4-2002

Using Measures of Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness to Evaluate a Toilet Training Program in a Preschool Classroom for Children with Special Needs

Katherine M. Holverstott-Cockrell

Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/dissertations

Part of the Child Psychology Commons, and the Disability and Equity in Education Commons

Recommended Citation

https://scholarworks.wmich.edu/dissertations/1106

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
USING MEASURES OF INTERVENTION INTEGRITY, INTERVENTION ACCEPTABILITY, AND INTERVENTION EFFECTIVENESS TO EVALUATE A TOILET TRAINING PROGRAM IN A PRESCHOOL CLASSROOM FOR CHILDREN WITH SPECIAL NEEDS

by

Katherine M. Holverstott-Cockrell

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

ADVISOR: Dr. KRISTAL EHRHARDT

Western Michigan University
Kalamazoo, Michigan
April 2002

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
USING MEASURES OF INTERVENTION INTEGRITY, INTERVENTION ACCEPTABILITY, AND INTERVENTION EFFECTIVENESS TO EVALUATE A TOILET TRAINING PROGRAM IN A PRESCHOOL CLASSROOM FOR CHILDREN WITH SPECIAL NEEDS

Katherine M. Holverstott-Cockrell, Ph.D.

Western Michigan University, 2002

The primary objective of this study is to use measures of intervention integrity, intervention acceptability, and intervention effectiveness identified by Witt and Elliott (1985) to evaluate the toilet training program in a preschool classroom. The second objective is to assess the effects of parent participation with the toileting program. The third objective is to assess the effects of the toilet training intervention. Specifically, this study investigated (a) the relationship between intervention integrity, acceptability, and effectiveness of a toilet training intervention implemented in a preschool setting and at home; (b) the relationship between parental participation with the intervention and the efficacy of the program at the preschool classroom; and (c) the effects of a toilet training program that employs high levels of client involvement, consultee training, and parent participation.

Intervention integrity and intervention effectiveness were assessed by direct observation, and intervention acceptability was assessed with acceptability questionnaires. A multiple baseline design across preschool classrooms was the experimental tactic for evaluating the data collected in this project.
The results of this study support the proposed relationship between intervention integrity and intervention effectiveness found in the literature; however, this study does not support a reciprocal relationship between intervention acceptability and intervention integrity. Strong conclusions regarding the effects of parent participation cannot be offered due to the lack of parent participation as evidenced by the small number of students whose parents returned data to the preschool. Regarding the effectiveness of the toileting program, progress was made and the toileting program was effective as evidenced by the general increase in successes and decrease in accidents; however, it appears that not all of the components are necessary, specifically the use of *The Big Kid Book* (Holverstott, 1997).
INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI Microform 3146479
Copyright 2005 by ProQuest Information and Learning Company. All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
This is dedicated to the one I love.
# TABLE OF CONTENTS

LIST OF TABLES ................................................................. vii  
LIST OF FIGURES ............................................................... viii  

CHAPTER  

INTRODUCTION ............................................................... 1  
  Early Intervention ....................................................... 2  
  Current Definitions of Quality Early Intervention .......... 3  
  Common Methods to Measure the Current Definitions of Quality .... 4  
  Alternative Criteria of Quality: Intervention Integrity, Acceptability and Effectiveness .................................................. 5  
    Intervention Integrity and Use ........................................ 6  
    Intervention Acceptability ........................................... 6  
    Intervention Effectiveness .......................................... 7  
    Advantages of the Alternative Criteria: Intervention Integrity, Acceptability, and Effectiveness ........................................ 8  
    Method to Evaluate the Alternative Criteria of Quality .......... 9  
  Toilet Training Practices in Early Intervention .................. 10  
    The Big Kid Toilet Training Program ............................ 11  
  Purpose and Benefits of the Proposed Study .................... 17  
  Definition of Terms ...................................................... 17  

METHOD ................................................................. 20
Table of Contents—Continued

CHAPTER

Research Questions ........................................................................................ 20

Research Question 1 ................................................................................ 20

Research Question 2 ................................................................................ 21

Research Question 3 ................................................................................ 21

Setting ............................................................................................................. 21

Participants ..................................................................................................... 22

Clients ...................................................................................................... 22

Consultees ................................................................................................. 24

Data Collection Personnel ...................................................................... 26

