

**A Home- and Preschool-Based Positive Behavioural Support Program: Strategies Aimed  
at Improving Mealtime and Toileting Behaviours in 4-year-old Twins with Autism**

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## Abstract

This study assesses the effectiveness of a multi-site (i.e., home-and preschool-based) positive behavioural support program for 4-year-old twins with autism. The program consisted of pre-intervention (2 weeks), intervention (9 weeks) and post-intervention (3 days) phases, in which the focus was on measuring mealtime and toileting skill development. Under the investigator's guidance, the parents implemented interventions during meals that closely resembled mealtime routines at the preschool (where appropriate mealtime behaviour was observed and reported). In addition, the investigator, parents, and preschool staff worked collaboratively to implement interventions designed to encourage independent toileting skills. The target behaviours included leaving the table for more than 3 seconds during mealtimes and urinating in one's diaper. During each of the pre-intervention, intervention and post-intervention phases, behaviour and skill changes were monitored. Findings indicated clear increases from pre-intervention to post-intervention in the children's tendency to sit in their seats for the duration of meals at home, as well as generalization to other settings. Also, for one child, independent toileting was established and maintained at post-intervention, and again generalization was demonstrated in other contexts. For the other child, toileting skills generally remained largely unchanged. Parent and preschool staff opinions of the positive behavioural support program and mealtime and toileting interventions were very positive. Discussion focuses on the potential of multi-site PBS programs for very young children with autism.

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## Introduction

Autism was first formally described by Leo Kanner, who in 1943 originally applied the term to children who insisted on sameness in their environment, and displayed social aloofness. Since Kanner's initial report, autism has been researched extensively, and has come to be recognized as one of the most severe developmental disorders. Although some of Kanner's original ideas have since been refuted (e.g., the belief that all children with autism have average to above average IQs), other characteristics have remained as key factors for diagnosing the disorder (Mesibov, Adams, & Klinger, 1997).

According to the American Psychiatric Association (2000), autism is a disorder that significantly impairs an individual's social and communicative abilities. In addition, those affected display restricted and repetitive patterns of behaviours and interests. Delays and abnormal functioning in the social-communicative and behavioural domains must be present prior to the age of 3 years, and the disturbance must not be better accounted for by Rett's Disorder or Childhood Disintegrative Disorder (APA, 2000).

Unlike the presence of repetitive behaviour and social-communicative impairments, disruptive behaviour is not recognized as a diagnostic feature of the disorder, however, individuals with autism are particularly at risk of displaying such behaviour (Buschbacher & Fox, 2003). A large literature indicates that challenging behaviours in children with autism emerge from the deficits in communication, socialization and cognition (Schopler & Mesibov, 1994; Horner, Carr, Strain, Todd, & Reed, 2002), and from a need for sameness in the environment (Schreibman, Heyser, & Stahmer, 1999). The behaviour abnormalities displayed by these individuals can be difficult to characterize, mainly due to the variety of behaviour problems and the extent to



which they vary in level of severity (Scholper & Mesibov, 1994). The most dramatic behaviour abnormalities are self-injurious and destructive behaviours. Some individuals with autism head bang, bite, pull hair (Lainhart, 1999), scream, and/or display hyperactive and tantrum behaviour (Sattler, 2002). Other behaviours such as toileting problems and food refusal, although generally less destructive, can be equally stressful for parents.

Since Kanner (1943) originally described autism, various approaches have been used to manage behaviour problems in this population. In the past, challenging behaviour was regarded as maladaptive and interventions were developed as reactions to the problematic behaviour (Horner et al., 2002). Often interventions involved altering consequences and focused on reducing the behaviour without recognizing its function (Fox, Dunlap & Buschbacher, 2000). Recent research suggests that challenging behaviours and routines serve a purpose for the individual, and that the behaviour has been maintained and reinforced over time (O'Neill, Horner, Albin, Sprague, Storey & Newton, 1997; Horner et al., 2002). It is now clear that challenging behaviour does not occur simply because an individual has a developmental disability or mental retardation (O'Neill et al., 1997).

Children who engage in problematic behaviour are at increased risk of missing out on learning opportunities, and being isolated from peers or family members and typical home and community environments (Lucshyn, Horner, Dunlap, Albin, & Ben, 2002). Research suggests that, without intervention, challenging behaviour and routines usually do not improve or disappear. Unless the factors maintaining the behaviour

become obsolete, it is unlikely that the behaviour will diminish and, in fact, is more likely to worsen (Horner et al., 2002).

*Positive Behavioural Support for Challenging Behaviours and Routines*

A large body of evidence suggests that a positive behavioural support (PBS) program is the most effective and empirically valid technique to address problematic behaviours and routines (O'Neill et al., 1997; Luchshyn et al., 2002). PBS programs attempt to determine the function of problematic behaviours in order to develop interventions that help children learn new adaptive skills and to create environments in which problematic behaviours become irrelevant, inefficient, and ineffective (Buschbacher & Fox, 2003; O'Neill et al., 1997). PBS evolved from applied behaviour analysis, the inclusion movement, and a focus on person-centred values (Buschbacher & Fox, 2003).

In essence, applied behaviour analysis (ABA) is a pragmatic science that provides data on the effect of an intervention on an individual's behaviour (Rossenwasser & Axelrod, 2001; Green, 1996; Harris & Weiss, 1998). The process of systematically examining and manipulating antecedents, consequences, and setting events in order to determine the function of a behaviour originates from ABA and is a core feature of PBS programs (Buschbacher & Fox, 2003). Moreover, ABA provides a variety of effective, systematic teaching methods (e.g., teaching skills through measurable, systematic steps) that can be used to monitor skill development and generalization over time (Green, 1996; Buschbacher & Fox, 2003; McGahan, 2001). These teaching techniques can be incorporated into PBS programs in order to facilitate the intervention process.

When developing ABA programs, often communication interventions such as functional communication training (FCT) and picture-exchange communication systems (PECS) are incorporated (Bondy & Frost, 2001). This is primarily because teaching communication skills has a profound impact on quality of life, especially for individuals who have little language skills. In addition, by developing communication skills, individuals are able to express themselves appropriately instead of exhibiting challenging behaviour (Goldstein, 2002). FCT training typically involves teaching sign language or verbal phrases in order to communicate. PECS is an alternative communication system designed to teach functional communication skills to children with limited speech. In a PECS system, children learn to communicate their needs and desires by initially using pictures to request a desired item and eventually progress to communicating in 'picture sentences' (Bondy & Frost, 2001). In addition, pictures can be used to help the child understand a sequence of upcoming events. For example, pictures are often presented as visual schedules in order to help the child understand task requirements (e.g., mealtime routines; Marshall & Mirenda, 2002) and situational rules (e.g., to indicate what the child may and may not touch; Mirenda, MacGregor & Kelly-Keough, 2002).

In addition to the role played by applied behaviour analysis, the inclusion movement has influenced the development of PBS programs. The underlying philosophy of PBS programs is that individuals with special needs have the right to access normal learning, working, and living settings. In order to include some individuals with special needs in typical education, workplace, and living settings, it may be necessary to implement behavioural and routine-based interventions. Prior to the inclusion movement, individuals with special needs were segregated in special classes and work environments

in order to protect them from the challenges of typical environments and separate them from the mainstream (Buschbacher & Fox, 2003).

Finally, person-centred values have contributed to the development of PBS programs. In a person-centred approach, the interventions are highly individualized and are based on the needs, goals, desires, and strengths of the individual and his or her family, rather than those of the service system. Personal choice, self-determination, and life-style enhancement are entrenched in the PBS process (Bushbacher & Fox, 2003). Given the intimate relationship between parents and their child, it is crucial that professionals collaborate with family members in order to develop interventions that constitute the best fit with the family's values, time commitments, resources and priorities (Marshall & Mirenda, 2002). Essentially, interventions are not sustained if family members find the required effort and time commitment overly burdensome or the goal not worthy.

It is important to note that in order to improve the quality of life of children, care providers may be required to make several fundamental changes (Marshall & Mirenda, 2002). Unlike behavioural support in the past that focused on "fixing" the child to fit the environment, the focus is now on changing the environment to match the needs of the individual. Unless changes are made to the value, availability, or access to the consequences maintaining the aberrant behaviour, it is unlikely that the behaviour will diminish in severity and that the child will develop functional alternative skills (Horner, et al., 2002). Interventions are now viewed as tools that help family members and other involved individuals rebuild the context of the child's life. For example, family members may have to alter the way they interact with the child, change the surrounding

environment, or make schedule changes as part of the intervention process (O'Neill et al., 1997; Marshall & Mirenda, 2002).

It also bears emphasizing that the principles of non-aversive intervention are upheld in PBS programs. The main implication is that interventions are implemented using positive incentives, while avoiding any form of punishment, and with a focus on developing desirable behaviours and skills and maintaining the dignity of the individual (Dunlap, Robins, & Kern, 1994).

#### *Positive Behavioural Support within Natural Routines*

Families often report that the most challenging behaviours displayed by their children occur within the context of daily routines (Marshall & Mirenda, 2002). In order to address problematic behaviours, professionals and caregivers need to collaborate in attempt to improve the behaviour within the context of children's typical routines. For example, interventionists have collaborated with parents in order to improve home-based problem behaviours (Woods & Goldstein, 2003; Marshall & Mirenda, 2002; Clarke, Dunlap, & Vaughn, 1999). Similarly, interventionists have collaborated with school teams in order to address school-based problem behaviour (Packenham, Shute, & Reid, 2004; Ryan, Halsey & Matthews, 2003). In both cases, the intervention program resulted in a decrease in the intensity of the challenging behaviour(s) and routines within the specific contexts in which they were addressed.

Common problem behaviours addressed in home-and school-based PBS programs include mealtime and toileting challenges. Due to communication impairments, limited sensory awareness, sensitivity to stimulation, preference for particular routines, motor planning difficulties and poor sequential learning abilities, mastering independent

toileting (Wheeler, 1998) and learning appropriate mealtime behaviour can be challenging for children with autism. Children with autism sometimes refuse certain types of food, insist on using particular utensils or food presentations, eat only a narrow variety of food (Schreck, Williams, & Smith, 2004), and display disruptive behaviour (e.g., crying, pushing away food, aggression, and leaving their seat; Ahearn, 2001). Many children with autism do not like to sit at the table for meals, and prefer to wander around (Leaf & McEachin, 1999).

In order to improve mealtime behaviours, researchers have recommended a variety of strategies. For example, to help children learn that they are expected to sit at the table during meals, it is recommended that care providers intervene when children attempt to leave the table with food. The operating assumption is that children will eventually understand that food is only allowed at the kitchen table. Secondly, care providers are encouraged to enforce the rule that once children leave the table, mealtime is over; food is removed until the next scheduled snack (Leaf & McEachin, 1999). Scheduling healthy snacks is often encouraged in order to ensure children are eating nutritious diets (Ernsperger & Stegen-Hanson, 2004).

Researchers also recommend minimizing stimulation during meals such as television watching and playing in order to help children focus on eating (Williams, Dalrymple, & Neal, 2000). Establishing mealtime routines (e.g., incorporating picture schedules in order to provide children with a sense of predictability and consistency), and restricting the length of the meals to 15-30 minutes are all commonly recommended strategies (Ernsperger & Stegen-Hanson, 2004).

In the case of toileting, common challenges can include preference for particular toileting routines, and increased anxiety in new situations, both of which can affect the ease of independent toilet training (Wheeler, 1998). There is a large literature that provides toilet training tips and programs for parents, however, there is considerably less toilet training information available specifically for parents of children with autism. Moreover, the existing information is varied and somewhat inconsistent in toilet training methods.

The toilet training procedure of Azrin and Foxx (1971) has been cited by a number of researchers who have developed toilet training programs for children with autism (see Taylor, Cipani & Clardy, 1994; Cicero & Pfadt, 2002; Luiselli, 1996). Some of the commonly used procedures introduced by Azrin and Foxx include intensive training procedures, positive reinforcement, and shaping of independent toileting (Taylor, Cipani & Clardy, 1994; Jason, 1976; Cicero & Pfadt, 2001). Additional recommendations are that care providers establish toileting visual schedules so that children are able to understand the toileting process, and recognize the connection between their behaviour and the series of steps (Boswell & Gray, 2004).

Once seated on the toilet, recommendations regarding the length of time that children remain seated vary from 1 to 3 minutes (Cicero & Pfadt, 2002; Luiselli, 1996), 5 minutes (Azrin, Bugle, & O'Brien, 1971), 5 to 10 minutes (Taylor, Cipani, & Clardy, 1994) to 20 minutes (Azrin & Foxx, 1971). Furthermore, while waiting for children to urinate, some interventionists have recommended that children have access to books or toys in order to help calm and appease them (Wheeler, 1998), while others have suggested that books and toys are distracting from the toileting process (Wilson, 1995).

One outstanding question is whether the behaviour improvements (e.g., in toileting skills and mealtime behaviour) observed within context-specific intervention programs generalize to all daily living environments. At present, there is a paucity of research that has explored the linkages between home- and school-based PBS programs (Laroque, Brown & Johnson, 2001). In a recent research synthesis that focused on PBS interventions, Laroque et al. (2001) concluded that there is a real need for research that focuses on comprehensive intervention programs that incorporate natural contexts like the home and school, especially when the interventions are implemented by typical support agents (e.g., teachers and parents; Horner et al., 2002).

