivered program and estimated $1,000–$1,250 per family to run the 14-week program (DSRF Finance and Administration Manager, personal communication, August 13, 2019). Time investment for each family is anticipated to be between 35–40 hours over the entire 14-week period. In contrast, costs associated with tertiary-level FCPBS intervention may cost between $6,000 and $10,000 per family. Considering the conduct of comprehensive assessments, the development of multicomponent behaviour support plans, and the implementation support across multiple sessions in the home and/or community, the time cost for families and interventionists is substantial. Therefore, a secondary prevention model is a more efficient and cost-effective means to provide behavioural support to families of children with DS who are exhibiting mild-to-moderate problem behaviour.

A second clinical implication is the importance of including an individual coaching session in the secondary model (Dunlap et al., 2017; Joyce & Showers, 2002). In this study, families universally rated the coaching session in the primary routine delivered midway through the program as valuable. In one case, it likely made the difference between the family succeeding or failing to improve the primary routine. At the time of the coaching session, the mother had not yet begun to implement the PBS strategies taught in the program. She was experiencing high
levels of stress during the routine due to trying to balance the needs of not only the child with DS and autism, but also two younger siblings (one of whom was an infant). Both parents expressed their concerns, and we all engaged in a problem-solving discussion in which we reviewed exactly how the strategies could be applied. We also collaboratively decided to add an extra strategy: the use of a social narrative outlining behavioural expectations that could be read at the start of the routine to the two older children. This utilized the “incorporating preferences” strategy, as the target child was an avid reader. Had the midpoint coaching session not happened, this family may have continued to struggle in silence, experiencing few benefits from the program; instead, their child’s behaviour improved vastly after the coaching session and the mother’s newfound confidence and ability to implement the PBS strategies in the primary routine. The improvements in parent and child behaviour in the routine also were shown to maintain at follow up.

A final implication of the study concerns the importance of therapeutic process skills. Relationship quality between therapists and parents is a key component of intervention outcomes, accounting for an estimated 45% of the variance in the degree of treatment success (Forehand & Kotchick, 2002). Interventionists whose interactions with parents are characterized by support, humour, and warmth are associated with more positive outcomes, while directive styles of therapist interaction tend to be associated with resistance from parents (Forehand & Kotchick, 2002; Forgatch & Domenech Rodríguez, 2016). In this study, it is certain that therapist characteristics influenced the results. Informed by the literature, I put significant effort into developing a relationship with each parent that was characterized by warmth and caring, as well as mutual trust and respect. However, given that the formation of a therapeutic alliance with parents is an essential component of effective behavioural parent training in combination with
strong evidence-based content (Kazdin, Marciano, & Whitley, 2005), therapist effects should not be considered a limitation that confounds the interpretation of results. Rather, my development of a therapeutic alliance with parent participants may be viewed as a necessary component of the intervention program’s effectiveness (Webster-Stratton & Herbert, 1993).

An example of the development of rapport and trust in the facilitator by one parent in the present study is given here. At the beginning of the parent training sessions, a father in the EG tended to respond in a sarcastic, critical way to the proposed strategies. This was especially prevalent with strategies that involved the use of positive reinforcement, which he likened to “bribery.” When responding to his concerns, I used humour (reflecting his sarcasm in a more positive, productive way) and affirmation (i.e., a form of positive reinforcement). Over time, instead of negative responses, he began his comments with, “I like [this] aspect of what you just said, but I am wondering about….” Gradually, he became more willing to use positive reinforcement with his child, and at the end of the program, he reported that the house rules and ticket acknowledgement system (a positive reinforcement strategy) had the “most obvious beneficial results.”

Limitations and Future Research

The study has several limitations requiring comment: (a) insufficient measurement of facilitator implementation fidelity, (b) practical limitations to achieving blindness to treatment conditions by the IOA coder, (c) potential limitations of the PSI-SF, (d) minimal change in the broad, generalization measure of child problem behaviour, (e) participant issues, and (f) shortcomings in the parent training program. Limitations are discussed in the subsections below, along with future research that may address these limitations.
Facilitator implementation fidelity. I gathered data on my use of facilitator process skills by way of a checklist each session. However, with the exception of a single session, I did not gather facilitator implementation fidelity data on the delivery of program content during each session, accompanied by IOA data for a randomly selected subset of sessions. In future studies, it will be important to have a comprehensive checklist encompassing both content and process skills required to conduct effective parent training sessions. IOA data could then be collected across 20–30% of the sessions.

Blinding of IOA coder with respect to study phase. Every effort was made to ensure the second observer was procedurally blind to assessment point during all IOA training and independent coding sessions (Gast, 2014). However, in many instances, the second observer could readily discern whether the video was from a preintervention or postintervention observation session. Use of some intervention strategies, such as house rules tickets or visual supports, was only present in video-recorded observations after parents had participated in the program. As a result, actual blindness to study phase was not achieved.

Potential limitations of the PSI-SF. It is possible that the lack of evidence for decreased parental stress as a result of the FCPBS parent training program was in part an artefact of the use of the PSI-SF. This measure is composed of three subscales (Parental Distress, Difficult Child, and Parent-Child Dysfunctional Interaction), only two of which are specific to parents’ relationship to their child. Therefore, it may not be sensitive with respect to changes in stress caused by the child specifically. In addition, over- or underreporting on self-report measures is common in the research literature on parental stress in families of children with DDs (Woodman et al., 2015; Zaidman-Zait et al., 2018).
**Limited generalization of improvements in child problem behaviour.** In this study, the ECBI served as a measure of whether the secondary prevention model of FCPBS would promote global improvements in child problem behaviour beyond the three routines that were the focus of training and support and generalization promotion. While ECBI results showed a significant decrease in mothers’ perception of the intensity of child problem behaviour from pre-to postintervention when comparing the EG with WG, this improvement did not maintain at follow up. In addition, neither mothers nor fathers showed significant improvements in their perception of the number of problem behaviours in which their child engaged. Given that the intervention was designed to promote generalized improvements in child behaviour, these limited results did not fully support this expectation of the secondary prevention model. Clearly, there is a need to enhance the model so that it is more effective at promoting generalized child outcomes.

**Participants.** Two limitations with respect to participants are present. First, given the small number of participants, results may not be generalizable to the larger population of families who have children with DS. Second, fathers appear to have experienced little to no benefit from their participation in the group parent training program, as documented by indirect measures of child behaviour and global measures of child and family functioning. These limitations are discussed in the subsections that follow.

**Generalizability.** This study included a small number of participants. This was necessary due to the fact that DS is a low incidence population, and because I was the sole facilitator for the parent groups. Given the small sample size, statistical power was low. However, even though there was low power, statistically and clinically significant experimental effects were found for the primary outcome variables of child problem behaviour and child positive engagement, as
well as for some generalization measures of child problem behaviour and positive engagement and parent implementation fidelity.