Experimenter ........................................................................................... 27

Dependent Variables and Measurement ...................................................... 28

Intervention Effectiveness ...................................................................... 28

Intervention Acceptability ...................................................................... 28

Intervention Integrity .............................................................................. 29

Interobserver Agreement ......................................................................... 30

Materials ......................................................................................................... 30

Procedures ...................................................................................................... 31

Collection of Intervention Acceptability and Intervention Integrity Data ............................................................................................................. 32

Baseline .................................................................................................... 32
Table of Contents—Continued

CHAPTER

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Package Implementation</td>
<td>32</td>
</tr>
<tr>
<td>Follow-up</td>
<td>33</td>
</tr>
<tr>
<td>Experimental Design</td>
<td>33</td>
</tr>
<tr>
<td>RESULTS</td>
<td>35</td>
</tr>
<tr>
<td>Intervention Effectiveness</td>
<td>35</td>
</tr>
<tr>
<td>Effectiveness per Classroom Data</td>
<td>35</td>
</tr>
<tr>
<td>Effectiveness per Client Data</td>
<td>38</td>
</tr>
<tr>
<td>Intervention Acceptability</td>
<td>48</td>
</tr>
<tr>
<td>Intervention Integrity</td>
<td>50</td>
</tr>
<tr>
<td>Preschool Data</td>
<td>50</td>
</tr>
<tr>
<td>Home Data</td>
<td>52</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>60</td>
</tr>
<tr>
<td>Discussion of Research Questions</td>
<td>60</td>
</tr>
<tr>
<td>Research Question 1</td>
<td>60</td>
</tr>
<tr>
<td>Research Question 2</td>
<td>63</td>
</tr>
<tr>
<td>Research Question 3</td>
<td>66</td>
</tr>
<tr>
<td>General Limitations</td>
<td>67</td>
</tr>
<tr>
<td>Conclusions and Recommendations</td>
<td>67</td>
</tr>
<tr>
<td>Relationship Between Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness</td>
<td>67</td>
</tr>
</tbody>
</table>

iv
Table of Contents—Continued

CHAPTER

Parent Participation ................................................................................. 69

*Big Kid* Toileting Program ................................................................. 69

APPENDICES

A. *The Big Kid Book: Practical Activities for Successful Toilet Training* © ............................................................................................ 71

B. Permission Form for Parents ........................................................................................................ 85

C. Consent Form for Parents ........................................................................................................ 89

D. Revised Administrative Rules for Special Education by the Michigan State Board of Education ........................................................................................................ 93

E. Consent Form for Preschool Staff .......................................................................................... 97

F. Training Materials for Consultees, Baseline Phase
   Training Materials ................................................................................ 101

G. Training Materials for Consultees, Intervention Phase
   Training Materials ................................................................................ 103

H. Training Materials for Data Collection Personnel ................................................................. 105

I. Target Behavior Data Sheets for Preschool, Baseline Phase ........................................... 109

J. Target Behavior Data Sheets for Home Data, Baseline Phase ........................................... 111

K. Target Behavior Data Sheets for Preschool, Intervention Phase ...................................... 113

L. Target Behavior Data Sheets for Home Data, Intervention Phase ................................... 115

M. Sample of Parent Feedback Note .................................................................................. 117

N. Sample of Teacher Feedback Note .................................................................................. 119

O. Intervention Acceptability Questionnaire ......................................................................... 121

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Table of Contents—Continued

CHAPTER

P. Intervention Integrity Script for Preschool, Baseline Phase ...................... 123
Q. Intervention Integrity Script for Home Data, Baseline Phase ................... 125
R. Intervention Integrity Script for Preschool, Intervention Phase ............... 127
S. Intervention Integrity Script for Home Data, Intervention Phase ............. 129
T. Human Subjects Institutional Review Board
   Letter of Approval ................................................................. 131

BIBLIOGRAPHY .......................................................................................... 133
LIST OF TABLES

1. Client Demographic Information .......................................................... 25
2. Mean and Range of Target Behaviors During Both Phases per Classroom ................................................................. 39
3. Mean and Range of Target Behaviors During Both Phases per Client .............................................................................. 40
4. Consultee Acceptability Ratings .......................................................... 49
5. Percent Integrity per Intervention Component per Classroom .............. 51
LIST OF FIGURES