The importance of a comprehensive daily living intervention program is underscored by the fact that generalization is particularly problematic for children with autism (Siegel, 2003). In order to encourage these children to develop appropriate skills and behaviours within different contexts, it is important to ensure that consistent teaching methods and procedures are implemented in all daily living environments.

There are also obvious benefits to parent and educator collaborative consultation. Parents and educators are able to work together to identify the problem and develop and implement a plan of action (Schulte & Osborne, 2003). Parents have knowledge and experience with their children that can be used to highlight their children's strengths and challenges. Incorporating parental input also increases the likelihood that interventions will be carried out at home. On the other hand, educators have training and strategies to decrease problematic behaviour within the classroom (Laroque et al., 2001). When working as equal partners, parents and teachers are able to learn about each other's perspective and become allies in encouraging behaviour change.



Another outstanding question is whether PBS is an effective method for addressing behaviour concerns in younger children. Young children with autism are particularly at risk for developing patterns of problematic behaviour due to their difficulty communicating and socializing (Horner et al., 2002). Despite this, there is unfortunately a paucity of research that has focused on children under eight years of age as primary recipients of positive behavioural support programming (Horner et al., 2002).

Research indicates that intervention programs that focus on reducing challenging behaviour and teaching positive alternatives (e.g., communication skills) are more likely to be effective if they are introduced at a young age (Harrower, Fox, Dunlap, & Kincaid, 1999). This is primarily because at an early age a child is more likely to be receptive to behaviour change (Emerson, 2001), and while behaviour change is still possible with an older child, he or she is more likely to have developed entrenched problematic behaviour patterns (Harrower et al., 1999; Emerson, 2001).

#### *Purpose and Description of the Current Study*

The purpose of the present study was to develop and implement a comprehensive PBS program for a family with 4-year-old twin boys with autism. In collaboration with the investigator and preschool staff, the parents identified toileting and mealtime routines as the target areas for intervention. With the assistance of the investigator, the preschool staff and parents implemented interventions aimed at improving meals and toileting within both the children's home and preschool. The present study extends previous research, in which PBS was conducted in only one context, by implementing a multi-context PBS program with primary care providers. It was hypothesized that as a result of parent and preschool staff collaboration in using multi-context procedures, the target

behaviours and routines (i.e., toileting and mealtimes) would improve, and appropriate behaviour would generalize to both the home and preschool. This hypothesis was examined by monitoring changes in behaviour and skill development of the target mealtime and toileting behaviours during pre-intervention, intervention and post-intervention stages.

## Chapter 2: Method

### Participants

All participant names are pseudonyms in order to protect the identity of the individuals. Bobby and Kevin Albin, four-year-old twins with autism, participated in the present project. Prior to beginning the PBS program, both boys presented with significant communicative and behavioural challenges (e.g., they were non-verbal, displayed tantrum-like behaviour and were not toilet trained).

As part of a separate research project conducted through the Autism Research Centre at the IWK Health Centre, Halifax, N.S., Bobby and Kevin were assessed using the Mullen Scales of Early Learning: AGS Edition (Mullen, 1995). The Mullen evaluates the language, motor and perceptual abilities of children under the age of 68 months. Kevin and Bobby's chronological and developmental ages (based on their performance on the Visual Receptive, Fine Motor, Receptive Language, and Expressive Language sub-scales of the Mullen) are provided in Table 1.

The investigator's academic advisor, a psychologist at the IWK Health Centre, recognized that the Albin family might benefit from participating in a PBS program. She invited them to take part in a collaborative project with the investigator in order to develop interventions aimed at improving some of the children's skills and behaviours in their daily living environments. After hearing about the project, Geoff and Tamara Albin (Bobby and Kevin's parents) agreed to participate.

Table 1.

*Characteristics of Participants*

<u>Characteristics</u>	<u>Bobby</u>	<u>Kevin</u>
Chronological Age	54	54
Visual Receptive	29	33
Fine Motor	21	28
Receptive Language	14	20
Expressive Language	9	13

*Note.* AE represents age equivalent in months, as measured by the Mullen Scales of Early Learning: AGS Edition (Mullen, 1995)

Prior to beginning the PBS program, the investigator discussed the intervention program with the Albin's and the staff at Bobby and Kevin's preschool, and written informed consent was requested and obtained from all parties (see Appendices A and B). In addition, prior to commencing the project, ethics approval was sought and granted from the Human Ethics Review Committees at Mount Saint Vincent University and the IWK Health Centre.

### Measures

In order to maximize the effectiveness of the PBS program, the present study included the following instruments:

*The Functional Assessment Interview Form* (FAI; O'Neill, Horner, Albin, Sprague, Storey & Newton, 1997). The FAI serves four main purposes, to: 1) describe the problematic behaviour, 2) obtain information about the events that influence problematic behaviour, 3) identify the function of the problematic behaviour, and 4) develop summary statements that describe the relationship between the situations, the behaviour, and their function.

*The Functional Assessment Observation Form* (FAO; O'Neill et al., 1997). The FAO is used to document the predictor events and consequences that are associated with instances of problematic behaviour.

*The Chart for Recording Observations of Elimination Times and Responses* (Wheeler, 1998) is used as a part of a toilet training program in order to monitor patterns of urinary output and bowel movements.

*The Parent and Preschool Staff Opinion Interview* was developed specifically for the present study. It consists of 7 questions that ask parents and preschool staff for their opinions on various aspects of the home- and preschool-based PBS program (see Appendix C).

### Procedure

#### *Developing a Relationship*

Prior to identifying problematic target behaviours and developing interventions, the investigator spent several months becoming acquainted with the Albin family. Typically, she visited the family home once a week and, with Tamara, took the children on outings, including trips to the park, museum and swimming pool. As time progressed, a trusting relationship formed between the investigator and the family. During this time, Geoff and Tamara informally shared some of their concerns about their children's behaviours. The Albins identified that they were primarily concerned that their children were not yet toilet trained and that they did not eat enough and refused to sit in their chairs during meals.

#### *Conducting the Functional Assessment*

##### *Pre-Intervention Phase Procedure*

The investigator scheduled a meeting with Geoff and Tamara in order to clarify their concerns regarding their children's behaviours. Prior to the meeting, in order to prepare the Albins for the intervention program, the investigator provided them with literature describing the PBS process (e.g., Marshall & Mirenda, 2002).

During an evening visit to the family home, the investigator interviewed Geoff and Tamara using *the Functional Assessment Interview Form* (O'Neill et al., 1997). At this time, Tamara and Geoff reiterated their mealtime concerns and explained that they would primarily like their children to sit in their seats for the duration of their meals. In addition, they again expressed their desire to toilet train their children. After much mealtime and toileting discussion (refer to Appendix D for details), it was agreed that these behaviours and routines would become the target areas for intervention.

In order to improve daily living skills like toileting and mealtime behaviours, it was necessary to consider the typical routines of the children and invite other important care providers to participate in the project. After discovering that the children spent 3 full days per week at the preschool, it was clear that generalization of any behaviour changes from home to the daycare might well depend on the preschool staff's participation in the project. It was therefore decided that the investigator would describe the project to the preschool director and invite the staff to participate.

After speaking with the preschool director and obtaining written informed consent, the investigator and Tamara met with the preschool staff in order to conduct *the Functional Assessment Interview* (O'Neill et al., 1997). Over dinner with the preschool staff, Tamara explained why meals and toileting were problematic at home, and the staff described Bobby and Kevin's mealtime and toileting routines at the preschool. They indicated that the boys typically sat in their chairs during meals (refer to Appendix D for details). The preschool staff expressed that they would be happy to implement mealtime interventions, if the investigator considered it appropriate, and that they would assist in the toileting program.

After interviewing Geoff, Tamara and the preschool staff, the investigator observed Bobby and Kevin in their home and preschool in order to clarify and validate the information provided during the interviews. During a 2-week period, the investigator observed 8 home-based meals. The parents carried out their usual mealtime routines, while the investigator watched, documented observations on the Functional Assessment Observation Form (O'Neill et al., 1997), and videotaped the children and parents throughout the duration of the meal.

Following the home visits, the investigator also observed 5 preschool-based meals during a 2-week period. While the meals were taking place, the investigator watched and documented observations. In order to protect the identity of the other preschool children, the preschool-based meals were not videotaped.

While watching the meals, the investigator recorded on *the Functional Assessment Observation Form* (O'Neill et al., 1997) the length of the meals, the number of times the children left their seat for more than 3 seconds during the meals, and the events that preceded and followed the children's departure from the table. Informally, she also noted the food that was consumed during the meal.

Notable mealtime observations included the following: First, it was clear that meals were much more problematic at home than at the preschool. At home, the meals typically lasted between 45 and 60 minutes. During the meals, the boys were left alone at the table for 2- to 12-minute periods. When they were left alone, the boys often left the table. When Geoff or Tamara sat with the boys, Bobby and Kevin still left the table and were brought back to the table to finish eating. On several occasions when the boys left their seat and a parent followed, it was apparent that the attention they received was



rewarding. Kevin and Bobby often laughed and smiled when Geoff or Tamara ran after them. Most meals consisted of large amounts of food (e.g., peas, corn, ham, apple sauce and a roll). Often the boys were fed in phases. For example, they would first eat cereal and toast and, once finished, they would be given applesauce and a banana.

At preschool, the meals typically lasted 25-30 minutes. During the meals, the boys sat at a table with the other children and were seated next to a staff person; throughout the meals they did not leave the table and typically ate similar foods and amounts as the other preschool children.

Significant differences in mealtime routines were clear after observing the children in both settings and interviewing both the parents and preschool staff. Specifically, meals were much shorter at the preschool; the children left the table less, and typically were seated with an adult for longer periods of time at the preschool. After discussing the mealtime discrepancies, the parents agreed that interventions should be put in place at home to closely resemble meals at the preschool, and that meals at the preschool should be simply monitored by the investigator and the staff.

Observational data were also collected as a part of the toilet training program. Due to the time of year (mid-December) and the time commitment required for an intensive toilet training program, it was agreed that Tamara would observe and document toileting patterns. For 8 days, Tamara recorded the time of day Kevin and Bobby had urinary and bowel movements on *the Chart for Recording Observations of Elimination Times and Responses* (Wheeler, 1997).

Notable toileting observations included the following: First, both boys were able to remain unsoiled for 2-hour periods, however, on some days they urinated much more

frequently than others. The boys tended to stop what they were doing while urinating and they tended to find a quiet corner to stand in while defecating. There were no clear defecation or urination time-patterns noted.

### *Developing a Behavioural Support Plan*

#### *Intervention Phase Procedure*

It was agreed that Bobby and Kevin's tendency to leave their seats at the table for longer than 3 seconds would be the target behaviour for intervention during home-based meals. Based on the results of the functional assessment, the investigator and the parents developed interventions designed to encourage the children to stay in their seats during mealtime. It was agreed that the target toileting behaviour for intervention would be urinating in the toilet.

A schedule was devised so that the investigator could assist in implementing toileting and mealtime interventions. The investigator joined the family for 3-4 meals per week for 3 weeks. After the initial 3-week period, the investigator joined the family for 20 hours per week for 6 weeks in order to continue the mealtime interventions and to assist in implementing the intensive toilet training program. The investigator typically spent 2 mornings a week with Tamara and the children in their home and 3 mornings a week with the children and staff at their preschool.

During the period of time in which the interventions were being carried out, it was agreed that the investigator would collect data in order to determine the effect of the mealtime and toileting strategies on the boys' behaviour. During mealtime, the investigator again recorded on the *Functional Assessment Observation Form* (O'Neill et

al., 1997) the length of the meals, the number of times the children left their seat for more than 3 seconds, and the length of time they were left alone at the table.

In order to monitor the boys' urinary and bowel movements, the investigator recorded the time of day when they eliminated and whether or not it occurred on the toilet or in the diaper. Data was collected during 4-hour sessions 5 days per week.

### *Mealtime Interventions*

In order to encourage the boys to sit in their seats during meals, interventions were implemented that are consistent with the empirical literature. As suggested by Ernsperger and Stegen-Hanson (2004), one parent always sat with the boys at the table while they ate their meals. S/he also showed the children the mealtime PEC on their daily picture schedule in order to help them understand that it was time to eat. In the past, although the schedule was a part of the children's daily routine, typically they were not shown the PEC for meals. Consistent with Leaf and McEachin's (1999) suggestion, in order to encourage eating at the table, the boys were not allowed to eat any type of food away from the table. Previously the parents had allowed the boys to eat non-messy food in the living room, although they recognized that it is unlikely that the boys understood the difference between messy and non-messy food and appropriate eating areas. The television was kept off during meals in order to minimize external distractions (Williams, Dalrymple & Neal, 2000). In addition, the length of the meal was shortened from 60 minutes to 20-30 minutes, as recommended by Ernsperger and Stegen-Hanson (2004). Both parents were happy to shorten the length, although Tamara was concerned that the children would not have enough to eat. After discussing what was typically consumed by 4-year-olds, Tamara and Geoff agreed that it was not necessary for the boys to eat large

meals at breakfast, lunch and dinner. Tamara and Geoff scheduled healthy snacks into the boys' daily schedules in order to ensure that they were eating enough food during the day (Ernsperger & Stegen-Hanson, 2004).