Despite the small participant pool, the children were fairly representative of the population of primary school-aged children with DS with respect to sex, receptive and expressive language ability, dual diagnoses, and frequency and topography of problem behaviour. However, participating parents did not exhibit much variability in ethnicity, socioeconomic status, or level of education, with most parents being Caucasian and at least middle class, married, and having a college degree. This limits the generalizability of these findings to the larger population of families who have children with DS. It is possible that this group of parents may have experienced enhanced benefits from the intervention due to the variables noted above. However, findings from one family in the study suggest that these variables may not have factored significantly into the results. Family 10 comprised a single mother with relatively low socioeconomic status. The child in this family exhibited some of the largest improvements of all the children in the study with respect to problem behaviour (Pre-intervention 2 = 56.80% to Post-intervention = 7.52%) and positive engagement (Pre-intervention 2 = 39.89% to Post-intervention = 91.71%). In addition, the mother’s feedback on the social validity and program feedback forms was wholly positive and enthusiastically supportive in nature.

To address the generalizability limitation, an increased sample size would be necessary. Doing so would require multiple locations and interventionists, as well as careful consideration of the complexities introduced by such a large multisite study. However, this approach will be necessary in order to demonstrate the effectiveness of the program (Chorpita, 2003). The current study is classified as efficacy research, as the intervention was carried out by a doctoral student with extensive experience with families of children with DS and with financial support from a
doctoral research award. The study was not carried out within the real-world context of the organization that hosted the group parent training sessions, a midscale, nonprofit agency serving families of children with DS. Future research should include examining the effectiveness of the group FCPBS program within the natural resources and constraints of the nonprofit agency.

**Fathers.** Across all measures completed by fathers, none showed statistically significant improvements. Further, in two cases, the outcome for fathers was opposite to what was hypothesized. First, EG fathers reported more problem behaviour on the ECBI postintervention compared to preintervention. Second, WG fathers showed a decrease in parenting sense of competence scores after intervention. Increased knowledge of and attention to problem behaviour may be contributing factors regarding the increase in problem behaviour reporting by fathers at postintervention. Fathers may have gained a new perspective on their children’s behaviour that was more in line with the primary caregiver; that is, the mothers’ perspective (Frank, Keown, & Sanders, 2015; Roberts et al., 2006). Lack of improvement in fathers’ sense of parenting efficacy may reflect the comparatively small amount of time fathers spent practising PBS strategies, as they were not primary caregivers in the primary routines. Given this, it is reasonable that they felt no more competent with respect to parenting after intervention than they did before it. Similarly, parenting efficacy was found to improve in mothers but not fathers after the Group Triple P program was conducted with both parents (Frank et al., 2015).

Limited results with respect to fathers’ report of child behaviour and family functioning outcomes are apparent within the research literature on group parent training (Elfert & Mirenda, 2015; Lundahl et al., 2008), and FCPBS studies (Lucyshyn et al., 2018). Across 26 studies of parent training programs, Lundahl et al. (2008) found that fathers reported fewer benefits from the programs. Interestingly, however, they also found that programs that included fathers had
better overall outcomes (e.g., more positive changes in child behaviour as well as more maintenance of maternal and child improvements). Lundahl et al. (2008) concluded that while “parent” has typically been defined as “mother” within behavioural parent training interventions, “excluding or limiting fathers from parent training programs is not recommended…. Parent training programs may need to be adjusted to meet fathers’ needs” (p. 103).

The FCPBS literature echoed the findings of group parent training research. Lucyshyn et al. (2018) found, across 6 years of assessment, mothers experienced significant gains in family quality of life while fathers did not. In addition, mothers experienced significant improvements in parenting stress sooner than fathers. The authors concluded that the difference in family functioning scores between mothers and fathers was due to the mother’s role as primary caregiver throughout intervention, thus providing mothers with more opportunities to hone their skills with the help of in vivo modelling and coaching. Since almost every primary routine targeted for intervention by families in the present study chiefly involved mothers, fathers were at a distinct disadvantage with respect to practising and receiving feedback about their use of PBS strategies. They had fewer structured opportunities to practise strategies in the primary routine, to report and receive feedback during home practise reviews, and to receive one-on-one coaching during the in vivo coaching session.

Within the literature, studies are underway regarding how to make group parent training programs more father friendly (Fabiano, 2007; Frank et al., 2015; Long, 2005; Salinas, Smith, & Armstrong, 2011). Salinas et al. (2011) conducted a focus group with 13 fathers centred on how to better engage fathers in parent training. Themes that arose from the qualitative study included the need to (a) address barriers to fathers’ attendance, such as scheduling issues due to work conflicts; (b) include father-specific content in sessions; and (c) acknowledge that switching
from a punitive approach to dealing with problem behaviour to a preventative one that also highlights positive reinforcement for adaptive behaviour may be even more difficult for fathers than for mothers (Salinas et al., 2011). Frank et al. (2015) offered further detail about father-specific content as used in the Triple P program, including outlining the key roles that both mothers and fathers play in children’s development and how to demonstrate physical affection in a variety of ways. In addition, Fabiano (2007) recommended ensuring that behavioural strategies are used within settings that are most comfortable to fathers (e.g., sporting or other community-based activities). A final key consideration is framing the program in a nonpathological way from the outset. Often, fathers do not view their parenting skills as lacking or needing intervention, thus referring to the intervention as a “training” program may be problematic for fathers (Fabiano, 2007). Berlyn, Wise, and Soriano (2008) recommend using vocabulary like “tools” and “building,” rather than “training” and “support” when describing the program to fathers.

**Limitations of the FCPBS group parent training.** Before future evaluative research is conducted, four limitations of the current version of the parent training program need to be addressed. First, training and support for the transition routine needs to be enhanced within the 14-session program. Transition routines occur frequently during the course of a family’s day, offering parents many opportunities to practise PBS strategies in this routine and to generalize their use of strategies to nontrained transitions (Lucyshyn, Fossett, et al., 2015). There are three adjustments to the program that will be necessary to accommodate this revision. First, it will be helpful for transition routines to be introduced at the start of the parent training program and serve as the primary routine to which families apply PBS strategies. Each family can select one transition routine that occurs every day and is problematic due to child problem behaviour.
Second, selecting a daily transition that is similar to other transitions during the day or week may contribute to parents developing a generalized ability to support successful transitions with their child with DS. Third, given this revision, the family routine that parents chose in this study as their primary routine would be introduced at the midpoint of parent training sessions, while the generalization project routine will remain at the three-quarter point of sessions. This sequential introduction of three routines may ensure that parents have sufficient training and/or time to implement PBS strategies in each routine and improve their child’s behaviour and participation. Families who are able to master the use of PBS strategies across the three routines may then be able to generalize their use of PBS strategies to non-trained routines, and in doing so, be more likely to realize the generalized outcomes that are the aim of the group-based FCPBS program.