1. Classroom A and Classroom B .............................................................. 36
2. Classroom C and Classroom D .............................................................. 37
3. Client A1 ............................................................................................. 41
4. Client A2 ............................................................................................. 42
5. Client A3 ............................................................................................. 42
6. Client A4 ............................................................................................. 43
7. Client B1 ............................................................................................. 44
8. Client B2 ............................................................................................. 45
9. Client C1 ............................................................................................. 45
10. Client C2 ............................................................................................ 46
11. Client D1 ........................................................................................... 47
12. Client D2 ........................................................................................... 47
13. Integrity and Effectiveness: Classroom A ............................................. 52
14. Integrity and Effectiveness: Classroom B ............................................. 53
15. Integrity and Effectiveness: Classroom C ............................................. 54
16. Integrity and Effectiveness: Classroom D ............................................. 55
17. Integrity and Effectiveness: Client A1 .................................................. 56
18. Integrity and Effectiveness: Client A4 .................................................. 57
19. Integrity and Effectiveness: Client B1 .................................................. 58
List of Figures—Continued

20. Integrity and Effectiveness: Client B2 ................................................................. 59
INTRODUCTION

Each generation faces unique challenges and opportunities created by political, economic, and social developments. Educational professionals today, including school psychologists and teachers, may encounter an increasing school-age population, declining governmental support, and greater numbers of students with challenging behaviors (Ysseldyke et al., 1997). Other issues confronting educators include geographic and economic disparities between communities, increased mobility of students and their families, and a lack of consensus regarding the appropriate role of teachers and schools in the education of children. In the midst of these changes, school psychological practice is undergoing a paradigm shift from that of a traditional “tester-placer” to a collaborative databased problem solver (Reschly & Ysseldyke, 1995).

Over the last 35 years, landmark federal legislation has provided increased educational opportunities for young children with special needs and children at-risk for educational failure (Bailey & Wolery, 1992). Such legislation includes Project Head Start in 1965, The Education for All Handicapped Children Act of 1975, the Education of the Handicapped Act Amendments of 1986, the Individuals with Disabilities Act (IDEA) in 1990, and the recently reauthorized IDEA '97. Each of these legislative acts has increased special education and school psychology services to young children and their families. The following section briefly discusses early intervention and the indicators of quality early intervention and early childhood special education.

1
Early Intervention

The importance of early intervention is evidenced by its effectiveness with young children. For example, the research literature describes many effective early interventions used with children with economical, educational, social, physical, developmental, and psychological disadvantages (e.g., Guralnick, 1997). As a result of this success and due to the recent legislation previously mentioned, school psychology services have expanded to early childhood settings and early intervention services are on the rise (U.S. Department of Education, 1990).

In addition to this expansion, a change in the goals of early intervention has been identified (Odom & McLean, 1996). Initially, efforts were directed at establishing services. The impetus now is to improve the quality of services for young children and their families (Odom & McLean, 1996). In order to provide high quality early intervention, the indicators of quality must first be defined. In the following section, the current indicators of quality early intervention practices from a few key sources are reviewed as well as the methods used to measure such criteria. The quality of the structure (e.g., building or equipment) is differentiated from the quality of the practices and although the safety of the building and equipment is important, this paper will focus on the characteristics and measurement of quality practices.
Current Definitions of Quality Early Intervention

In 1991, the Task Force on Recommended Practices was established by the Division for Early Childhood Council (DEC) for Exceptional Children to define quality indicators and recommended practices. In this document, quality is defined as early intervention that is (a) research-based or value-based, (b) family-centered, (c) compatible with a multicultural perspective, (d) involving members of various disciplines, (e) developmentally and chronologically age appropriate, and (f) normalized (Odom & McLean, 1996).

Another well-known source that defines the indicators of quality is the National Association for the Education of Young Children (NAEYC). NAEYC identifies the following as indicators of quality: (a) responsive and warm interactions between staff and children, (b) developmentally and individually appropriate curriculum, (c) limited group size, (d) age appropriate caregiver-child ratios, and (e) adequate staff training in early childhood education or child development (National Association for the Education of Young Children, 2000). Although this list of indicators is different from the list generated by the DEC, it has been noted that the major themes are similar (Odom & McLean, 1993).