In the past, after the boys left the table during a meal, they were brought back to the table and forced to sit in their chairs. Consistent with Leaf and McEachin's (1999) suggestion, when one of the boys left the table, Geoff and Tamara ended the meal and did not allow the child any more food until the next scheduled snack or meal. In order to encourage the boys to sit at the table for a reasonable period of time (e.g., 20 minutes), the Albins used a timer to regulate the length of the meal and rewarded the boys for successfully staying in their seat until the timer rang (Leaf & McEachin, 1999).

Based on the functional assessment, it was clear that the boys did not leave their seat and ate their meals in a reasonable amount of time at the preschool. The investigator discussed with the preschool staff the home-based strategies. It was agreed that the preschool staff would continue to sit with the boys during their meals, keep the length of the meal to less than 30 minutes, and continue to utilize their daily schedules.

#### *Toilet Training Interventions*

With regard to toilet training, the boys wore underwear inside pull-up diapers in order to allow them to feel the sensation of being wet or soiled. It was hoped that this uncomfortable feeling would encourage them to seek alternate ways to eliminate. As suggested by Azrin and Foxx (1971), during the initial stages of training, the boys received an unlimited supply of liquids in order to increase their need to urinate.

Consistent with Boswell and Gray's (2004) suggestion, the preschool staff and the Albins prompted the children to request the bathroom at 20- to 30-minute intervals

through a picture exchange system. Specifically, Kevin and Bobby were prompted to request a picture of a toilet and then encouraged to match that picture with the same toilet picture on a pocket in the bathroom. Once the children were prompted to request the toilet, they were brought to the bathroom where they were prompted to undress and sit on the toilet for 3-5 minutes. Next to the toilet, the investigator posted a visual schedule that was used in order to help the boys understand the steps of the toileting routine. While seated on the toilet, the boys were provided with books and sensory toys in order to encourage them to seat peacefully (Wheeler, 1998). After 5 minutes without urinating, the children were allowed to leave the toilet. It was agreed that otherwise sitting on the toilet would undermine the conditioning of the toilet stimulus and the act of urinating. If the children urinated, they were prompted to look at the picture schedule, wipe, stand up, and pull up their underwear and pants and flush the toilet. As recommended by Azrin and Foxx (1971), after successfully urinating in the toilet, they were rewarded with a reinforcer (e.g., Play-Doh or cookies) and verbal praise.

#### *Post-Intervention Phase Procedure*

Once the 9-week intervention phase was complete, the investigator ceased her involvement with the family for a period of 4 weeks. She then returned to the family home and preschool in order to determine whether the children had maintained or improved their toileting and mealtime skills and behaviours. For a period of 3 days, the investigator observed the children for approximately 4 hours per day and documented observations during 4 home-based meals and one preschool-based meal. She again recorded on the *Functional Assessment Observation Form* (O'Neill et al., 1997) the number of times the children left the table, the length of time they were left alone, and the

length of the meal. The investigator also recorded the children's urinary frequency and bowel movements on *the Chart for Recording Observations of Elimination Times and Responses* (Wheeler, 1997). In addition, using *the Parent and Preschool Staff Opinion Questionnaire* (see Appendix C), the investigator interviewed Geoff, Tamara and the preschool staff in order to determine their perceptions of the PBS process and the toileting and mealtime interventions.

### Chapter 3: Results

The results are presented in 3 sections. The first section details changes in the target behaviours both for Bobby and Kevin over the three study phases: pre-intervention, intervention and post-intervention. The second section highlights significant qualitative observations noted during the PBS project. Finally, the third section highlights the key themes provided by parents and preschool staff during the post-intervention follow-up interview.

#### *1. Target Behaviour Change*

The current study is an AB design across two participants, Kevin and Bobby. Each child participated in three phases: a pre-intervention phase, an intervention phase and a post-intervention phase. The two primary target behaviours were urinating in the toilet and sitting in one's seat during mealtime.

##### *Toileting*

Outlined below are the toileting patterns shown by Kevin and Bobby across the three intervention phases. Figure 1 illustrates for Kevin the frequency of urinary output in the toilet versus in his underwear (accident). During pre-intervention, Kevin's frequency of urinating in his diaper ranged from one to five times per 4 hour observation period. On day 12, the toilet training intervention period began. Kevin was observed urinating in the toilet on day 16 and spontaneously using the toilet by day 30. At this time, accidents were at a zero frequency during daytime hours (while sleeping he was still in diapers). 1-month following the intervention period, the toileting results were maintained at both the preschool and home.

Figure 2 shows that Bobby's frequency of urinating in his diaper ranged from zero to three times per 4 hour pre-intervention observation. On day 14 the toilet training began. On one occasion Bobby was observed urinating in the toilet. Bobby typically urinated in his pull-up once or twice during each intervention and post-intervention observation period. Although Bobby learned some toileting skills (e.g., pulling down his pants, sitting on the toilet and following the picture schedule), he was not toilet trained under the investigator's supervision.



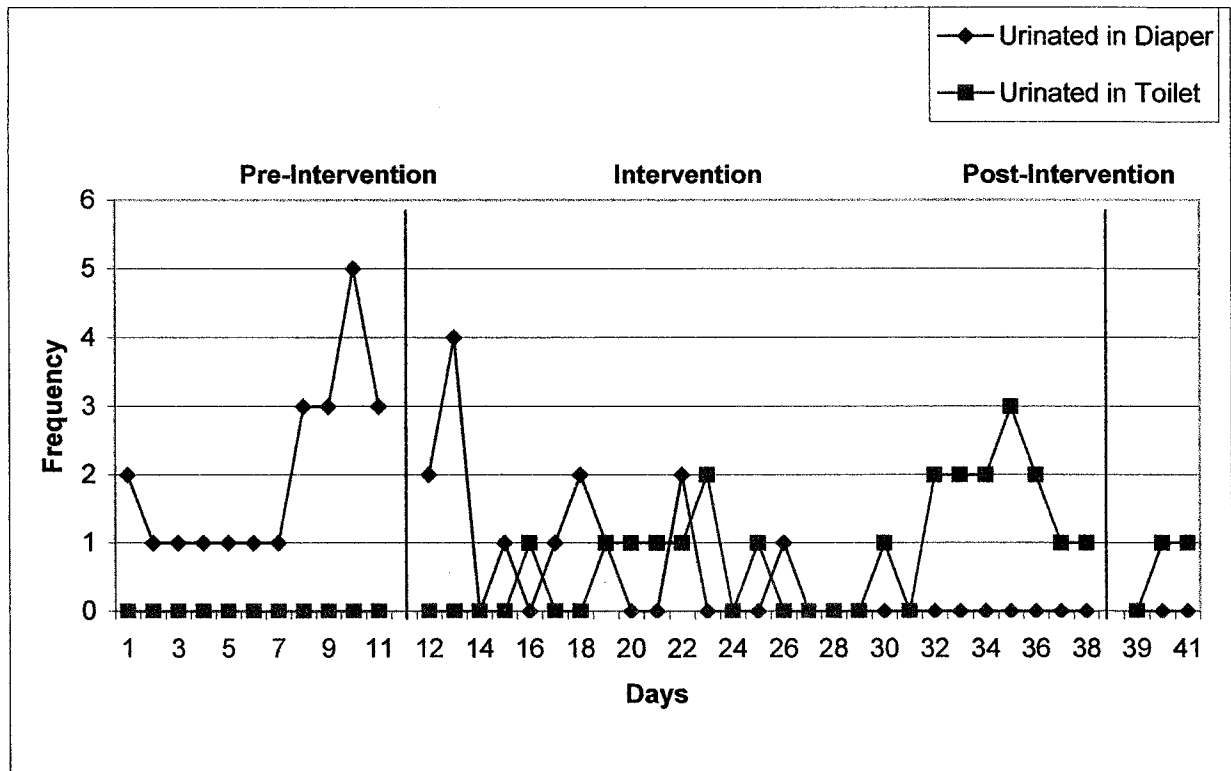


Figure 1. Kevin's urinary patterns over the three intervention phases.

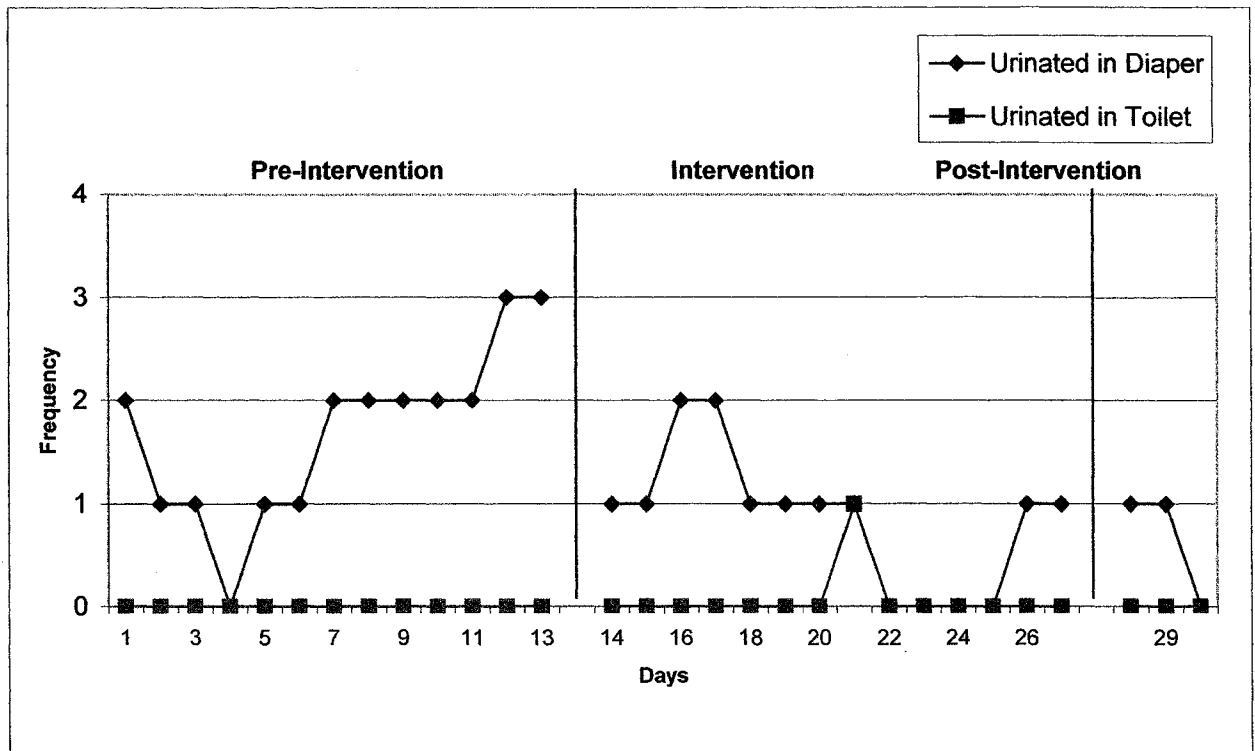


Figure 2. Bobby's urinary patterns over the three intervention phases

### *Mealtimes*

Outlined below are the mealtime behaviour patterns shown by Bobby and Kevin across the pre-intervention, intervention and post-intervention study phases. The number of times each child left his seat for more than 3 seconds is presented in relation to the length of the meal and the length of time the twins spent alone at the table.

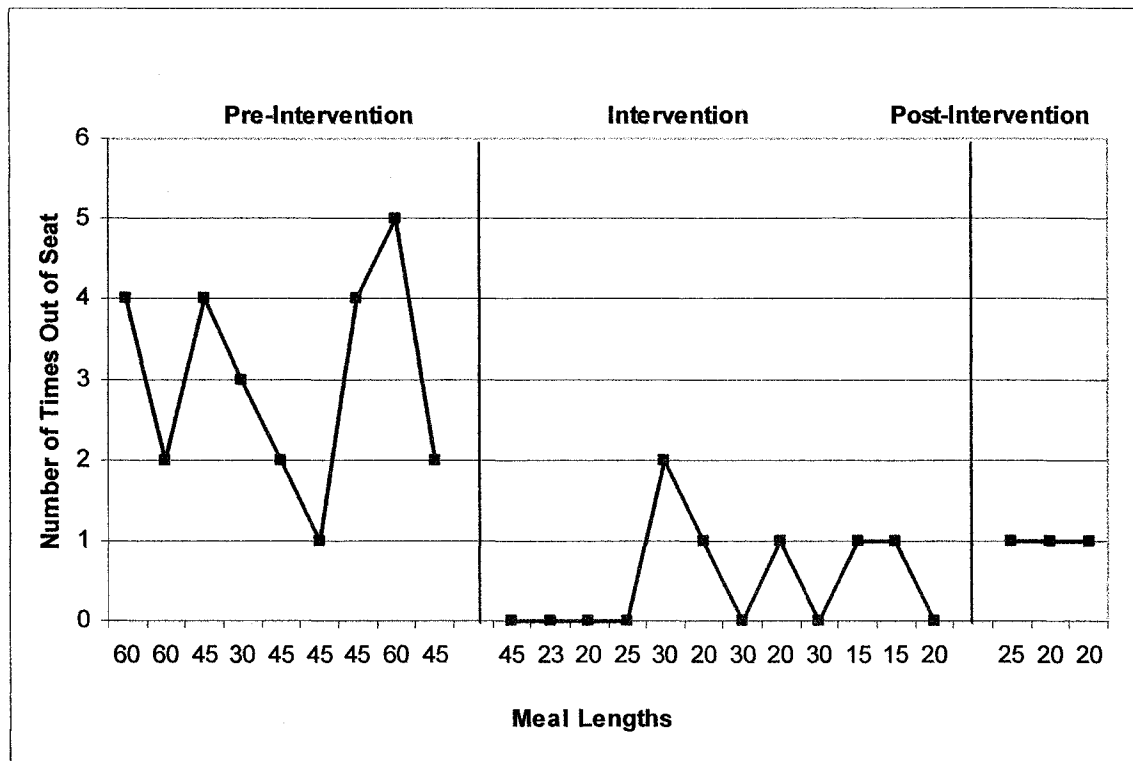
Figure 3 presents the number of times Bobby left his seat for more than 3 seconds in relation to the length of the meal in minutes. Note that meals are presented in chronological order over the three intervention periods. Figure 4 highlights the increasing trend in meal length and the number of times Bobby left his seat during all phases. A positive Pearson correlation of 0.67 was found between the two variables.