Second, it will be helpful to enhance training and support for parents’ use of the actively ignore and positively redirect consequence strategy, which proved difficult for participating mothers to implement with fidelity in the primary routines that were directly observed. This can be done in three ways. First, the strategy could be taught earlier in the program, giving parents more opportunity to practise and ask questions. This also would ensure that the facilitator could provide direct feedback on use of the strategy during the individualized coaching session. Second, parents should be taught how to apply mindfulness directly to the use of the actively ignore and positively redirect strategy. The development of a mindfulness practice should aid parents in the application of this strategy, given that it improves their presence during parenting tasks, allowing them to calmly retrieve and apply relevant strategies in the moment (Singh et al., 2007). Understandably, parents in this study were not yet able to generalize their foundational, 5-minutes-per-day mindfulness practice to moments of heightened stress, such as when their children engaged in problem behaviour that they found very frustrating. To improve parents’
ability to harness mindfulness in moments when it is most helpful (i.e., before and during difficult tasks or routines), more scenarios and role-plays of this nature should be provided during the program. An example could be a role-play that involves the parent imagining their child’s problem behaviour escalating and drawing upon their compassionate abiding practice to help accept negative emotions that arise. Parents also could be taught to engage in a very brief mindfulness practice immediately prior to beginning a stressful routine. Third, through cognitive restructuring, parents could be taught to substitute problematic thoughts that interfere with implementation of the actively ignore and redirect strategy with constructive thoughts that facilitate the use of the strategy. For example, when their child begins to engage in problem behaviour in a family routine, instead of thinking, “Oh my, here we go again,” the parent thinks, “I can ignore and redirect.” With this covert cue, they effectively do so. Cognitive restructuring also can be implemented with parents who hold strong beliefs about the use of common forms of parental punishment to discipline their child, such as yelling or spanking, which are associated with negative outcomes for children (Gershoff et al., 2010).

Third, it will be helpful to amend the program so that fathers may experience the same benefits as mothers. Given the qualitative findings of Salinas et al. (2011) and others in the previous section, the following changes may advance fathers’ active participation in sessions, the mastery of PBS strategies, and their perceptions of improvements in child behaviour and family functioning. First, the program could be labelled differently than “parent training”: the label could be rephrased using vocabulary that is more appealing to fathers. Second, the program could begin with a discussion of the unique roles that mothers and fathers play in children’s development, focusing on the importance of fathers’ contributions. Third, more discussion is necessary relating to the benefits of positive reinforcement on child behaviour as contrasted
directly with punishment strategies. Fourth, father-specific content could include greater emphasis on the value of physical praise and affection toward children and more incorporation of examples that address routines that fathers are commonly involved in, such as sport activities. Finally, families could be asked to choose: (a) a primary transition routine that equally involves both parents (e.g., morning routine, going out as a family to a restaurant, bedtime routine); and (b) one routine each in which the mother and father serve as lead interventionist. For fathers, examples may include play or sport activity routines. For mothers, examples may include grocery shopping or dinner preparation/sibling playtime routines.

Fourth, it will be helpful to enhance the amount of support among parents, both during and after the program. Parent to parent support amongst families who have children with DDs has garnered some research evidence. Benefits include improving families’ abilities to cope with stressors, and to help one another progress towards goals (Singer et al., 1999). While families were informally encouraged to be in contact with one another outside of the FCPBS parent training group sessions both during and after the program, this may be enhanced by introducing a parent to parent support group via a closed group on a social media site. The facilitator could pose topics and monitor the site to ensure contributions are appropriate and supportive, but the emphasis would be on parents’ support of one another in their use of PBS strategies and in problem solving new issues. Guidelines and ground rules would be established collaboratively between the facilitator and participating parents at the group’s inception.

**Summary and Conclusion**

This study concludes a three-part integrated knowledge translation (IKT) investigation of a secondary prevention model of FCPBS. The IKT approach to research is an example of the type of research currently being promoted within the field of implementation science, with the
aim of decreasing the considerable lag in time between the inception of an intervention and its empirical development and adoption by knowledge users in real-world settings (Gagliardi, Berta, Kothhari, and Urquhart, 2016). Consistent with an IKT approach, the investigation began with a concept paper that addressed the need for a secondary tier of FCPBS intervention, and proposed a model that integrated best practices in group parent training with core features of FCPBS. This was followed by a pilot study in which the proposed secondary prevention model of FCPBS was implemented with a small group of families of children with DS. Mixed methods were employed to understand participant perspectives and evaluate outcomes, including focus group sessions and a quasi-experimental group design. During focus groups, participants provided formative and summative feedback on the acceptability, feasibility and effectiveness of the secondary prevention model and offered recommendations for improving the model. Lastly, based on the quantitative and qualitative results of the pilot study, I revised the secondary prevention model to enhance its acceptability, feasibility and effectiveness. I then designed and conducted the current RCT with a larger group of families to investigate the effectiveness of the model for improving child behaviour and global family functioning. Results included significant between group improvements in child behaviour in a primary routine and generalization routine, delayed within group improvements in a transition routine, and modest improvements in family functioning for mothers but not for fathers.

The next step in the continuation of this IKT programme of research would be to conduct a focus group with a subset both mothers and fathers who participated in the RCT to gain their perspectives and feedback on proposed enhancements to the secondary prevention model. This updated version of the model then would be evaluated in an effectiveness trial that involved the use of a hybrid RCT that incorporates qualitative and quantitative methodology (Curran, Bauer,
Mittman, Pyne, and Stetler, 2012). The qualitative feedback from this new group of knowledge users would be incorporated into a final version of the program. This stage of model development would be conducted within the natural resources and constraints of a nonprofit organization that serves families of children with DS (i.e., DSRF). This line of research would conclude with a multisite, multiinterventionist effectiveness trial of the secondary prevention model of FCPBS. Three other DS service organizations from across Canada would be recruited to investigate the effectiveness of the model within the real-world conditions of each site. To empower agency-based interventionists and administrators to implement the core components of the model with fidelity, a training protocol would be developed based on the principles and practices of implementation science (Fixsen et al., 2010). An RCT would be employed to evaluate the effectiveness of the delivery of the model across the three agencies. In conclusion, the present IKT study has advanced in measured steps the empirical development of a secondary prevention model of FCPBS designed to empower parents of children with DS to improve their child’s behaviour and the quality of life of their families. Future research informed by implementation science will be necessary to fully translate the secondary prevention model into common practice in agencies serving families of children with DS throughout Canada.
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APPENDIX A: PREVENTATIVE FC-PBS FOR FAMILIES OF CHILDREN WITH DOWN SYNDROME: SCOPE AND SEQUENCE

Preventative Family-Centred Positive Behaviour Support for Families of Children with Down Syndrome

Independent Variable: Scope and Sequence

Week 1: Understanding problem behaviour I

Session objectives: By the end of this session, parents will be able to define the concepts and terminology regarding functions of behaviour. They will be able to identify functions in videos of interactions.

Structure of session:

- Introductions of one another / icebreaker game
- Set up rules for group participation: standards and values
- Expectations and outcomes regarding participation in program (e.g. creation of individualized program workbook; weekly homework)
- Confidentiality agreements and forms
- Scope and sequence of sessions
- Organization of each session
- Introduction to Family Centered – Positive Behaviour Support
  - Definition, components
  - Explanation of tiered system; parent training program as a secondary preventative approach
  - Functions of behaviour; 4-term contingency
    - Video activity
- Take-home messages
- Home practice: What is the primary function of your child’s problem behaviour?