Odom and McLean (1996) identified several states as also having published and unpublished indicators of quality. For example, Arizona, Texas, and Vermont have developed lists of recommended practices and quality indicators. Similar to the indicators provided by the DEC and the NAEYC, the indicators developed by state efforts define quality with broad and imprecise parameters.
Common Methods to Measure the Current Definitions of Quality

The most common method to measure broad criteria such as those previously reviewed is with global rating scales (Aytch, Cryer, Bailey, & Selz, 1999). Commonly used rating scales include the Early Childhood Environment Rating Scale (Harms & Clifford, 1980) and the Infant Toddler Environment Rating Scale (Harms, Cryer, & Clifford, 1990). A rating scale has also been developed and used to measure the specific indicators of quality as defined by the DEC (Odom, McLean, Johnson, & LaMontagne, 1995).

Although easy to use and time efficient, rating scales often have little more than face validity and there is question as to whether the subscales of the scales previously mentioned actually measure different aspects of quality service (Scarr, Eisenberg, & Deater-Deckard, 1994). Further, these scales provide a very general index of quality and are not capable of adequately evaluating the effects of specific programs or interventions practiced in early intervention.

It is important to recognize that early intervention comprises specific interventions to deal with specific childhood issues. For example, an early intervention classroom may at one time implement several specific plans with several different children to reduce common problems (e.g., biting, hitting, and crying) and increase positive behaviors (e.g., sharing, listening, and toileting skills). Recognizing that early intervention programs employ specific interventions to change children's behavior is important, because programs that use effective interventions provide high quality services.
Another method to define and measure the quality of early intervention is to examine and assess the extent to which a student's individual goals and objectives are achieved according to a student's Individualized Educational Plan (IEP) or Individualized Family Service Plan (IFSP). Good plans both define quality by clarifying goals and program directions and evaluate effectiveness by providing information about the student's progress (Gallagher & Desimone, 1995). Unfortunately, IEPs and IFSPs often lack data, have unclear links between assessment, program, and evaluation, and have poorly written goals and objectives (Gallagher & Desimone, 1995).

Aside from the problems associated with IEPs and IFSPs, measuring the quality of early intervention by effectiveness alone is not sufficient. Principles of intervention quality, namely, intervention integrity, acceptability, and effectiveness, provide additional and valuable criteria for defining and measuring quality. Strain et al. (1992) support the importance of these factors and state that the delivery of quality services to children, and in particular, children in early intervention settings, is dependent upon these three factors. In the following section, the conceptual model of treatment acceptability described by Witt and Elliott (1985) is discussed.

Alternative Criteria of Quality: Intervention Integrity, Acceptability and Effectiveness

The model of treatment acceptability (Witt & Elliott, 1985) identified the reciprocal and sequential interrelationship between intervention integrity and use, intervention acceptability, and intervention effectiveness. Specifically, this model
suggests that an intervention perceived as acceptable is more likely to be implemented with integrity. If an intervention is implemented with integrity, it has a higher probability of being effective. In turn, an effective intervention is more likely to be accepted. Under the following headings, the definitions of intervention integrity, acceptability, and effectiveness are provided.

**Intervention Integrity and Use**

*Intervention integrity* is defined as the degree to which an intervention is delivered or implemented as intended (Yeaton & Sechrest, 1981). Many intervention failures are attributed to a lack of integrity (Gresham, 1989) because achieving a high degree of integrity is critical to ensure intervention effectiveness (Elliott, 1988; Gresham, 1989; Witt & Elliott, 1985; Yeaton & Sechrest, 1981). Gresham and Lopez (1996) view intervention integrity as a subset of intervention use. In addition, they state that integrity can be used as a direct behavioral index of the intervention’s acceptability: “If an intervention is not used or implemented as planned, then some aspect(s) of that intervention might be considered unacceptable” (Gresham & Lopez, 1996).

**Intervention Acceptability**

In addition to intervention integrity and use, intervention acceptability is another factor critical in ensuring an effective intervention. Intervention acceptability is a subset of social validity and it refers to the judgments regarding the
appropriateness, fairness, reasonableness, intrusiveness, and normalcy of interventions (Kazdin, 1980). Social validity refers to the judgments of social importance of the intervention goals, procedures, and outcomes by the consumers of the intervention (Kazdin, 1977; Wolf, 1978). Evaluations of social validity have become more frequent in the behavioral literature as they are useful in anticipating and avoiding the rejection of an intervention (Schwartz & Baer, 1991).