Figures 5 and 6 demonstrate similar results for Kevin. A positive Pearson correlation of 0.58 was found between the length of the meal and the number of times Kevin left his for more than 3 seconds. Figure 6 illustrates this positive correlation between the two variables. These results were expected because longer meal lengths present a greater opportunity to leave the table. A more revealing calculation is provided by the number of times out of seat per minute of meal length (simply the ratio of frequency of out of seat behaviour over meal length). The results show that, from the pre-intervention to the post-intervention phase, the number of times out of seat per minute of meal length decreased for both Kevin and Bobby. For instance, Bobby's pre-intervention-to-intervention data show there was a 60% decrease in the average number of times he left the table per minute of meal length; Kevin's was approximately 30%.

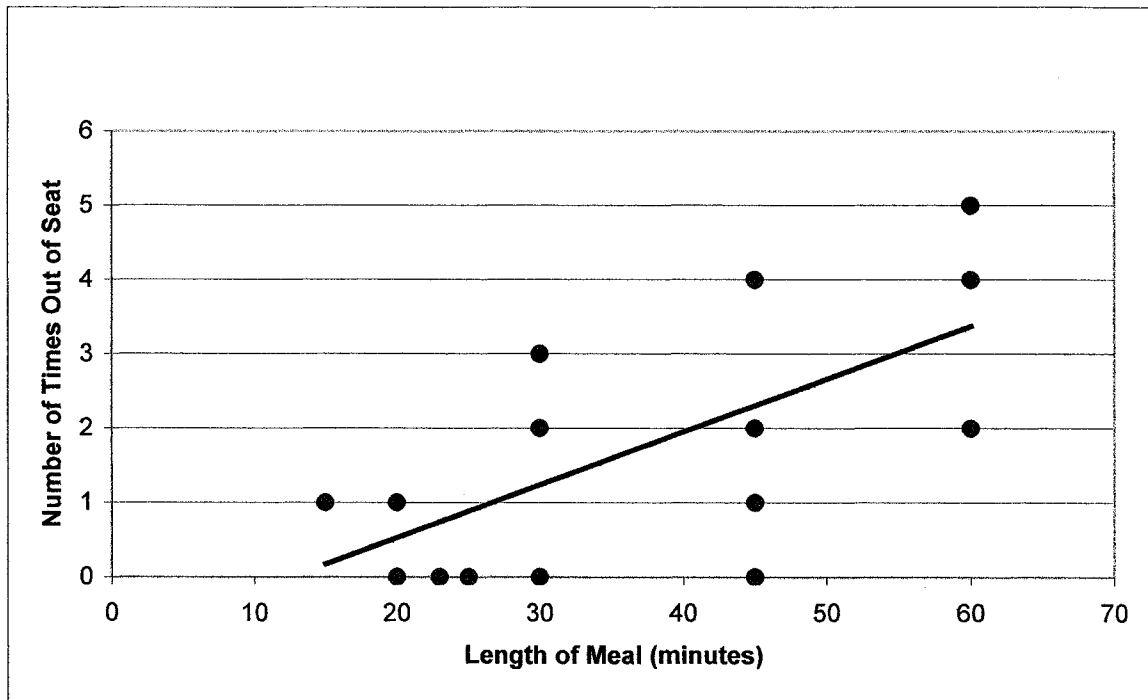
Note, however, that the decrease in the number of times out of seat is jointly determined by the interaction of meal lengths and length of time left alone. Figure 7

shows the number of minutes Bobby spent alone at the table in relation to the number of times he left his seat (again, the values on the bottom axis are presented in chronological order). A positive Pearson correlation of 0.52 was found between these two variables and is highlighted by the trend line in Figure 8. Similarly, Figure 9 demonstrates that there is a strong positive Pearson correlation of 0.80 between length of time Bobby spent alone at the table and number of times he left his seat. Figure 10 highlights the trend between the two variables.

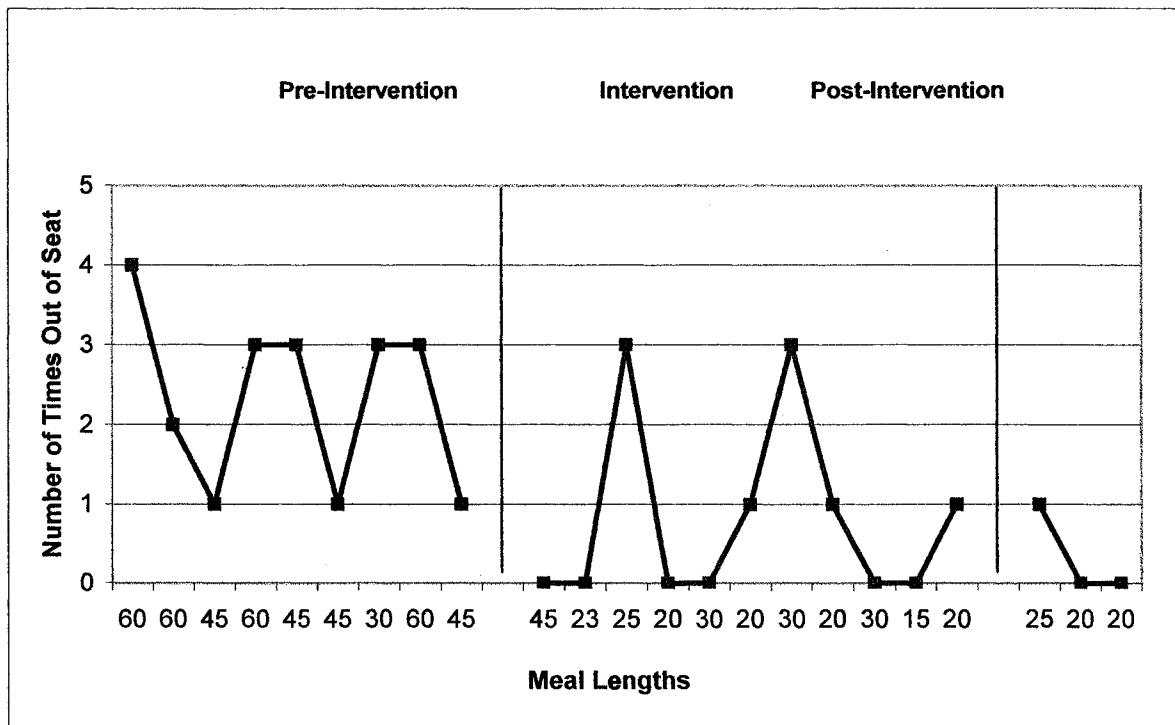
It is important to note that the combined decreases in meal lengths and length of time alone contributed to the overall decrease in out-of-seat behaviour for both Bobby and Kevin. It is likely that other intervention procedures (e.g., showing the PEC card for food before the meal, preparing food in advance) also contributed to the children's tendency to sit in their seats during meals.



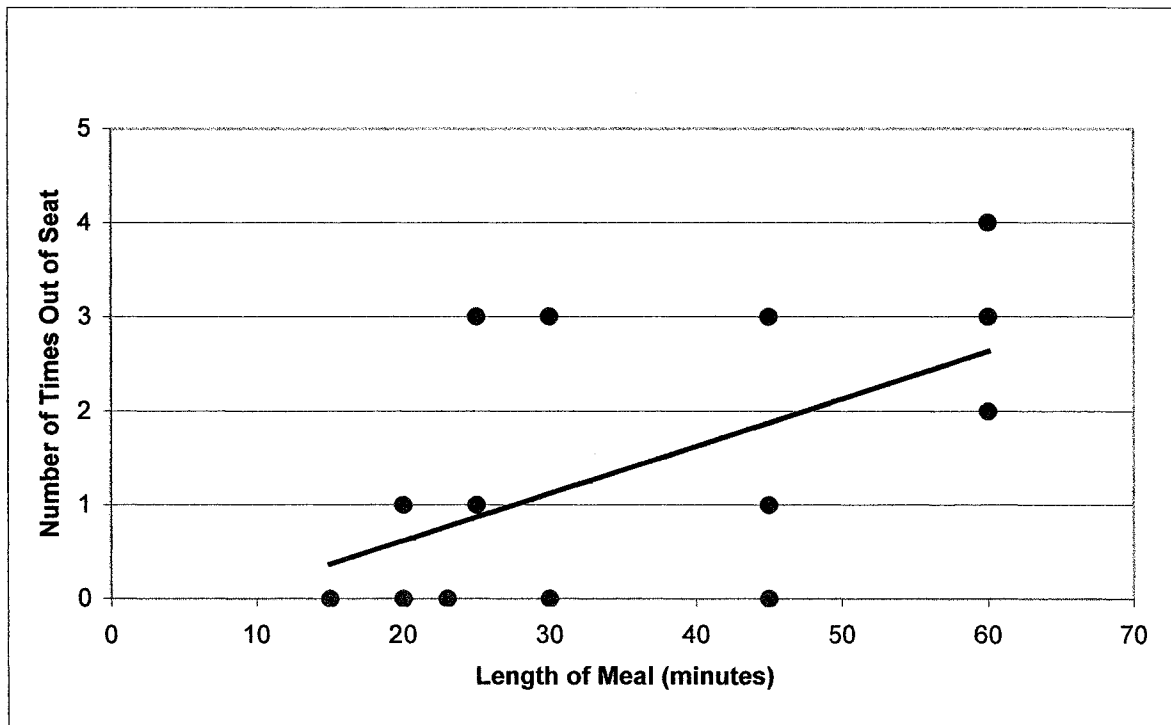
*Figure 3.* The lengths of meals presented in chronological order over the three intervention phases for Bobby.



*Figure 4.* Trend line representing the relationship between length of the meal and the number of times Bobby left his seat.

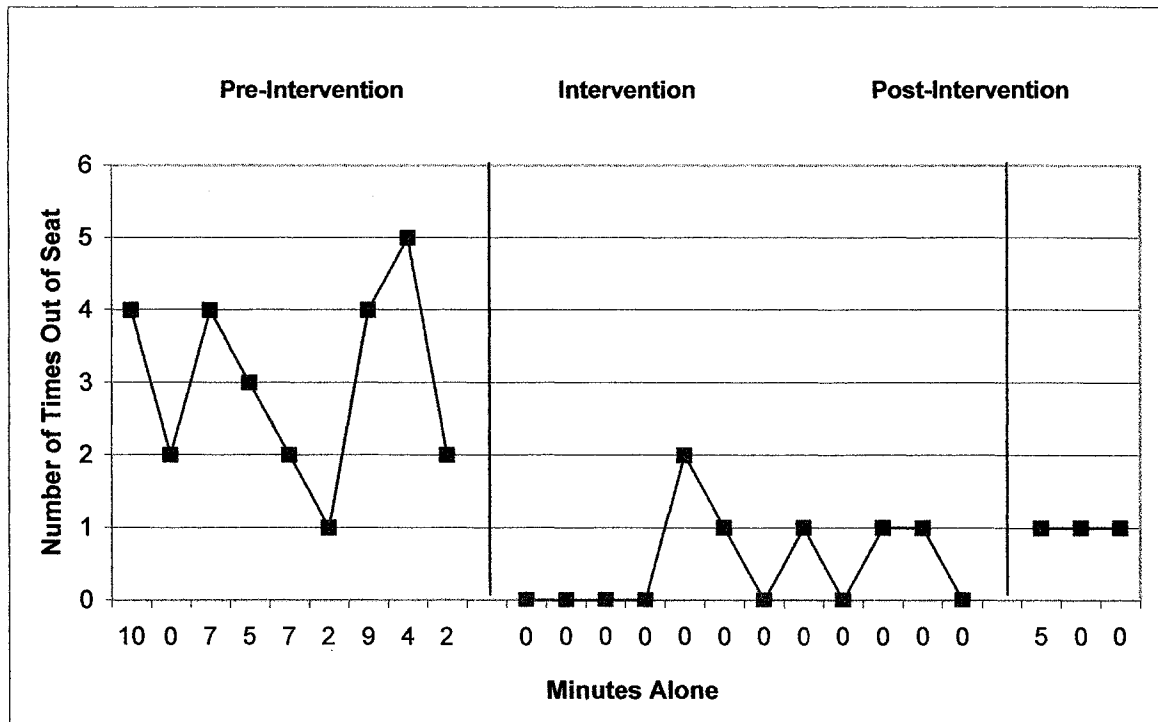


*Figure 5.* The lengths of meals presented in chronological order over the three intervention phases for Kevin.