Week 2: Understanding problem behaviour II; Strengths

Session objectives: Parents will understand and be able to identify coercive and constructive family processes, and how these processes contribute to either worsening or improving of behaviour over time. They will focus on their own child’s strengths and positive contributions to the family, and on their unique strengths as a family.

Structure of session:

- Home practice review and celebrations of success
- Coercive and constructive processes
  - Definition; examples; practice exercises
- Child and family strengths; child positive contributions
  - Share with group
- Take-home messages
• Home practice: Identify one example of a constructive process and one example of a coercive process within your family.

Week 3: Foundational skills; building a healthy mindset; praise

Session objectives: Parents will learn about how a regular mindfulness practice can help them parent more effectively, and will learn a sitting mindfulness practice. They will learn about how problematic thought patterns can impede their ability to parent effectively, and will begin to learn strategies to help with these. Finally, parents will learn to notice positive behaviour in their child, and will be able to use praise to encourage this kind of behaviour.

Structure of session:

• Home practice review and celebrations of success
• Mindfulness
  o Definition; rationale; examples; 5 minute sitting mindfulness meditation
• Changing problematic thought patterns
  o Definition; rationale; examples
• Increasing awareness of child positive behaviour; discussion and practice of praise to increase positive behaviour
  o Giving your child positive verbal and/or physical feedback after she or he engages in appropriate behaviour
  o Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
• Take-home messages
• Home practice: 5 minutes mindfulness practice 2-5 days (parents choose). Switch focus from problem behaviour to positive behaviour; give your child praise for good behaviour once per day.

Week 4: Setting event strategies

Session objectives: At the end of this session, parents will be able to define setting events that commonly make problem behaviour more likely to occur in children with Down syndrome. Parents will have a list of setting event strategies, and will have chosen one to two of these strategies to focus on at home. Parents will be able to define the values for their own families. Parents will have chosen a list of 4 to 6 potential house rules.

Structure of session:

• Home practice review and celebrations of success
• 5 minutes mindfulness practice (sitting)
• Problematic thought type of the week; reframing or other cognitive change activity
• Down syndrome-specific setting events (e.g., poor sleep) & supports:
  o Definitions; rationale; guidelines; examples and non-examples; group activities
• House rules:
  o A set of individualized, values-based rules for all children in the family to follow
  o Definition; rationale; guidelines; examples and non-examples
Activities: parents identify family values, and make a “rough draft” of house rules to trial at home
- Take-home messages
- Homework: 5 minutes mindfulness practice 3 to 5 days (parents choose). Try out house rules at home.

Week 5: Preventative strategies I

Session objectives: Parents will make their house rules poster and will learn to use a ticket reinforcement system to reward children for following the rules. They will learn the first preventative strategy: how to make demands of their children in a way that makes it more likely that their children will comply.

Structure of session:
- Home practice review and celebrations of success
- 5 minutes mindfulness practice (sitting)
- Problematic thought type of the week; reframing or other cognitive change activity
- House rules
  - Activity: make poster with final set of rules; make reward tickets
  - Activity: fill out a matrix of expected behaviours for each rule across 3-4 home routines
- Rationale for the use of preventative strategies
- **Effective requests**
  - A way of giving your child instructions that makes it more likely that he or she will comply
  - Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
- Take-home messages
- Home practice: 5 minutes mindfulness practice 3 to 5 days. Use the house rules poster and ticket reinforcement system. Try to use effective requests in your chosen routine 3-5 days.

Week 6: Caring for the whole family

Session objectives: By the end of this session, parents will be able to list components of both a healthy and an unhealthy couple relationship. Parents will have generated a list of ways to ensure the siblings of a child with DS feel cared for, and will have selected one to three of these strategies to use within their own family. Parents will learn the importance of including extended family members and close friends in the process of using positive behaviour support.

Structure of session:
- Home practice review and celebrations of success
- 5 minutes mindfulness practice (sitting)
- Problematic thought type of the week; reframing or other cognitive change activity
• Sibling panel: invite 3 to 4 siblings of children with DS (not from the currently participating families) to share experiences. Parents will also ask questions of the panel.
  o Group brainstorm about how to ensure siblings feel cared for and important. Choose 1 to 2 strategies and include this in the siblings section of the individualized program document
• Couples: the importance of a healthy partnership between couples.
  o Essential key qualities of a healthy partnership & why this is particularly important when raising a child with DS
  o Signs that your relationship may not be healthy – red flags
    o Cooperative parenting: definition; rationale; strategies
• Including extended family & friends in the process of PBS
• Take-home messages
• Home practice: Plan and do one activity to enhance the health of the couple relationship, cooperative parenting, or ensuring siblings feel important and loved at home. Continue to practice mindfulness and PBS strategies from previous weeks.

Week 7: Preventative strategies II

Session objectives: Parents will learn the importance of using positive contingencies and visual supports to encourage positive behaviour. They will plan a visual support that could be used with their child in their chosen routine. Finally, they will learn how to provide their child with opportunities to make choices to encourage independence and cooperation.

Structure of session:

• Home practice review and celebrations of success
• 5 minutes mindfulness practice (sitting)
• Problematic thought type of the week; reframing or other cognitive change activity
• Positive contingency statements; visual schedules; first, then boards
  o Visual supports such as pictures and symbols help enhance predictability for your child
  o Definition; rationale; guidelines; common pitfalls; examples and non-examples; group activities
• Offering choices
  o Giving your child a choice of 2 or more options within both preferred and non-preferred activities helps her or him be more cooperative
  o Definition; rationale; guidelines; examples and non-examples; group activities / role-playing
• Take-home messages
• Home practice: 5 minutes mindfulness practice 3-5 days. Practice offering choices at home 3-5 days this week.
Week 8: Individual coaching session (no group session)

- Each family will be given one, approximately 1-hour coaching session within their home or community setting during their first identified routine
- This is an opportunity for parents to consolidate knowledge and have a chance to practice the strategies they have learned so far

Week 9: Preventative strategies III

Session objectives: By the end of this session, parents will learn the potency of encouraging their child to do difficult tasks by making them more enjoyable. They will have a list of several ways they can make less preferred activities more fun. They will be able to use safety signals.

Structure of session:

- Home practice review and celebrations of success
- 5 minutes mindfulness practice (loving kindness meditation)
- Problematic thought type of the week; reframing or other cognitive change activity
- Incorporating preferences into difficult activities
  - Building in preferred elements to activities or routines that are hard for your child makes it more likely that they he or she will complete them
  - Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity
- Safety signals:
  - Teaching the child to tolerate delays before getting what they want
  - Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
- Take-home messages
- Home practice: 5 minutes mindfulness practice 3-5 days. Choose one strategy to practice at home 3-5 days this week.