Assessing acceptability or social validity is key in identifying and developing methods to increase the probability that the intervention will be (a) implemented; (b) effective (Reimers, Wacker, Cooper, & DeRaad, 1992); and (c) maintained over time (Reimers, Wacker, & Koepppl, 1987).

**Intervention Effectiveness**

It is with the discussion of intervention effectiveness that the reciprocal relationship between intervention integrity, use, and acceptability become clear. Intervention effectiveness is the degree and immediacy of behavior change, maintenance, and generalization (Ehrhardt, Barnett, Lentz, Stollar, & Reifin, 1996). Witt and Elliott's (1985) model suggests that an effective intervention is more likely to be accepted. In turn, if an intervention has been rated acceptable, it is usually perceived or expected to be more effective (Waas & Anderson, 1991). In addition, an effective intervention is more likely to be used, and only in use will it be effective. Moreover, if an intervention is implemented with integrity, it is more likely to be
effective, and, if perceived effective, it will increase the probability that it is implemented with integrity.

Exceptions to this model exist. For example, interventions that are deemed acceptable are not always used, and interventions that have been proven effective are not always evaluated as acceptable. Nonetheless, researchers have provided evidence to support the conception of the reciprocal relationships. Applied examples of reciprocal interaction can be found in the literature and pertain to the areas of school-based academic intervention (e.g., Allinder & Oats, 1997; Ehrhardt et al., 1996), school-based behavior intervention (e.g., Hargett & Webster, 1996), and consultation (e.g., Noell, Witt, Gilbertson, Ranier, & Freeland, 1997).

Advantages of the Alternative Criteria: Intervention Integrity, Acceptability, and Effectiveness

Intervention integrity, acceptability, and effectiveness are considered to be the hallmarks of behavior analysis (Strain et al., 1992) and the reciprocal relationship among these factors has been well researched. Such research supports the use of these factors as criteria for quality and many researchers have conceptualized the factors as important dimensions of effective interventions (Lentz, Allen, & Ehrhardt, 1996; Strain et al., 1992; Telzrow, 1995; Tilly & Flugum, 1995; Yeaton & Sechrest, 1981). As mentioned previously, early intervention programs that use effective interventions provide high quality programming. In sum, it is proposed that the factors identified by Witt and Elliott (1985), intervention integrity, acceptability, and
effectiveness, are suitable criteria for quality and should be measured to assess the quality of interventions employed in early childhood special education classrooms.

**Method to Evaluate the Alternative Criteria of Quality**

Intervention integrity, acceptability, and effectiveness are all measurable by reliable and valid methods. Moreover, two of the three factors can be measured by direct observation. In general, direct observation is a reliable and valid measurement system that provides specific information and is less subject to inference than systems such as rating scales (Kazdin, 1992). Specific to the measurement of quality in early childhood settings, Beller, Stahnke, Butz, and Stahl (1996) studied the use of global rating scales in combination with direct observation and concluded that rating scales used alone are not adequate measures of quality. Rather, direct observational methods are better methods to evaluate quality (Beller et al., 1996).

Direct observation usually entails the use of observers in the natural environment (e.g., classroom or home) to collect data on the effects of an intervention as determined by changes in specific student behaviors (Alessi, 1980; Barlow, Hayes, & Nelson, 1984). Although early childhood professionals are typically responsible for direct observation, it is important to note that parents should also be considered an important data source as they can measure effects of interventions implemented in the child care center at home (Koocher & Broskowski, 1977). Unfortunately, parent involvement in this role has been generally overlooked (Walsh & Deitchman, 1980).
This study involved early childhood special education teachers, staff, and parents in the collection of data via direct observation. Intervention integrity, acceptability, and effectiveness were measured to assess the quality of a toilet training intervention used in special education classrooms. The following section describes the typical toilet training practices used in the special education classrooms as well as the *Big Kid* toilet training intervention used in this study.