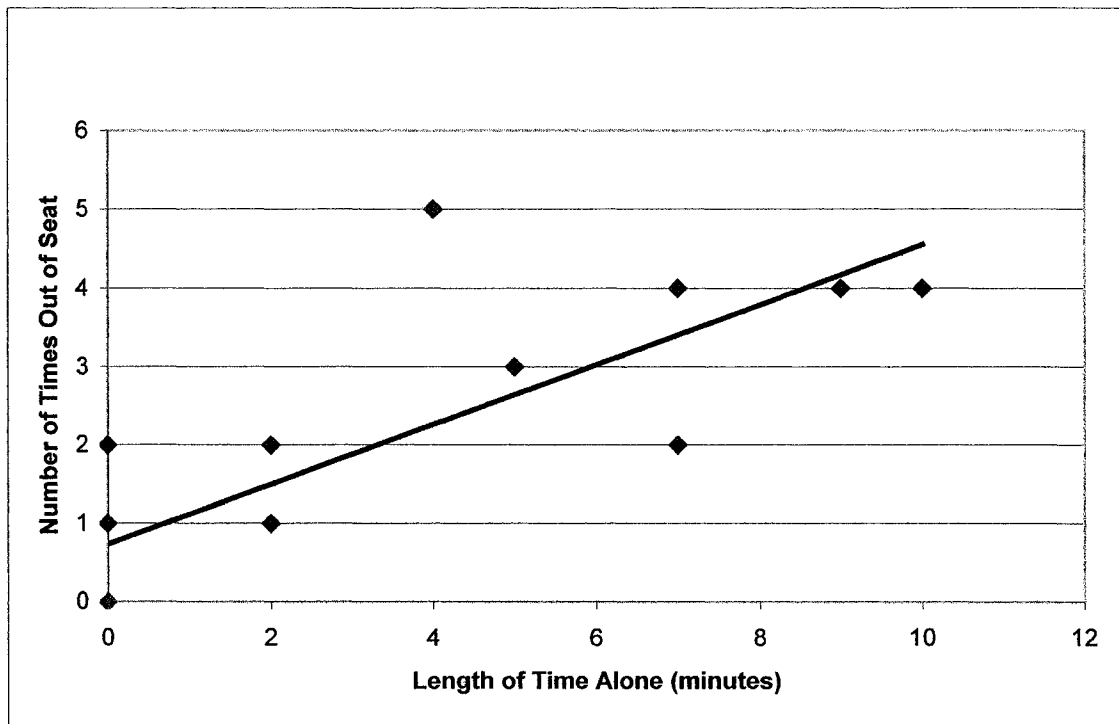


*Figure 6.* Trend line representing the relationship between length of the meal and the number of times Kevin left his seat.

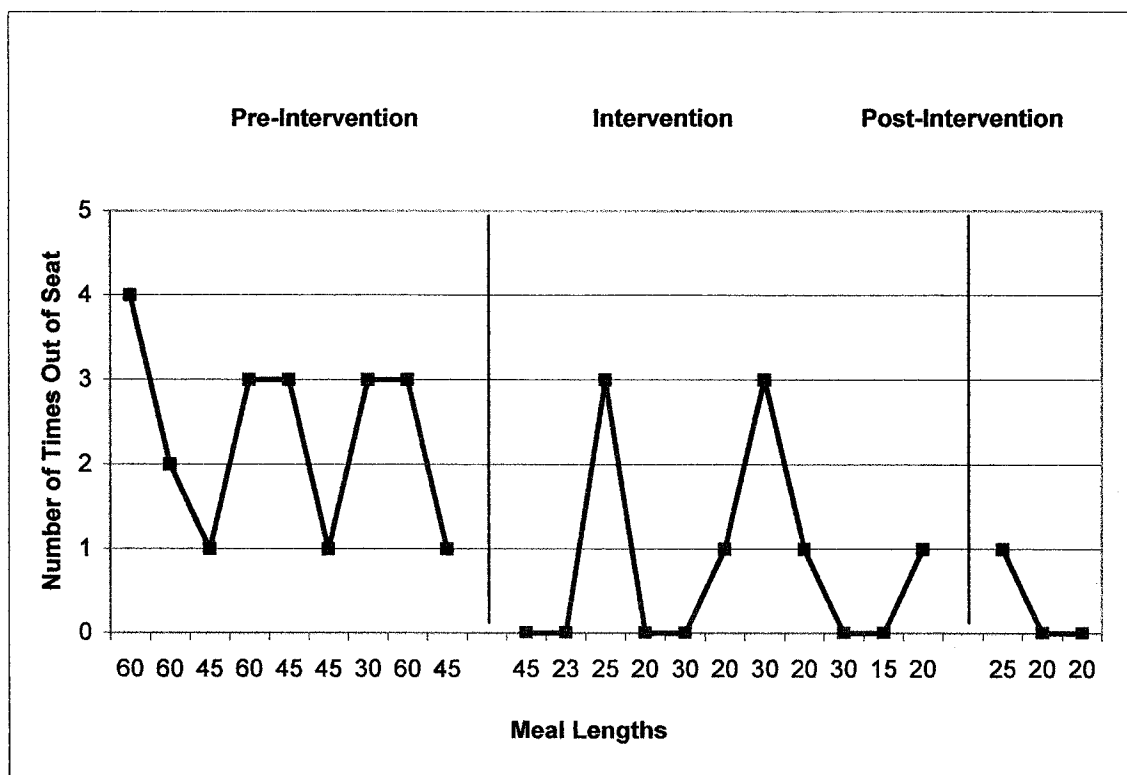




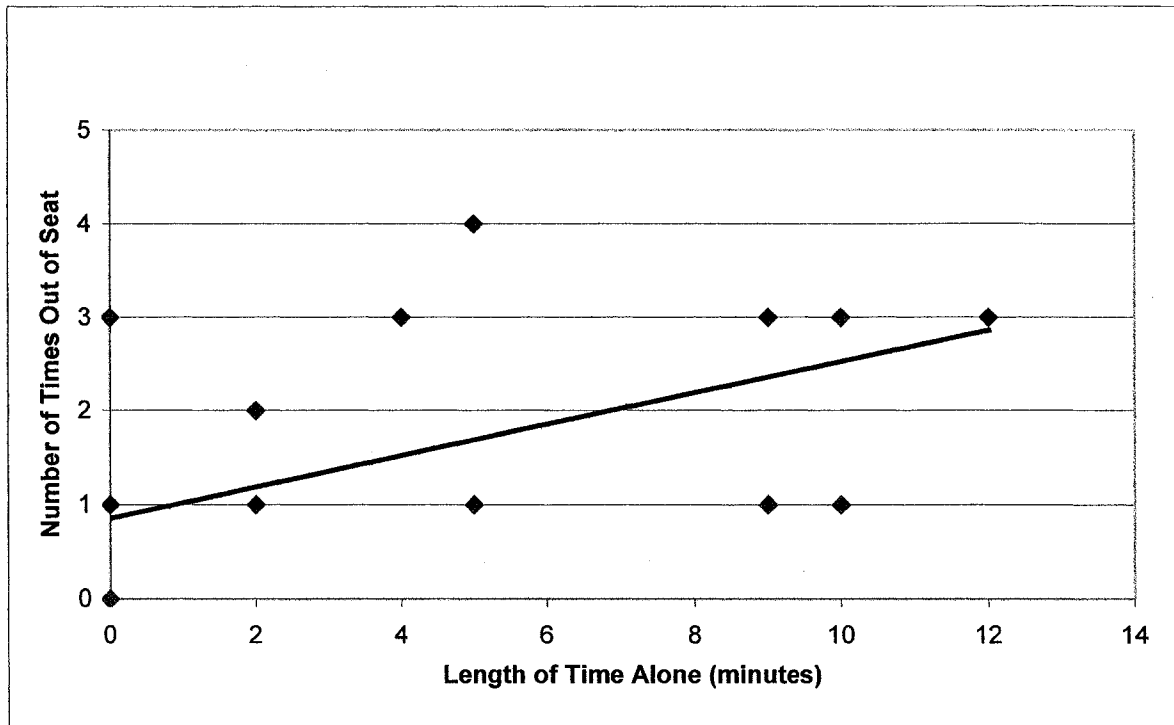
*Figure 7.* Length of time Bobby was left alone at the table presented in chronological order over the three intervention phases.



*Figure 8.* Trend line representing relationship between length of time alone and the number of times Bobby left his seat.



*Figure 9.* Length of time Kevin was left alone at the table presented in chronological order over the three intervention phases.



*Figure 10.* Trend line representing relationship between length of time alone and the number of times Kevin left his seat.

## 2. *Qualitative Observations*

### *Intervention Phase: Mealtimes*

After the first 2 weeks of the intervention phase, the timer was eliminated from the home-based program. Tamara indicated that she did not think it was necessary to continue to use a timer to monitor the time the children sat at the table. She explained that during the majority of meals the children were happy to sit for 20-25 minutes. Once the parents reduced the time they expected the children to sit for their meals, they were more satisfied with the boys' behaviour at the table. Also, Tamara indicated that since the boys ate more healthy snacks during the day, she was less concerned if they did not eat large meals at typical mealtimes.

Based on the intervention phase data, it is clear that during meals the children still left the table. Although out of their seats, it was often to get something from a counter nearby to bring back to the table. Tamara and Geoff were unwilling to end the meals if the children were simply getting something nearby to go with their meals. On a couple of occasions, the children left the table because they were not given a food or cutlery that they desired. Although they returned to the table, they still left their seat 2-3 times. When the children ran away from the table into another room, the parents ended the meal immediately.

### *Intervention Phase: Toilet Training*

At different points throughout the toilet training process, it was clear that it was a trying experience for the Albin family. Prior to initiating the intervention, Geoff, Tamara and the investigator agreed that it would be easier to begin by toilet training one child and introducing the other when the first child experienced some success. Geoff and Tamara

chose to train Kevin first because he often learned skills more quickly than his brother.

The preschool staff also thought Kevin would be the easier child to toilet train.

During the third week of toilet training, Kevin urinated several times in the toilet; however, Geoff had not been present at those times and expressed his dissatisfaction with the progress. Geoff requested that the investigator spend some time reviewing the program with him. Prior to this request, the investigator spent most of her time implementing the toilet training program during the daytime with Tamara and the preschool staff. In response to Geoff's request, the investigator and Geoff spent a weekend afternoon toilet training Kevin. Although Kevin did not urinate in the toilet while the investigator and Geoff worked together, Geoff indicated that he would continue to implement the program and was reassured that he was implementing it correctly.

After toilet training Kevin for three weeks and making some progress, Tamara requested that Bobby begin toilet training. It was agreed that Kevin and Bobby would be trained at the same time. During the fourth week of training, Geoff and Tamara indicated that they found implementing the program stressful and were frustrated at the slow progress the boys were making. Tamara expressed that she found cleaning the boys after they had bowel movements in their underwear especially stressful. At this point, it was clear that revisions were necessary to the program in order to ensure it was manageable for the family.

The investigator met with the parents and asked them whether they would prefer to wait until Kevin was completely toilet trained before continuing to train Bobby. The Albins expressed that they would like to continue with both children because they wanted them to have the opportunity to train with the investigator. It was agreed that they would

eliminate the use of underwear inside the pull-ups. Although it was clear that the children were uncomfortable when they were soiled, underwear did not appear to be an essential component of the program and it was causing the Albins a great deal of stress.

Initially the investigator provided appropriate urinary toileting strategies. It was necessary to address bowel training as well, especially because the parents found this a troubling aspect of the program. The investigator, Tamara and Geoff discussed remaining calm when the boys had bowel movements in their diapers. The investigator explained that although the boys received negative attention after having bowel accidents, it was still attention and, therefore, likely rewarding. Tamara explained that after the boys had bowel movements, she would sometimes put them in the shower or bath. After much discussion, Tamara and Geoff indicated that this was likely rewarding for the children because they received attention and had the opportunity to play in the water, which was something they both enjoyed. The parents were encouraged to clean up the boys with toileting wipes in the bathroom. The investigator suggested that after cleaning up most of the feces, the parents should encourage the boys to wipe their bottoms, put the toilet paper in the toilet, and assist while the parents dumped the remaining feces from the diaper into the toilet. Although Tamara and Geoff were hesitant to involve the children in the clean up process, they agreed that, as long as it was not a “really messy” diaper, they would attempt to implement the outlined strategies.

Shortly after the meeting, the investigator and Tamara had an opportunity to clean up Kevin after a bowel movement. Together, the investigator and Tamara calmly cleaned him up, and ensured that he assisted in the clean up process by wiping his bottom and dumping the contents of his diaper into the toilet.