Week 10: Building successful routines

Session objectives: By the end of this session, parents will be able to define what a successful, valued routine looks like. Parents will have chosen the next problematic routine they want to address. They will create successful visions for this additional routine, and will begin working on an end-of-program project / presentation. In this synthetic session, parents will learn about how to apply strategies already learned to difficult transition routines.

Structure of session:

- Home practice review and celebrations of success
- 5 minutes mindfulness practice (loving kindness meditation)
- Problematic thought type of the week; reframing or other cognitive change activity
- Routines: definition; discuss the importance of successful family routines in home and community
  - Discuss and begin planning for end-of-program project
- Transitions: definition; why transitions are particularly challenging for children with DS
• Group activity: parents will help one another problem solve around this routine using the setting event and preventative strategies they have learned so far
• Take-home messages
• Home practice: 5 minutes mindfulness practice 3-5 days. Try one or two of the strategies identified as potentially helpful during a transition routine 3-5 days.

Week 11: Teaching & consequence strategies I

Session objectives: Parents will learn the value of play with their child, and how it enhances parent-child relationships, as well as expressive language in their child. They will have a set of guidelines for how to enrich play. They will have developed a positive reinforcement menu for their child.

Structure of session:
• Home practice review and celebrations of success
• 5 minutes mindfulness practice (loving kindness meditation)
• Problematic thought type of the week; reframing or other cognitive change activity
• Teaching via play: rationale for engaging in it often; guidelines for how to enrich it
• Reinforcement menus
  o A flexible menu of preferred options for your child to choose from when she or he has engaged in appropriate behaviour
  o Group brainstorming activity; parents will decide on what should be on the menu for their child; menus will be made by instructors and given out during last session
• 15 minutes to work on “Building a Successful Routine” project
• Take-home messages
• Home practice: 5 minutes mindfulness practice 3-5 days. Practice functional communication training at home 3-5 days this week.

Week 12: Teaching & consequence strategies II

Session objectives: By the end of this session, parents will be able to define functional communication. Parents will have chosen a functional phrase relevant to their child, and will have strategies to teach this phrase to their child. By the end of this session, parents will have a strategy for how to provide consequences for mild to moderate problem behaviour.

Structure of session:
• Home practice review and celebrations of success
• 5 minutes mindfulness practice (compassionate abiding meditation)
• Problematic thought type of the week; reframing or other cognitive change activity
• Functional communication training
  o Teaching language to the child to replace problem behaviour
  o Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
• Actively ignore and positively redirect
A consequence-based strategy to redirect or weaken mild to moderate problem behaviour
- Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
- 15 minutes to work on “Building a Successful Routine” project
- Take-home messages
- Home practice: 5 minutes mindfulness practice 3-5 days. Choose one strategy to practice at home 3-5 days this week.

Week 13: Teaching & consequence strategies III

Session objectives: Parents will learn and be able to use a strategy to help them teach desired behaviour to their children.

Structure of session:

- Home practice review and celebrations of success
- 5 minutes mindfulness practice (compassionate abiding meditation)
- Problematic thought type of the week; reframing or other cognitive change activity
- Review and expansion of consequence supports to strengthen positive behaviour (covered partially in Week 3)
- **Errorless learning**
  - Ensuring your child’s learning success by providing prompts to your child during new or difficult tasks to ensure they respond correctly each time
  - Definition; rationale; guidelines; common pitfalls; examples and non-examples; video or live demo; group activity; role-play
  - Importance of positive reinforcement during new skill acquisition
- 15 minutes to work on “Building a Successful Routine” project
- Take-home messages
- Home practice: 5 minutes mindfulness practice 3-5 days. Choose one strategy to practice at home 3-5 days this week.

Week 14: Family presentations & review game

Session objectives: The overarching goals of this final session are to celebrate families’ successes and complete a review of the program material.

Structure of session:

- Home practice review and celebrations of success
- 5 minutes mindfulness practice (parents’ choice)
- Problematic thought type of the week; reframing or other cognitive change activity
- Each parent dyad will present their 5-10 minute “Building a Successful Routine” project
- Split into teams and play a game aimed at reviewing course content (prize for the winning team)
  - Game will include opportunities for parents to practice problem solving in new situations
• Take-home messages for whole program; hand out mini-poster & wallet-sized version of strategy list and definitions
• Collaboratively decide on content and timing of booster / follow-up sessions
# APPENDIX B: SELF-EVALUATION OF PROCESS SKILLS CHECKLIST

**Parent Management Training – Oregon (PMTO)**

**Process Skills Implementation Checklist**

(Forgatch & Domenech Rodriguez, 2016)