Toilet Training Practices in Early Intervention

By definition, children with developmental delays often are delayed in self-help skills such as toileting. Empirical research in this area provides specific intervention programs for children with special needs. Although many are effective, few parents and programs implement them. Instead, many opt for methods and techniques found in the popular childcare literature (e.g., Boyd & Osborn, 1997; Cole, 1983; Lansky, 1986). This may be due to the difficulty involved in accessing and implementing researched methods. It may also be related to the general acceptability of the popular literature, which often includes colorful, engaging illustrations and humorous storylines. Unfortunately, very few of the programs found in the popular literature are supported by empirical research (Holverstott-Cockrell, 1997b).
The Big Kid Toilet Training Program

For this study, a previously validated toilet training program (Holverstott-Cockrell, 1997b) was the vehicle to investigate the issue of quality early intervention previously discussed. This program, while based on researched methods, was designed and packaged to be as easy to use, attractive, and accessible as the programs found in the popular literature.

Specifically, the Big Kid toilet training program involves the use of:
(a) positive reinforcement, (b) data collection, (c) training pants, (d) the Big Kid coloring book, and; (c) dry pants checks. Dry pants checks is a method developed by Foxx and Azrin (1973a) to teach children the difference between the sensations of wet and dry, and to maximize opportunities to deliver reinforcement contingent on dry pants. The method consists of frequent prompts in which the caregiver asks a child, “Are your pants wet or dry?” If the child’s pants are dry, he or she receives a reinforcer; if the pants are wet, no reinforcer is delivered.

The coloring book, The Big Kid Book: Practical Activities for Successful Toilet Training (Holverstott-Cockrell, 1997a) was also used to guide the children, parents, and classroom staff through the procedures. The coloring book uses Boardmaker™ icons to symbolically model appropriate toileting. The book also states the contingencies for appropriate toileting and at the bottom of each page, further explanation and rationale for each component of the procedure is presented for the parents and classroom staff to read. See Appendix A for a copy of The Big
Kid Book: Practical Activities for Successful Toilet Training (Holverstott-Cockrell, 1997a).

The Big Kid toilet training program is unique in several aspects. First, unlike many procedures utilized in early intervention settings, it is based on empirically proven methods that have been confirmed to be effective separately, and in combination. Second, it involves the client (child) in the training and implementation of the program. Third, it provides training via the coloring book to the classroom staff and the parents (consultees). The significance and potential usefulness of these unique methods presented in the Big Kid toilet training program will be discussed in the following sections.

Empirical Support

As mentioned previously, all of the components of the Big Kid toilet training program are based on empirically proven methods that have been reported to be effective separately, and in combination, for children with and without specific disabilities. For example, the use of positive reinforcement, data collection, and dry pants checks have been previously demonstrated to be effective (Foxx & Azrin, 1973a, 1973b; Kingston, 1995).

The use of training pants is also supported by the research literature. In 1994, Taylor, Cipani, and Clardy experimentally demonstrated that diapers serve as a discriminative stimulus for voiding. Their results indicated that the removal of diapers helps increase successful use of the toilet.
Lastly, *The Big Kid Book: Practical Activities for Successful Toilet Training* (Holverstott-Cockrell, 1997a) was assessed to be an effective training tool with over 30 children at four child care centers (Holverstott-Cockrell, 1997b).

**Client Involvement**

The *Big Kid* toilet training program actively involves the client (i.e., the child) in the data collection and implementation of the program. The involvement of the client in the training and implementation of an intervention is not unique; many well-established interventions involve the client. Self-monitoring and self-management interventions are examples of interventions that involve the client in implementing an intervention. Specifically, self-monitoring involves the client in the collection of behavior data by self-recording, self-observing, or self-assessing (Cooper, Heron, & Heward, 1987). Self-management involves the client in the systematic application of behavior change strategies (Cooper et al., 1987).

Research on the topic of self-monitoring supports its use with preschool (e.g., Workman, Helton, & Watson, 1982), elementary, and secondary students (e.g., Gansle & McMahon, 1997), and teachers (e.g., Gresham, 1989). In addition, self-monitoring has been used successfully with children with disabilities (e.g., Kneedler & Hallahan, 1981; Sainato, Strain, Lefebvre, & Rapp, 1990).

Self-management is another frequently utilized intervention that involves high levels of client involvement. Research demonstrates the value of self-management with elementary students and secondary students with disabilities (e.g.,
Cavalier, Ferretti, & Hodges, 1997; Snyder & Bambara, 1997). Both self-monitoring and self-management interventions have been proven to be effective and acceptable methods (Fantuzzo & Polite, 1990). Additionally, self-management has been found to increase positive interactions between consultees and clients (Doerner, Miltenberger, & Bakken, 1989).