Throughout the intervention period constant dialogue was maintained between the preschool and home. Adjustments to the program were discussed with the preschool staff and progress was monitored between both settings. During the fifth week of the program, all involved parties observed that Kevin had finally made the connection between urinating, sitting on the toilet, and receiving Play-Doh (his reward). Within a couple of days, Kevin began to consistently take himself to the bathroom, sit on the toilet, urinate, and immediately look for Play-Doh. Tamara and Geoff expressed how proud they were of Kevin, and how grateful they were to have continued to implement the program, despite their frustrations. Tamara and Geoff were pleased to see this behaviour generalize to different settings, including different bathrooms in the preschool and the doctor's office.

An unforeseen challenge developed as a result of Kevin's urine training in that he became pre-occupied with receiving Play-Doh after urinating in the toilet and would sometimes cry when it was taken away from him. Also, on several occasions he would sit on the toilet and attempt to urinate and then look back and forth between the nearby adult and the shelf that held the Play-Doh. When he did not receive the reward, he would sometimes tantrum. In order to address this preoccupation, Play-Doh was gradually re-introduced as a reward for successfully completing other tasks. The time during which he was allowed the Play-Doh also slowly decreased. As a result, Bobby requested Play-Doh less frequently after sitting on the toilet.



During the time in which the investigator worked with the children, Bobby was not successfully toilet trained. In the 14-day training period he urinated once on the toilet and made improvements in his dressing skills.

### *Post-Intervention Phase: Mealtimes and Toilet Training*

Four weeks after the intervention period, the investigator returned to the Albin home and preschool to determine whether the mealtime and toileting behaviour had been maintained. The meal length and the length of time the children spent alone at the table were generally consistent with the intervention phase. The parents continued to show the boys the PEC symbol for lunch and kept the television off. As a result, for the most part, the children sat in their seats during the meals. Again, when the children left their seats, it was generally to get something from a nearby counter to bring back to the table.

Kevin was still independently urinating in the toilet but was not yet bowel trained. Unfortunately, Bobby was not yet toilet trained. In the presence of the investigator, the parents and preschool staff continued to take him to the toilet every 20-30 minutes.

### *3. Parent and Preschool Staff Post-Intervention Interview Responses*

In order to ascertain the opinions of the parents and preschool staff in reference to the PBS program, the examiner conducted interviews with all parties during the post-intervention phase. A series of 7 questions was posed. Outlined below are the parents' (PA) interview responses followed by those of the preschool staff (PS).

*Question 1: What is your opinion of the positive behavioural support process?*

PA: It was a very good experience. Families should have this service available. It was too bad that we couldn't start earlier than we had, although the timing may not have been right because of your schedule. We liked the team approach. It was a process to determine what strategies worked best for each child. We found it very helpful, although we were disappointed that the help ended.

PS: It is an excellent idea; Great project. Good idea, especially because it is important to be potty trained before school.

*Question 2: What is your opinion of the mealtime and toileting interventions?*

PA: We liked the strategies. Mealtimes are 100% better now; there is a significant improvement. Breakfasts are easy. While eating, they even sat nicely at a table at our friend's house. It is hard sometimes though because we really need one person to supervise each child. We know that we have to sit at the table with them. The boys sit at the table for around 20 minutes. We've ordered a new timer to help remind them to sit at the table, although we don't know if we'll need it because they are sitting most meals for a good amount of time now. The toileting strategies are good too. Although dealing with a messy diaper can get stressful still.

PS: I wouldn't have done things any differently. They are excellent interventions. They're working. We don't even have to reward Kevin with Play-Doh anymore after he pees in the toilet.

*Question 3: Do you notice a change in the children's behaviours and skills since implementing the mealtime and toileting interventions? If so, please describe.*

PA: Yes. Although Bobby wasn't toilet trained, he now knows how to pull his pants down, and go to the bathroom with his PEC card. We are going to keep trying to train Bobby; we think he will get it eventually. Kevin now goes to the toilet on his own to pee. We're still working on bowel training.

PS: Yes, Kevin has improved and Bobby not so much. Kevin seems to understand the steps required for toilet training. He goes to the toilet by himself now. Bobby tends to be a little slower to catch on. He'll eventually get it. At meals, they're trying different foods now.

*Question 4: What do you think could have improved the positive behavioural support process?*

PA: If you lived with us 24-hours a day! No seriously. We need the help! Maybe if the daycare were more on-board Bobby would have been toilet trained. Maybe if you spent more time at the daycare.

PS: I don't really know. Maybe if you were around during the day longer. I thought the project was pretty good overall. I find that everything you tried is working. Bobby needs more work. There needed to be more consistency when you're not around.

*Question 5: How do you think the interventions could have been improved?*

PA: We don't really think they could have. You consulted with experts throughout the process and there was always dialogue between us. Maybe the daycare could have participated more.

PS: I don't really know. I'm not sure.

*Question 6: Do you think you benefited from participating in this project? If so, how?*

PA: Absolutely. We wouldn't have been as far along in these areas if you weren't involved. We wouldn't have tried to potty train them for another year if we didn't have the help. We didn't expect miracles from this project.

PS: Yes, very much so. Yeah, no more diapers to change!

*Question 7: Would you recommend a positive behavioural support program to other families with children with autism? Please explain.*

PA: Definitely; it worked for us. This type of support should be something the government provides families.

PS: Yes, definitely. It helped the Albins.

## Chapter 4: Discussion

The present study implemented a Positive Behavioural Support (PBS) program to develop mealtime and toileting behaviours in 4-year-old twin boys with autism. The study extends previous research in two important ways. First, the PBS program was implemented primarily by principal care providers in multiple settings. Specifically, in collaboration with the investigator, the children's parents and the staff at their preschool developed and implemented interventions aimed at improving behaviours that the parents identified as problematic (i.e., meals and toileting) within the children's primary environments (i.e., their home and preschool). Previous PBS research has focused on interventions implemented within one context alone, and it remained unclear whether the behaviour improvements generalized to contexts beyond the intervention setting (Horner et al., 2002). This outstanding question is particularly relevant because generalization of learning is difficult for individuals with autism (Siegel, 2003).

The present study also extends previous research by creating a PBS program for young children (i.e., 4-year-old twins). Currently in the literature, children over 8 years of age are the primary recipients of PBS programming, despite evidence that interventions that focus on teaching positive alternatives for challenging behaviours are more likely to be effective if they are introduced at a young age (Harrower et al., 1999). Researchers suggest that this is primarily because young children with autism are less likely to have developed entrenched patterns of problematic behaviour (Emerson, 2001).

The present study employed a three-phase design, including a 2-week pre-intervention observation phase, a 9-week intervention phase and, 4 weeks later, a 3-day post-intervention follow-up; during this time, behaviour and skill changes were measured

and compared. The main findings were that both young children improved and maintained their mealtime behaviours, and one child improved and maintained his toileting skills. In addition, the skill and behaviour improvements not only occurred within both the preschool and home, but also began to generalize to new settings (e.g., the doctor's office and a family friend's home).

#### *Parent-Professional Relationship*

Collaborative consultation between the parents, preschool staff, and investigator played a critical role in the outcome of the present project. Together the group worked as a team to problem solve, implement and revise the intervention program (Schulte & Osborne, 2003). Points of discussion in reference to the collaborative framework and the team's success and challenges are outlined below.

#### *Mealtimes*

After interviewing the parents and observing the children during mealtime, it was clear that the children sat in their seats during meals at the preschool and often left their seats during meals at home. It was hoped that appropriate mealtime behaviour would transfer from the preschool to the home after implementing home-based interventions designed to more closely resemble the mealtime routines at the preschool.

Key mealtime intervention strategies included keeping the television off (Williams, Dalrymple, & Neal, 2000), showing the mealtime PEC symbol prior to eating, sitting with the children throughout the meals and keeping the length of the meals below 30 minutes (Ernsperger & Stegen-Hanson, 2004). As a result of the interventions, the target behaviour (leaving one's seat for more than 3 seconds) decreased and the replacement behaviour (sitting in one's seat for the duration of the meal) increased. The

positive outcome of the present mealtime program can largely be attributed to the parents' role in the project. They played a critical role not only in defining the target behaviours, but also in planning and implementing the program. It was important that they were committed to changing their behaviour and routines during all meals, not just during the meals in which the investigator was present. Therefore, in order to ensure success, parental input and involvement in the intervention was essential. Based on the study results, it is clear that the intervention strategies were appropriate for the family's lifestyle, and contributed to the children's tendency to sit in their seats during mealtime. By changing the environment and implementing interventions to more closely resemble meals at the preschool, the children's behaviour during meals transferred from one primary setting (the preschool) to another (the home). Equally as important, the behaviour began to generalize to other contexts as well. During the follow-up interview, the parents reported that the children sat in their seats while eating a meal at a family friend's home. This observation is significant given the generalization difficulties common in children with autism (Siegel, 2003).

It is important to note, however, that not all of the original intervention suggestions were as well received, and it was necessary to slightly revise aspects of the mealtime program in order to be consistent with the family's goals and priorities. For example, although it was originally decided that the meal would end when a child left his seat for more than 3 seconds, it became clear that this was not always a reasonable solution for the parents. After the mother prepared a meal for her children, she was unwilling to end it if either of the children left the table to get a meal-related item to bring back to the table. On a few occasions, both children left the table several times, although

they returned to the table within seconds to finish eating. Given the parents' hesitation to follow through with this intervention, the original program was altered such that the meals ended only when the children left the table for a reason other than one that contributed to the meal. For example, if one of the children ran away from the table and attempted to engage in a game of "chase", the parents ended the meal immediately. Clearly, this change created a program that was more suitable for the family's priorities. Similarly, the parents did not feel that it was necessary to continue to use a timer during meals because the children were generally sitting at the table for 20-30 minutes, and it too was eliminated from the program. As argued by others (Bushbacher & Fox, 2003; Marshall & Mirenda, 2002), these changes highlight the importance of reviewing and revising PBS programs in order to ensure a goodness-of-fit between the family and the intervention program. Professionals must check in with the family members in order to evaluate whether their priorities and values are being considered during the intervention process. Otherwise, it is likely that the interventions will not be consistently implemented and the behaviour program will be less effective.

At the same time, it is important to provide families with information and guidance to support them while they evaluate interventions and eventually make adjustments to their lifestyles. Families need to understand why they are required to change their behaviour and environment in order to help their children. That is, professionals cannot simply ask parents to change their behaviour without providing them with a rationale or reason. For example, the parents previously expected their children to eat large amounts of food during meals. In order to finish their food, the children were expected to sit for long periods of time. After learning the amount of food that is typically



consumed by 4-year-olds, the parents began to change their expectations for their own children and became open to alternate meal arrangements. Instead of expecting their children to eat large meals at breakfast, lunch, and dinner, they incorporated healthy snacks into the children's routine and reduced the amount of food they attempted to feed their children during meals. In this case, providing information was a key component to a lifestyle change.

### *Toilet Training*

In order to develop a toileting program appropriate to the home and preschool, both the parents and preschool staff contributed to the development and implementation of the interventions. Several toileting interventions were consistently implemented throughout the PBS program. Notably, during the initial stages, the children were provided with unlimited liquids (Azrin & Fox, 1971); throughout they were prompted every 20-30 minutes to use a picture exchange to request the bathroom (Boswell & Gray, 2004), and to reference a visual schedule posted in the bathroom that depicted the sequence of toileting behaviours (Wheeler, 1998); and finally, the children were removed from the toilet after 5 minutes in the absence of urinating (Taylor, Cipani, & Clardy, 1994), and they were rewarded for urinating in the toilet (Azrin & Foxx, 1971). Based on the results of the study, it is clear that these interventions contributed to an improvement in toileting behaviour, especially for one child.

It is important to note that the toilet training process was challenging and time-consuming. Unlike some researchers who experienced more rapid success in toilet training children (e.g., within 4 days; Azrin & Foxx, 1971), a longer period of time was required in the present study. One child began urinating in the toilet after 5 days of

intervention, and independently urinating in the toilet after 19 days of training, even in contexts other than the primary training settings (e.g., the doctor's office). At the 4-week post-intervention follow-up, he continued to urinate independently in the toilet. At the parents' request, after initial success with one child, both children were toilet trained simultaneously. The other child experienced much less success, and urinated in the toilet once during a 14-day toilet training session. Perhaps if given more time to toilet train, the other child would have improved his toileting skills to a greater degree. On the other hand, it is possible that, as result of his lower developmental level, he may not have had the prerequisite visual receptive, motor or receptive language skills necessary for independent toileting.

During the intervention period, although the parents expressed their dissatisfaction with the slow toileting progress and the time required to monitor both children, they preferred to continue training both children primarily because the investigator was able to assist the family in toilet training for a limited time period (6 weeks). The parents preferred to continue the program, as draining as it may have been, with her support. This underscores how important it is to provide parents of children with autism support within their homes. It can be overwhelming for them to tackle self-help skills alone, especially if success is not easily achieved. As suggested by the parents during the follow-up interview, support should be available within the community to help families implement behaviour programming within their home. Unfortunately, it is often not enough for professionals to simply provide parents or care providers with suggestions. The on-going, hands-on support and guidance of a professional or paraprofessional can be much more likely to result in success.