**Instructions**: Below are 21 therapeutic process skills that are used by family therapist when implementing Parent Management Training – Oregon (PMTO), within either an individual or group parent training session. Prior to a session, briefly review and contemplate each skill, and the possibility of using the skill during the session. Contemplate means to bring your attention to the skill and hold the intention to use it if your professional judgment in that moment suggests that its use may be appropriate and helpful. After the session, briefly review your use of each skill. If you used a skill one or more times, circle “Y” for Yes; if you did not use the skill, circle “N” for No. Do not consider that all Yes scores means you were more skillful, or that all No scores means you were less skillful. Rather, consider for each session the pattern of use and non-use, and whether overall the session went well or less well. By contemplating your use of these process skills during parent training sessions, you may learn the skills that appear to be more or less helpful for a particular parent, family, and/or parent group. Reflecting in this way across sessions will allow you to build these skills into your professional repertoire, and also develop a nuanced understanding of when and when not to use a particular process skill.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Description</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ask questions</td>
<td>Effective use of questions that leads to increased awareness</td>
<td>Y/N</td>
</tr>
<tr>
<td>2. Prevent/manage resistance</td>
<td>If resistance appears, quickly address it with question/support/problem solving</td>
<td>Y/N</td>
</tr>
<tr>
<td>3. Prevent/manage conflict</td>
<td>Step in, deflect, neutralize, take advantage of opportunity, etc.</td>
<td>Y/N</td>
</tr>
<tr>
<td>4. Maintain balance</td>
<td>Promote balance of participation among everyone present</td>
<td>Y/N</td>
</tr>
<tr>
<td>5. Promote united approach</td>
<td>Move strategically to engage cooperation at each level (e.g., selection of role-play actors)</td>
<td>Y/N</td>
</tr>
<tr>
<td>6. Encourage/support</td>
<td>Use verbal and nonverbal praise and/or tangible reinforcers (Scooby Loops); highlight strengths/progress in small steps</td>
<td>Y/N</td>
</tr>
<tr>
<td>7. Connect with storyline</td>
<td>Pull in information from family background that creates special relevance of the materials/practices for the family</td>
<td>Y/N</td>
</tr>
<tr>
<td>8. Use a variety of tools</td>
<td>Use multiple process skills that enhance the skills of others</td>
<td>Y/N</td>
</tr>
<tr>
<td>9. Normalize</td>
<td>Verify that an experience in “normal.” Find an authentic point of common experience. Disingenuous normalization is not a skillful process</td>
<td>Y/N</td>
</tr>
<tr>
<td>10. Interpret/reframe</td>
<td>Reformulate information in a new manner that enables people to see things in a new light.</td>
<td>Y/N</td>
</tr>
<tr>
<td>11. Use metaphors</td>
<td>Use symbols or figures of speech to increase understanding of a concept that is complex or out of grasp.</td>
<td>Y/N</td>
</tr>
<tr>
<td>12. Mirror/match</td>
<td>Strategically shift behaviour, position, or speech to reflect the client’s state (e.g., slow down if parent appears slow)</td>
<td>Y/N</td>
</tr>
<tr>
<td>Skill</td>
<td>Description</td>
<td>Yes/No</td>
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<tr>
<td>13. Use strategic warning</td>
<td>Mention potential problems before they occur and provide an opportunity to problem-solve or check-in</td>
<td>Y/N</td>
</tr>
<tr>
<td>14. Take responsibility</td>
<td>Assume a portion of responsibility for failures (e.g., “I didn’t prepare you well enough for that role-play; let’s try again”).</td>
<td>Y/N</td>
</tr>
<tr>
<td>15. Paraphrase /summarize</td>
<td>Restate or recap information provided by clients to ensure they feel heard or understood. Summarize to promote smooth transitions between topics</td>
<td>Y/N</td>
</tr>
<tr>
<td>16. Use humour</td>
<td>Use humour strategically to lighten situations or maintain engagement. Do not use hostile (e.g., sarcastic, demeaning) humour or humour in service of avoidance.</td>
<td>Y/N</td>
</tr>
<tr>
<td>17. Use paradox</td>
<td>Paradox can be helpful in face of challenge or resistance; once stated, it may increase the probability of the opposite outcome (e.g., “I think you’re not ready to try this; let’s wait another week before we begin”). Paradox should acknowledge reality and be used with care. Manipulative paradox can erode the therapeutic relationship (e.g., “I tricked you. You did it!”).</td>
<td>Y/N</td>
</tr>
<tr>
<td>18. Reflect</td>
<td>Return a verbalization and help a consideration. For example if client says, “This is really hard!” the therapist simply replies, “This IS really hard! What is it that makes it so hard?”</td>
<td>Y/N</td>
</tr>
<tr>
<td>19. Interrupt supportively</td>
<td>An interruption that varies from abrupt to elegant and serves to support the process. For example, if a parent is rambling and has lost her point, a supportive interruption can help refocus and keep the session on track (e.g., “Excuse me, I need to jump in to be sure that I don’t lose track of your very important point.”).</td>
<td>Y/N</td>
</tr>
<tr>
<td>20. Keep in contact</td>
<td>Stay in contact with all participants.</td>
<td>Y/N</td>
</tr>
<tr>
<td>21. Introduce movement/activity</td>
<td>Introduce activity to infuse energy into the session. For example, when not engaged in role-plays, the therapist may get up and write on the board, grab props for a demonstration, get people to change chairs, etc.</td>
<td>Y/N</td>
</tr>
</tbody>
</table>