On a similar note, within the preschool, the staff appreciated the extra support. They reported that the interventions were excellent and that the extra person available to assist with the children was helpful. Within the preschool, the children were not consistently assigned an aide, despite their significant communicative and behavioural challenges. Both the parents and staff indicated that if the investigator had spent more time with the children at the preschool, perhaps the child who was not toilet training would have experienced more success. This underscores the evidence that children with autism benefit from more individualized support within preschool settings. During this stage of development, children with autism require intervention that addresses their daily living and behavioural deficits (Siegel, 2003).

Similar to the mealtime program, it was necessary to make changes to the toilet training program in order to meet the needs and desires of the family. For example, originally the children wore underwear inside pull-up diapers in order to allow them to feel the sensation of being wet or soiled. It was hoped that this uncomfortable feeling would encourage them to seek alternate ways to eliminate. It was not clear whether this strategy was contributing to success in training, nor was it well received by the family. The use of pull-ups inside underwear was primarily identified as problematic because of the clean-up process after a bowel movement. As a result of the parents' frustration, pull-ups were eliminated, and the parents were provided with bowel-training information and techniques for future reference. Again, this exemplifies the importance of checking in with families to ensure that they are willing and able to follow through with recommendations, and of troubleshooting with families throughout the implementation of PBS programs (Marshall & Mirenda, 2002).

*Limitations of the Present Study and Areas for Future Research*

It is also important to consider limitations in the present study and directions for future research. First, implementing and developing an intensive toilet training can be overwhelming for a family. Interventionists should ensure that family members understand the complexity of toileting children with autism before committing to a program. Attempting to toilet train two children with autism at once was probably an overly ambitious task taken on by the investigator, family and preschool staff. Although a great effort was put forth, implementing an intensive toilet training procedure can be exhausting and time-consuming for one child, let alone two. In the future, it is recommended that one child be toilet trained at a time. In the present project, one child did not become toilet trained. He did, however, show improvements in some toileting-related behaviours (e.g., dressing). Under the investigator's supervision, training for this child was limited to a period of 14 days. Unfortunately, this time frame was not long enough to see considerable toileting gains. In the future, it is recommended that researchers allow ample time to assist families and preschool staff in implementing toilet training programs and ensure parents and preschool staff are well aware of the potential challenges ahead.

Also, it may have been beneficial to have someone external to the study conduct the post-intervention follow-up interview to circumvent the potential problem of bias, notably feeling compelled to be positive. It could also be argued that the investigator's collection of data might have been biased. Although the home-based meals were videotaped in order to verify the data that were collected in person, the videotapes were not reviewed by a person blind to the study's purposes. Furthermore, given the privacy

issue of videotaping children while they toilet train, it was not possible to video record the toileting sessions. Also, it was not possible to videotape the children in their preschool, given the privacy concerns of taping other children. In the future, it might be beneficial to have an external observer independently collect at least some data simultaneously, or review a sample of the videotaped data, to establish inter-rater agreement on the observations made by the investigator. These precautions would serve to reduce any concerns about possible biases in the collection or coding of data.

Given that the investigator spent a considerable amount of time with the family prior to implementing the project, their relationship became closer than what is typical for a family and paraprofessional. This level of intimacy likely eased the family and investigator into a time and energy intensive home-based support program. In the future it may be difficult to replicate the time allotted to building a relationship with the family prior to implementing the program; this could affect the facility with which both families and paraprofessionals/professionals are able to transition into an intensive intervention program. It is also unclear whether the mealtime and toileting intervention programs would be effective for children of different ages and developmental levels than those studied here.

Finally, after the parents identified their primary areas of concern, the investigator completed functional assessments for mealtime and toileting behaviour. As a result, it was determined that parental attention was rewarding for both children. This information was useful for developing mealtime interventions; the parents attended to the children while they ate their meal at the table and did not attend to the children when they ran away. This information, however, did not contribute to the toileting program. The

toileting program was developed based on antecedent-behaviour-consequent behaviour patterns. For example, the children were rewarded after urinating in the toilet. It is clear that different frameworks are appropriate for different areas for intervention and, although typically functional assessments are apart of PBS programs, the usefulness of functional assessments is limited to certain areas for intervention (e.g., sitting at a table). In the future, it is recommended that researchers carefully consider which framework is appropriate for addressing the identified behaviour of concern.

### *Conclusion*

In summary, the present study provides clear support for the effectiveness of home- and preschool-based positive behavioural support programs for young children with autism. There was an overall increase in appropriate home-based mealtime behaviour as a result of interventions designed to reflect the preschool mealtime environment. The children's tendency to sit in their seats during meals was established not only across the two primary environments (i.e., the home and preschool) but also generalized to a secondary environment as well (e.g., the home of a family friend). With regard to toilet training, one child learned to independently urinate in the toilet at home and at the preschool, and toileting skills generalized to other environments as well (e.g., the doctor's office, other preschool bathrooms). While the other child was not toilet trained under the investigator's supervision, he did show improvement in toileting skills. More limited success likely reflects the time constraints of the toileting program for the child. Despite this, during the post-intervention follow-up interview, both the parents and preschool staff expressed their satisfaction with the program. Although the program was time-consuming and required a considerable effort on the part of the family, preschool

staff, and the investigator, the outcome of the project clearly outweighs the initial challenges. The PBS program provided the parents with the knowledge, techniques, and support required to make the behavioural and environmental changes necessary to encourage appropriate skill development in their children. In sum, the results of the present study extend previous work by showing that PBS implemented across settings resulted in positive behaviour change in very young children.

Lastly, the program provided the parents with a sense of hope that their children can learn new skills in the future. Having successfully tackled issues that the parents considered to be very challenging, they are now more aware that change is possible with effort and perseverance.

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## Appendix A



### Parent Information and Authorization Form

- Principal Student Investigator:** *Caitlin McCleave*, B.A. (Hons.), Master's of Arts degree candidate in School Psychology, Mount Saint Vincent University;
- Thesis Supervisor:** *Susan Bryson*, Ph.D., R. Psych, Departments of Pediatrics and Psychology, Dalhousie University and IWK Health Centre;
- Thesis Committee Members:** *Elizabeth Church*, Ph.D., R. Psych, School Psychology Program Head, Mount Saint Vincent University;
- Isabel Smith*, Ph.D., R. Psych, Departments of Pediatrics and Psychology, Dalhousie University and IWK Health Centre
- Study Title:** Positive Behavioural Support: Strategies Aimed at Minimizing Problematic Behaviour and Increasing Functional Behaviour in 4-year-old Twins with Autism.

### Introduction

This research project is the basis for the principal student investigator's master's thesis, and is being undertaken as a requirement for fulfillment of the Master's of Arts in School Psychology program at Mount Saint Vincent University. During this project the principal student investigator will be supervised by Dr. Susan Bryson, a registered clinical psychologist at the IWK Health Centre. Dr. Elizabeth Church and Dr. Isabel Smith are thesis committee members, and will be consulted with throughout research project.

You and your twin boys with autism are being invited to take part in a home and preschool based positive behavioural support program. The principal investigator will conduct functional assessments and, in collaboration with your family, develop interventions aimed at reducing the frequency of challenging behaviours and enhancing

the development of adaptive behaviours in children with autism. It is important that you understand the purpose of the study and how it involves your children before you decide

whether your children will participate. Your children will be the only children that will be asked to participate in this project. This information form provides you with information relevant to the study. Please note that participation is entirely voluntary. If you have any questions or concerns that are not addressed in this form, please do not hesitate to contact one of the investigators.

### **Purpose of the Study**

Children with autism often display challenging behaviours. There is a large literature that indicates that these challenging behaviours emerge from problems with communication, social interaction and general understanding. Positive behavioural support programs attempt to understand the function of problematic behaviour in order to develop interventions that help children learn new adaptive skills and create environments in which problematic behaviours become irrelevant and inefficient. The purpose of the present study is to develop and implement a positive behavioural support program appropriate to young children with autism. It is believed that this project will help your children develop functional skills as alternatives to displaying problematic behaviour.

### **Study Design**

This project will take place in your home and your children's preschool, and is projected to last for approximately 10 weeks. During this period of time, the principal investigator will work with your children in your home and preschool for approximately 15-20 hours per week. The investigator will work only with one set of twins that have been identified for this project. The project will involve pre-intervention, intervention and post-intervention phases. During the pre-intervention phase, the investigator will conduct interviews with you and the staff at your children's preschool in order to develop a thorough understanding of your children and their behaviours. Following the interviews, the investigator will observe your children in your home and at their preschool in order to clarify and validate the information provided during the interviews. During the intervention phase, the principal investigator will collaborate with your family in order to develop interventions aimed at reducing the frequency of challenging behaviour and increasing the frequency of functional behaviour. The investigator will then implement the interventions, and finally observe and consult with the parents and preschool staff as they implement the interventions. Once it is clear that the interventions are successful (i.e., the children display the desired appropriate behaviours on a consistent basis), the principal investigator will cease her involvement with the children for approximately one month. After one month, the investigator will return to your home and preschool in order to conduct post-intervention observations, and informally interview you and the preschool staff in order to determine your perceptions of the positive behavioural support program. Neither the target for intervention nor the duration of the intervention phase will be determined until the pre-intervention phase is complete and problematic behaviours have been identified.

During the home-based pre-intervention, intervention, and post intervention phases, the investigator will videotape the children in order to optimize the reliability and validity of the data collected in your home.

### **Potential Harms**

This project involves implementing interventions to address problematic behaviour and encourage the development of replacement functional behaviours and skills. The chosen interventions will be based on the principles of positive behavioural support and will not involve any form of punishment. There are no grounds to believe that these interventions will lead to a regression in behaviour. It is possible that your children may initially experience some minor distress as problematic behaviours are discouraged through redirection or reward of positive alternatives. The investigator will address distress should it occur; however, it is not anticipated that the children will experience discomfort greater than what would be expected on a typical day.

### **Potential Benefits**

This project is aimed to help your children develop positive behaviours and skills. A reduction in problematic behaviours and an increase in positive behaviours have been shown to improve the quality of life of individuals with autism. Preschool staff may also benefit from learning more about autism and providing positive behavioural support.

### **Withdraw from Participation**

Participation is entirely voluntary. You may decide that you do not want your children to participate in the study. At any point, you may withdraw your children from the study, including after authorization forms are signed. Any collected information will be destroyed should you choose to withdraw. If you choose to withdraw your children from the study, you and your family will continue to have access to quality care at the IWK.

### **Confidentiality**

Confidentiality will be respected and no information that discloses your children's identities will be released or published without consent unless required by law. Only the principal investigator and her committee members will have access to study records and videotapes, which will be held in a secure area in Dr. Bryson's lab (Autism Research Centre, IWK) until the participants have reached the age of majority (19 years of age). The principal investigator will need your permission and signed consent in order to use the videotaped sessions and study records for teaching and demonstration purposes.

It should be noted that given the unique nature of your family (4-year-old twin boys both of whom have autism), and despite the use of pseudonyms, it is possible that during the thesis defence, audience members may presume the identity of your family.

### **Costs and Reimbursement**

No reimbursement will be provided for participating in this project.

### **Research Rights**

Your signature on this form will show that you have understood to your satisfaction the information about the project. Agreeing to participate in this project does not mean that you waive your legal rights nor does it release the Investigator or other involved parties from their legal and professional responsibilities.

### **Contact Person**

If you have any questions about the proposed project please contact Caitlin McCleave at (902) 225-5227. If you have any questions or concerns during or after completion of project, you may contact Dr. Susan Bryson at (902) 470-7275, and she will refer you to appropriate services. If you have any questions that you would like to address to an individual not directly involved with the study, you may contact A. Davis, Ph.D., Acting Chair, University Research Ethics Board at Mount Saint Vincent University, at (902) 457- 6296 or the Research Office at the IWK Health Centre at 470-8765.

### **Communication of Results**

At the completion of this project, you may be provided with a summary of the research report. If you are interested in receiving this information, you must indicate this on the consent form.



Study title: Positive Behavioural Support: Strategies Aimed at Minimizing Problematic Behaviour and Increasing Functional Behaviours in 4-year-old Twins with Autism.

Participant ID: \_\_\_\_\_ Participant Initials: \_\_\_\_\_

Participant ID: \_\_\_\_\_ Participant Initials: \_\_\_\_\_

**Parental Authorization-** I have read and understand the information and authorization provided and have had the chance to ask questions which have been answered to my satisfaction before signing my name. I understand the nature of the project and the potential risks and benefits. I understand that I have the right to withdraw my children from the study at any point. I have received a copy of the Information and Authorization form for future reference. I agree to have my children participate in this project.

\_\_\_\_\_  
Name of Participant (Print)

\_\_\_\_\_  
Name of Participant (Print)

\_\_\_\_\_  
Name of Parent/Guardian (Print)

\_\_\_\_\_  
Signature of Parent/Guardian

Date: \_\_\_\_\_

Time: \_\_\_\_\_

I grant my permission for the principal investigator to use the results of this project for teaching and presentation purposes:

\_\_\_\_\_  
Name of Parent/Guardian (Print)

\_\_\_\_\_  
Signature of Parent/Guardian

Date: \_\_\_\_\_

Time: \_\_\_\_\_

**I am interested in receiving a summary of the research report at completion of this project.**

\_\_\_\_\_  
Name of Parent/Guardian

\_\_\_\_\_  
Signature of Parent/Guardian

Date Signed \_\_\_\_\_ Time \_\_\_\_\_

Please indicate your mailing address below:

--

**Statement by Person Providing Information on the Study**

I have explained the nature and demands of the research project and the consent process.  
I judge that the Parent/Guardian named above understands the nature and demands of the study.