APPENDIX C: DEFINITION OF FAMILY-CENTRED POSITIVE BEHAVIOUR

SUPPORT STRATEGIES

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definition &amp; Examples/Nonexamples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Down syndrome-specific (SE)</td>
<td>*this set of strategies was taught but not directly applicable within the routines observed (e.g., sleep hygiene, nutrition, exercise)</td>
</tr>
<tr>
<td>Environmental (SE)</td>
<td>This strategy was scored if the parent made an environmental modification to reduce the likelihood of problem behaviour before the occurrence of problem behaviour.</td>
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<tr>
<td></td>
<td>Examples:</td>
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<tr>
<td></td>
<td>Turning off a bright light that is distracting to the child</td>
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<td></td>
<td>Carrying a heavy backpack for the child</td>
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<tr>
<td></td>
<td>Pre-session attention prior to a “parent busy” routine</td>
</tr>
<tr>
<td>House Rules (SE)</td>
<td>This strategy was scored if the parent either referred specifically to the House Rules poster in the family home, or if the parent gave the child a “ticket” to acknowledge the child following the House Rules. This strategy was not scored if the House Rules were visible in the home, but the parent did not make reference to it during the routine, or if the parent gave a ticket immediately after the child engaged in problem behaviour.</td>
</tr>
<tr>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td></td>
<td>Handing child a ticket, and saying, “Good asking your brother for help – great teamwork!”</td>
</tr>
<tr>
<td></td>
<td>Pointing to the poster and saying, “You are doing a good job keeping your hands to yourself!”</td>
</tr>
<tr>
<td>Effective Requests (A)</td>
<td>This strategy was scored if a parent used a calm, firm voice to briefly state a behavioural expectation. It was not scored if the parent’s tone was quiet or uncertain, if the parent asked a question, if the parent stated many requests in a row, or if the parent used too much language.</td>
</tr>
<tr>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td></td>
<td>“Put it in.”</td>
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<tr>
<td></td>
<td>“Let’s go clean up!”</td>
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<tr>
<td></td>
<td>“K, sit down.”</td>
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<tr>
<td></td>
<td>Non-examples:</td>
</tr>
<tr>
<td></td>
<td>“Can you wait for your turn?”</td>
</tr>
<tr>
<td>Strategy</td>
<td>Definition &amp; Examples/Nonexamples</td>
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<tr>
<td>Offering Choices (A)</td>
<td>This strategy was coded if the parent presented 2-3 choices of activities or items to the child, and waited for the child to make the choice. It was not coded if the parent presented too many options, gave non-specific choices, or presented the options immediately after problem behaviour. Examples: “Can you give him some space, please?” “Are you going to help me?” “Strawberry or raspberry?” (parent holding up two types of yogurt) “2 more bites or 3 more bites?” “Do you want Mom to help you or Dad to help you?” Non-examples: “You can play with the tower or something else.” “Walk or run?” (immediately after problem behaviour) “Do you want Happy Birthday or Elmo? Or you can watch Signing Times – do you want Signing Times?”</td>
</tr>
<tr>
<td>Visual Supports (A)</td>
<td>This strategy was scored if a parent presented the child with a visual schedule, simple sequence with reward, or response fading visual support to increase predictability or motivation during the routine. It was not scored if there was an absence of visual support, or if the visual support was in written format. Examples: Response fading schedule to show the child how many bites of food to take or how many fingernails would be cut. Visual schedule to show child the steps in a routine before and as the routine progresses; e.g., walk to playground, play on swings, get in car, have snack Non-example: Written grocery list.</td>
</tr>
<tr>
<td>Positive Contingency Statements (A)</td>
<td>This strategy was coded if the parent used a “first, then” statement to remind the child to participate in the routine, and then she or he will receive a reward. It was not scored if the parent did not state it clearly and succinctly, or used it immediately after problem behaviour. Examples: “Keep hands to yourself, and then TV”</td>
</tr>
<tr>
<td>Strategy</td>
<td>Definition &amp; Examples/Nonexamples</td>
</tr>
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<td>-----------------------</td>
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</tr>
<tr>
<td><strong>Incorporating Preferences (A)</strong></td>
<td>This strategy was scored if a parent embedded the child’s preferences (e.g., favourite characters, ways of interacting) to increase motivation to complete the routine. It was not scored if a parent omitted this strategy, or incorporated the preferences immediately after problem behaviour. Examples: Asking the child to take a bite of food in a Cookie Monster voice Kicking a soccer ball all the way home from school (rather than just walking) Putting preferred items on a grocery list: chips, cookies, Goldfish crackers, etc. Offering candles to put on Play-Doh “cupcakes” a child had made Non-example: Picking up the child and flying her through the air after she refused to move and whined</td>
</tr>
<tr>
<td><strong>Safety Signal (A/T)</strong></td>
<td>This strategy was scored if the parent used a specific statement to indicate that the non-preferred activity would soon be finished. The strategy was not coded if the parent used a non-specific safety signal, or did not follow through with the stated signal. Examples: “3 more then all done” (counting hair brush strokes) “One more bag, then all done!” “6 more bites by yourself then mama feeds you!” (counted together on visual schedule) Non-examples: “Almost there / almost done!” “3 more” (not followed by statement about being finished, or what would happen next) “In 4 more minutes, I will come read a book with you” (did not return for 13 minutes)</td>
</tr>
<tr>
<td>Strategy</td>
<td>Definition &amp; Examples/Nonexamples</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Functional Communication Training (T) | This strategy was coded if the parent provided a response contingent on an appropriate verbal request from the child. The requests were specific to the primary function(s) of problem behaviour for each child in their particular routines. The strategy was not coded if the parent did not respond to an appropriate bid for attention, tangible or escape from the child.  
  Examples:  
  Child: “Dad, help please” Parent: helped child  
  Child: “Mama, look! Ho ho ho!” (pointing at Santa) Parent: Laughs and says “Santa!”  
  Child: “I want juice.” Parent: praises asking, gets juice  
  Non-example:  
  Child: “Mami!” Parent: no response                                                                                   |
| Errorless Learning (T)       | *this strategy was taught but not applicable within the routines observed                                                                                                                                                                                                                                                                                         |
| Positive Reinforcement: Praise (C) | This strategy was scored if a parent gave enthusiastic verbal &/or physical praise after the child engaged in adaptive, desired behaviour. Both specific and non-specific verbal praise were given credit. It was not scored if the praise was given immediately after problem behaviour, or if the praise was negatively phrased.  
  Examples:  
  “Good helping at the grocery store today!”  
  “Good job getting your hair brushed!”  
  “Best tree puller EVER!” (while the child prepared broccoli for dinner)  
  “You did it? Cool!”  
  “Good boy!”  
  “Thank you for listening”  
  High fives, hugs, head rubs, fist bumps  
  Non-examples:  
  “Nice playing; I like it that you are not pushing”  
  “Good listening” (immediately after problem behaviour)                                                                 |
<p>| Positive Reinforcement: Tangible Reward (C) | This strategy was coded if the parent gave the child a tangible reward contingent on adaptive, desirable behaviour or the completion of a difficult routine. It was not coded if the parent did not give the promised reward, or if the reward was |</p>
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Definition &amp; Examples/Nonexamples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>not motivating for the child.</strong></td>
<td>Examples: Child got to sing into a microphone after eating her whole dinner Child read a book with mom and dad after playing with his sibling while parents were busy Child got a popsicle or a cake pop at the end of a walk Non-example: Child did not want to engage in story time with her parent at the end of a hygiene routine (and parents did not have a more motivating option available)</td>
</tr>
<tr>
<td><strong>Actively Ignore and Positively Redirect Minor Problem Behaviour (C)</strong></td>
<td>This strategy was coded if a parent responded appropriately to minor problem behaviour by actively ignoring the behaviour, and redirecting the child either back to the task at hand (physically &amp;/or verbally), or redirecting the child to use language. The strategy was not coded if the parent looked exasperated or upset, commented negatively on the behaviour, or provided attention immediately after the problem behaviour. Examples: Child: exits bathroom. Parent: Physically redirects back to room, says, “We still need to brush hair.” Child: moves away from grocery cart and reaches for item on shelf. Parent: Physically redirects and says, “Hold on to the cart.” Child: flops on floor. Parent: “You can ask for help.” (child then asks for help) Non-examples: “Are you using your ears?” “I said no, N! You can’t be up there if you’re going to throw rocks!” Child: flops on floor. Parent: Picks up child, gives physical affection. Child: throws plum. Parent: “No, honey!” (laughing)</td>
</tr>
</tbody>
</table>
APPENDIX D: BEHAVIOUR RATING SCALE

Child Initials: __________  Generalization Project Routine: DINNER PREP / PLAYTIME
Completed by: ______________

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem behaviour:</td>
<td></td>
</tr>
<tr>
<td>Nonstop</td>
<td>5 5 5 5 5 5 5 5 5 5 5</td>
</tr>
<tr>
<td>A lot</td>
<td>4 4 4 4 4 4 4 4 4 4 4</td>
</tr>
<tr>
<td>Some</td>
<td>3 3 3 3 3 3 3 3 3 3 3</td>
</tr>
<tr>
<td>A few</td>
<td>2 2 2 2 2 2 2 2 2 2 2</td>
</tr>
<tr>
<td>None</td>
<td>1 1 1 1 1 1 1 1 1 1 1</td>
</tr>
<tr>
<td>Disruptive behaviour (e.g., sprays water, strips); hits; does not follow parent instructions</td>
<td></td>
</tr>
<tr>
<td>Participated fully</td>
<td>5 5 5 5 5 5 5 5 5 5 5</td>
</tr>
<tr>
<td>Participated well for most of the routine</td>
<td>4 4 4 4 4 4 4 4 4 4 4</td>
</tr>
<tr>
<td>Participated with a few difficulties</td>
<td>3 3 3 3 3 3 3 3 3 3 3</td>
</tr>
<tr>
<td>Participated with many difficulties</td>
<td>2 2 2 2 2 2 2 2 2 2 2</td>
</tr>
<tr>
<td>Did not participate</td>
<td>1 1 1 1 1 1 1 1 1 1 1</td>
</tr>
</tbody>
</table>

*Note: The scale ranges from 1 (very low) to 5 (very high).*
| Behaviour                                                                 | Scale             | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Problem behaviour:                                                       |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Dawdles; does not follow parent instructions; says “no;” cries; does not allow parent help | Nonstop           | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
|                                                                           | A lot             | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
|                                                                           | Some              | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|                                                                           | A few             | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|                                                                           | None              | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Desired behaviour:                                                       |                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Complies with parents’ instructions; completes transition in a reasonable amount of time | Participated fully | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
|                                                                           | Participated well for most of the routine | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
|                                                                           | Participated with a few difficulties | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|                                                                           | Participated with many difficulties | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|                                                                           | Did not participate | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
APPENDIX E: FAMILY-CENTERED POSITIVE BEHAVIOUR SUPPORT FOR
Families of Children with Down Syndrome

Social Validity Questionnaire – Parents or Caregivers

Instructions: Please complete the following survey about the parent training program by rating each item on a 1 to 5 scale (1 = Disagree Strongly; and 5 = Agree Strongly), and by adding additional comments. This information will help us to improve the program.