Name(Print) \_\_\_\_\_ Position \_\_\_\_\_

Signature: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Statement by Person Obtaining Consent**

I have explained the nature of the consent process to the person authorized and judge that they understand that participation is voluntary and that they/their child may withdraw at any time from participating.

Name (Print) \_\_\_\_\_ Position \_\_\_\_\_

Signature: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Study Title: Positive Behavioural Support: Strategies Aimed at Minimizing Problematic Behaviour and Increasing Functional Behaviour in 4-year-old Twins with Autism**

**Permission to Video Tape**

Name of Participant : \_\_\_\_\_ Participant ID: \_\_\_\_\_

Name of Participant: \_\_\_\_\_ Participant ID: \_\_\_\_\_

Please choose between Option A and Option B in order to specify whether you prefer the videotaped sessions of your children be used for the purpose of this research project only, or for the purpose of this research project, teaching, and demonstration purposes.

**OPTION A**

I agree to the videotaping of the sessions of the above named participants for the purpose of this research project only.

\_\_\_\_\_  
Name of Parent/Guardian

\_\_\_\_\_  
Signature of Parent/Guardian

Date: \_\_\_\_\_

Time: \_\_\_\_\_

**OPTION B**

I agree to the videotaping of the sessions of the above named participants both for the purpose of this research project and for teaching and presentation purposes.

\_\_\_\_\_  
Name of Parent/Guardian

\_\_\_\_\_  
Signature of Parent/Guardian

Date: \_\_\_\_\_

Time: \_\_\_\_\_

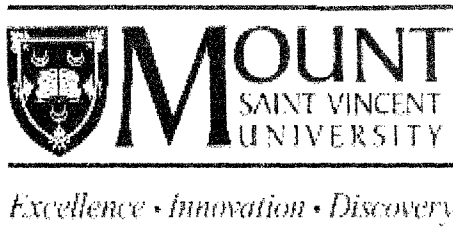
\_\_\_\_\_  
Name of Witness (Print)

\_\_\_\_\_  
Signature of Witness

Date: \_\_\_\_\_

Time: \_\_\_\_\_

## Appendix B



### Preschool Information and Authorization Form

- Principal Student Investigator:** *Caitlin McCleave*, B.A. (Hons.), Master's of Arts degree candidate in School Psychology, Mount Saint Vincent University;
- Thesis Supervisor:** *Susan Bryson*, Ph.D., R Psych, Departments of Pediatrics and Psychology, Dalhousie University and IWK Health Centre;
- Thesis Committee Members:** *Elizabeth Church*, Ph.D., R. Psych, School Psychology Program Head, Mount Saint Vincent University;
- Isabel Smith*, Ph.D., R. Psych, Departments of Pediatrics and Psychology, Dalhousie University and IWK Health Centre
- Study Title:** Positive Behavioural Support: Strategies Aimed at Minimizing Problematic Behaviour and Increasing Functional Behaviour in 4-year-old Twins With Autism.

### Introduction

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Two children with autism at your preschool are being invited to take part in a home and preschool based positive behavioural support program. It is important that you understand the purpose of the study and how it involves staff members and children at your preschool before you decide whether your organization will participate. This information form provides you with information relevant to the study. Please note that participation is

entirely voluntary. If you have any questions or concerns that are not addressed in this form, please do not hesitate to contact one of the investigators.

### **Purpose of the Study**

Children with autism often display challenging behaviours. Positive behavioural support programs attempt to understand the function of problematic behaviour in order to develop interventions that help children learn new adaptive skills and create environments in which problematic behaviours become irrelevant and inefficient. The purpose of the present study is to develop and implement a positive behavioural support program appropriate to a family with 4-year-old twin boys with autism. It is believed that this project will help the children develop functional skills as alternatives to displaying problematic behaviour.

### **Study Design**

This project will take place in the children's home and your preschool, and is projected to last for approximately 10 weeks. During this period of time, the principal investigator will work with the children in their home and preschool for approximately 15-20 hours per week. The investigator will work only with one set of twins that have been identified for this project. The project will involve pre-intervention, intervention and post-intervention phases. During the pre-intervention phase, the principal investigator will conduct interviews with the children's parents and staff at your preschool in order to develop a thorough understanding of the children and their behaviours. Following the interviews, the investigator will observe the children in their home and at your preschool in order to clarify and validate the information provided during the interviews. During the intervention phase, the principal investigator will collaborate with the family in order to develop interventions aimed at reducing the frequency of challenging behaviour and increasing the frequency of functional behaviour. The investigator will then implement the interventions, and finally observe and consult with the parents and preschool staff as they implement the interventions. Once it is clear that the interventions are successful (i.e., the children display the desired appropriate behaviours on a consistent basis), the principal investigator will cease her involvement with the children for approximately one month. She will return to the children's home and your preschool in order to conduct post-intervention observations, and informally interview the parents and staff at your preschool regarding their perceptions of the positive behavioural support program. Neither the target for intervention nor the duration of the intervention phase will be determined until the pre-intervention phase is complete and problematic behaviours have been identified.

### **Potential Harms**

This project involves implementing interventions to address problematic behaviour and encourage the development of replacement functional behaviours and skills. The interventions used will be based upon the principles of positive behavioural support and will not involve any form of punishment. There are no grounds to believe that these

interventions will lead to a regression in behaviour. It is possible that the children will experience some minor distress as inappropriate behaviours are discouraged through redirection or reward of positive alternatives. The investigator will address distress should it occur; however, it is not anticipated that the children will experience discomfort greater than what would be expected on a typical day.

In addition, while in the preschool, the principal investigator will implement interventions while bearing in mind the well-being of the other children and staff. The other children will be present while the interventions are taking place, however, it is likely that they will be unaware that a special program is taking place. In effect, the investigator's involvement at the preschool will be similar to a teacher teaching new skills to the children with autism.

It is possible that the project may be slightly disruptive to others as interventions are conducted but again not more so than is normally the case in working with these children in a busy preschool environment. Other than the possibility of minimal disruptions, this project poses no risk to the children or staff at the preschool. It is very likely that as the children with autism develop more appropriate behaviours and skills, they will be able to interact more successfully with the other children and staff at the preschool

### **Potential Benefits**

This project is aimed to foster the development of adaptive behaviours and skills displayed by children with autism. Preschool staff members may benefit from learning more about autism, functional assessments, and providing positive behavioural support.

### **Withdraw from Participation**

Participation is entirely voluntary. As the involved staff member, you may decide that you do not want to personally participate. As the preschool director, you may decide that you do not want the preschool to participate in this project. You may withdraw from the project at any point, including after signing the information/authorization forms. Any information collected at the preschool will be destroyed should you choose to withdraw.

### **Confidentiality**

Confidentiality will be respected. No information that discloses the identity of the participants or the preschool will be released or published without consent unless required by law. Only the principal investigator and her committee members will have access to information pertaining to the preschool and participants. Study records and videotapes will be kept in a secure and confidential area in Dr. Bryson's lab (Autism Research Centre, IWK) until the participants have reached the age of majority (19 years of age).

**Costs and Reimbursement**

No reimbursement will be provided for participating in this project.

**Research Rights**

Signing this form will indicate that you have understood the information about this project and the involvement of the preschool. Agreeing to participate in this project does not mean that you waive your legal rights nor does it release the Investigator or other involved parties from their legal and professional responsibilities.

**Contact Person**

If you have any questions about the project, please contact Caitlin McCleave at (902) 455-9844. If you have any questions or concerns during or after the completion of this project, you may contact Dr. Susan Bryson at (902) 470-7275. If you have any questions that you would like to address to an individual not directly involved with the study, you may contact A. Davis, Ph.D., Acting Chair, University Research Ethics Board, at (902) 457-6296 or the Research Office at the IWK Health Centre at 470-8765.

**Communication of Results**

At the completion of this project, you may be provided with a summary of the research report. If you are interested in receiving this information, you must indicate this on the consent form.

Study title: Positive Behavioural Support: Strategies Aimed at Minimizing Problematic Behaviour and Increasing Functional Behaviour in 4-year-old Twins With Autism.

Participant ID: \_\_\_\_\_

Participant initials: \_\_\_\_\_

Participant ID: \_\_\_\_\_

Participant initials: \_\_\_\_\_

**Preschool Authorization-** I have read this information and authorization form and have had a chance to ask questions which have been adequately answered before signing my name. I understand the nature of the project and the role of the preschool, staff, and children. I also understand the risks and benefits associated with the project. I understand that I have the right to personally withdraw from the project at any point, including after signing consent to participate. As the preschool director, I understand that I have the right to withdraw the preschool from the proposed project. I have received a copy of the Information/Authorization form for future reference. I freely agree to have the preschool involved in this project.

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Name of Parent/Guardian

\_\_\_\_\_  
Signature of Parent/Guardian

Date: \_\_\_\_\_ Time: \_\_\_\_\_

\_\_\_\_\_  
Name of Preschool

\_\_\_\_\_  
Name of Preschool Director

\_\_\_\_\_  
Signature of Preschool Director

Date: \_\_\_\_\_ Time: \_\_\_\_\_

\_\_\_\_\_  
Name of Staff Member

\_\_\_\_\_  
Signature of Staff Member

Date: \_\_\_\_\_ Time: \_\_\_\_\_



Name of Staff Member

Signature of Staff Member

Date: \_\_\_\_\_ Time: \_\_\_\_\_

**I am interested in receiving a summary of the research report upon completion of project.**

Name of Preschool Director

Signature of Preschool Director

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Please indicate your mailing address below:

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### Statement by Person Providing Information on the Study

I have explained the nature and demands of the research project and the consent process. I judge that the Parent/Guardian, Preschool Director, and Staff Members named above understand the nature and demands of the study.

Name(Print) _____	Position _____
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Signature: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Statement by Person Obtaining Consent**

I have explained the nature of the consent process to the person authorized and judge that Parent/Guardian, Preschool Director, and Staff Members named above understand that participation is entirely voluntary and that they may withdraw at any time from participating.

Name (Print) \_\_\_\_\_ Position \_\_\_\_\_

Signature: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## **Appendix C**

### **The Parent and Preschool Staff Opinion Interview**

1. What is your opinion of the positive behavioural support process?
2. What is your opinion of the mealtime and toileting interventions?
3. Do you notice a change in the children's behaviours and skills since implementing the mealtime and toileting interventions? If so, please describe.
4. What do you think could have improved the positive behavioural support process?
5. How do you think the interventions could have been improved?
6. Do you think you benefited from participating in this project? If so, how?
7. Would you recommend a positive behavioural support program to other families with children with autism? Please explain.

## Appendix D

### Information Derived from the Home-and Preschool-Based Functional Assessment Interview

#### *Home-Based Functional Assessment Interview:*

Tamara and Geoff explained that although Kevin and Bobby were loving, unique, joyful little boys, they demonstrated a number of challenging behaviours that were of concern. The parents identified both similar and unique behavioural concerns for each boy. They identified that inexplicable tantrums, and mealtimes and toileting routines were of concern for each boy. Yelling for hours on end during the night, constant self-stimulatory behaviour, and an obsession with water were identified as behaviour concerns for Bobby. Tantrum behaviour as a result of things activities out of their usual order was identified as a concern for Kevin. From the extensive list of behaviour concerns, Geoff and Tamara were asked to identify priority behaviours for intervention. Although tantrum behaviour was viewed as a major problem for both children, they agreed that mealtimes and toileting were the most stressful experiences, and identified the development of these self-help skills as a priority.

Geoff and Tamara explained that meals typically lasted for 60 to 90 minutes, and that both children left their seats and ran around at points throughout the meal, often with food in their hands. They also indicated that sometimes the boys would watch television during meals and that although this sometimes helped calm the boys, at other times it caused conflict between the children, because Kevin liked to turn the television off and this, in turn, upset Bobby.

During the interview, Tamara and Geoff reiterated how important it was to them to help their children develop independent toileting skills. The parents explained that

Kevin and Bobby were getting too old and big to use the change table in their bedroom for diapering, and that they would prefer that their children develop more appropriate toileting habits for their size and age. Although unsure of toileting patterns, Geoff and Tamara reported that their children tended to have bowel movements in the late morning and were able to hold their urine for at least 30 minutes.

*Preschool-Based Functional Assessment Interview:*

During the interview with the preschool staff, they explained that mealtimes were generally a good time of day for the boys. Meals typically lasted for 30 minutes, and during this time the boys were seated next to a staff member. The staff hypothesized that the boys sat in their seats during the meals because they were copying the behaviour of the other children and staff. In order to communicate to the boys that it was lunchtime, the boys were asked to put a PEC symbol representing lunch in a matching pocket next to the lunch table. The staff explained that the boys understood that lunch was over by watching the other children leave the table and the verbal prompt “time to wash up”. The preschool staff and Tamara agreed that mealtimes were not as problematic for the boys at the preschool as they were at home.

The preschool staff reported that, although there were no formal toileting routines, they generally checked the boys’ diapers at 11am, 2pm and 4pm and that often the boys remained dry until the afternoon. They also reported that the boys rarely had bowel movements at the preschool.