Family: __________________________

Date: __________________________

Family member completing evaluation: __________________

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<td>2</td>
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<tr>
<td>5</td>
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</table>

1. The goals of the group parent training program are appropriate for our child. 1 2 3 4 5
    Comments:

2. The goals of the group parent training program are consistent with our family’s goals, values, and beliefs. 1 2 3 4 5
    Comments:

3. The behaviour support strategies we have been taught to use are difficult to carry out with our child. 1 2 3 4 5
    Comments:

4. The behaviour support strategies we have been taught to use have been effective in improving my child’s behaviour in the primary routines. 1 2 3 4 5
    Comments:
Social Validity Evaluation

5. The behaviour support strategies we have been taught to use have been effective in improving our child’s behaviour *throughout the day.*
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
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<tbody>
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<td>1</td>
<td>5</td>
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</tbody>
</table>
   
   Comments:

6. The outcomes of the support effort are beneficial to our family as a whole.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
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</table>
   
   Comments:

7. The support effort has caused some unanticipated problems in our family.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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</tbody>
</table>
   
   Comments:

8. Group parent training activities have been well organized, clear, and helpful.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<tr>
<td>5</td>
<td></td>
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</tbody>
</table>
   
   Comments:

9. The person(s) facilitating the group parent training sessions has shown respect for our family’s values and beliefs. organized, clear, and helpful.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
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<tr>
<td>2</td>
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<tr>
<td>5</td>
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</tbody>
</table>
   
   Comments:

10. Overall, group parent training program has strengthened our family as a whole.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
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</table>
   
   Comments:
APPENDIX F: FEEDBACK ON FAMILY-CENTERED POSITIVE BEHAVIOUR SUPPORT FOR

Families of Children with Down Syndrome

Thank you very much for taking the time to answer the following questions. This questionnaire will take 15-20 minutes. Given that this is a program in its early stages of development, your feedback will be very helpful to us moving forward. Your ratings and comments will be considered carefully when designing future versions of this program, and will be central to its improvement over time. Specific feedback in the form of comments will be especially useful.

Structure of sessions:

- Do you think the sessions were:
  - too short
  - too long
  - just about right?
- Did you feel you had enough opportunity to discuss issues and ask questions?
  - Yes
  - No
- How did you feel about the delivery of the program by the instructor(s)? Did you find them to be (check all that apply)?
  - Supportive
  - Empathetic
  - Knowledgeable
  - Engaging
  - Respectful
  - Comments:

- What activities during the sessions were MOST helpful to you (check all that apply)?
  - Role-play
  - Listening to information
  - Examples and non-examples
  - Group discussion
  - Videos
  - Other exercises
- What activities during the sessions were LEAST helpful to you (check all that apply)?
  - Role-play
  - Listening to information
  - Examples and non-examples
  - Group discussion
  - Videos
Regarding the least helpful aspects, how could we improve these?

________________________________________________________________________
________________________________________________________________________

**Content of sessions:**

1. **Positive Behaviour Support Strategies**
   - Considering the program as a whole (all 14 sessions), choose the Positive Behaviour Support strategies that helped you the **MOST** (check all that apply)?
     - Positive reinforcement: praise
     - Down syndrome- or environment-specific setting event strategies (sleep, nutrition, healthcare, exercise, lighting, noise)
     - House Rules
     - Incorporating preferences
     - Effective requests
     - Positive contingencies (e.g., simple schedule with reward); visual supports
     - Offering choices
     - Transition-specific strategies (countdown, precorrect /warning)
     - Safety signals
     - Functional communication training
     - Errorless learning
     - Positive reinforcement: reinforcement menu
     - Actively ignore and positively redirect minor problem behaviour
   - Considering the program as a whole (all 14 sessions), choose the Positive Behaviour Support strategies that helped you the **LEAST** (check all that apply)?
     - Positive reinforcement: praise
     - Down syndrome- or environment-specific setting event strategies (sleep, nutrition, healthcare, exercise, lighting, noise)
     - House Rules
     - Incorporating preferences
     - Effective requests
     - Positive contingencies (e.g., simple schedule with reward); visual supports
     - Offering choices
     - Transition-specific strategies (countdown, precorrect /warning)
     - Safety signals
     - Functional communication training
     - Errorless learning
     - Positive reinforcement: reinforcement menu
     - Actively ignore and positively redirect minor problem behaviour
• Which strategy has been the easiest to use right away at home?

• Which strategy has been the hardest to use right away at home?

2. Other Program Content
• Across the 14 sessions, we covered topics that were not Positive Behaviour Support strategies. Please choose the ones that helped you the MOST (check all that apply):
  o Understanding problem behaviour: functions, coercive and constructive processes
  o Child and family strengths; child positive contributions
  o Mindfulness
  o Dealing with unhelpful thoughts
  o Caring for couple relationship
  o Caring for siblings
  o Caring for extended family
  o Improving parent-child relationship
  o Play

• Across the 14 sessions, we covered topics that were not Positive Behaviour Support strategies. Please choose the ones that helped you the LEAST (check all that apply):
  o Understanding problem behaviour: functions, coercive and constructive processes
  o Child and family strengths; child positive contributions
  o Mindfulness
  o Dealing with unhelpful thoughts
  o Caring for couple relationship
  o Caring for siblings
  o Caring for extended family
  o Improving parent-child relationship
  o Play

• Was the in-home coaching session beneficial to you?
  o Yes
  o No
  Why or why not?

Home practice:
• What could have made the home practice more helpful to you, or more time efficient?

• Was the amount of home practice:
  o Not enough
Perceived benefits of the program:

• What accomplishment were you the most proud of during this program?

________________________________________________________________________
________________________________________________________________________

• What aspect of the program benefitted your child and family the most?

________________________________________________________________________
________________________________________________________________________

Moving forward:

• What do you still need to learn / master? How would you like to learn this skill?

________________________________________________________________________
________________________________________________________________________

• Given how busy and full your lives are, what would be helpful to you if you feel that your skills start to “slip?” (some possible suggestions follow)
  o Email reminders
  o ‘Booster’ sessions
  o Calling or emailing each other (parent to parent support)
  o Additional readings from the instructor

• What other adjustments do you think should be made to future iterations of this program to maximize its effectiveness?

________________________________________________________________________
________________________________________________________________________

• Would you recommend this program to others? Why or why not?

________________________________________________________________________
________________________________________________________________________

• If you had a friend with a child of similar age and ability level to your own, what advice would you give them based on what you learned in this program / what strategies or topics would you tell them about?

________________________________________________________________________
________________________________________________________________________