The involvement of the participant or consumer of the intervention is well researched in the organizational behavior management literature. In this literature, client involvement is termed participative management. Much research supports the use of participative management with regard to the problem solving, decision making, and goal setting processes. Results indicate that the participation of the client in goal setting and implementation of the intervention will increase client compliance and intervention effectiveness (e.g., Dossett, Latham, & Mitchell, 1979; Latham & Marshall, 1982; Ludwig & Geller, 1997). Additionally, there is much evidence that participative management also increases consumer satisfaction, or in other words, it is deemed highly acceptable (e.g., Heil, 1998; Knoop, 1995; Porter, 1995; Rice, 1993; Taylor & Bogotch, 1994). When applied to school systems, participative management has resulted in better teacher and principal job satisfaction (e.g., Knoop, 1995), better instructional outcomes (Smylie, Lazarus, & Brownlee-Conyers, 1996), and enhanced student achievement (Richardson, 1993).

The field of school psychology has also investigated the involvement of the participants in the consultation process. A recent article by Nastasi et al. (2000) provides a bridge between school psychology and organizational behavior
management as it recommends the use of the Participatory Intervention Model (Nastasi et al., 2000) to promote intervention acceptability. In brief, the Participatory Intervention Model includes an integration of theory and research in the development of culture specific interventions. Ownership and empowerment among participants is promoted by involving stakeholders in the development and implementation of the intervention (Nastasi et al., 2000).

Other research in the school psychology literature regards intervention integrity and suggests that compliance with the implementation of an intervention is best achieved when the experimenter actively involves the participant in a collaborative fashion. A collaborative style, rather than a prescriptive or expert style, is considered to be a best practice in school psychology (Telzrow, 1995; Wickstrom, Jones, LaFleur, & Witt, 1998). In summary, research supports the inclusion of the client in problem solving and intervention as a tool to gain compliance.

Consultee Training

The Big Kid toilet training program provides training for the consultee (i.e., teachers, classroom staff, and parents). Promoting effective and meaningful training to consultees is another method to increase the effectiveness of an intervention. The ABT National Day Care Center study concluded that there is a critical relationship between specialized training and the quality of programs for children (Ruopp, Travers, Glanz, & Coelen, 1979). In fact, Kontos, Howes, and Galinsky (1996)
stated that the willingness to obtain training is, in and of itself, an indicator of quality.

In general, training has been reported as effective. The literature contains many articles detailing specific training models and methods (e.g., Aguirre & Marshall, 1988; Kaplan & Conn, 1984).

Parent Participation

The *Big Kid* toilet training program actively involves the parent. Direct parent participation may be an effective method to provide parents with useful information and skills. Typically, parents are told to seek information from their child’s teacher and take responsibility to become involved in their child’s care and early education. Increasing involvement, however, need not be the sole responsibility of parents. For many years, researchers have suggested that teachers provide parents with purposeful programs and parent education (Baruch, 1944; Muldoon, 1984). At minimum, parents and their children would benefit from information regarding the interventions used in the classroom. This information, if communicated effectively with parents, will have the advantage of promoting consistent and dependable rules and management techniques across settings, which will increase the overall effectiveness of an intervention. In this study, not only were the parents informed of the toilet training program, they were involved in the training and implementation of the program.
Purpose and Benefits of the Proposed Study

The purpose of the implementation of the previously described toileting program was to demonstrate the evaluative role of the reciprocal factors identified by Witt and Elliott (1985) in an applied setting. The purpose and benefits of this study extend beyond the toilet training program because the use of these reciprocal factors as evaluator of quality may be built into most programs and environments. Further, by assessing the reciprocal factor, intervention acceptability, this study is one of the few to address Reimers et al.'s (1992) recommendation to assess intervention acceptability in a naturalistic setting.

In addition, this study extends the current literature by assessing intervention effectiveness and intervention integrity in an early childhood special education setting. Another purpose of this study was to assess the effects of parent participation. This information provides empirical evidence of the effects of parent participation on the success of programs at early childhood special education classrooms. The third purpose of this study was to assess the effectiveness of a toilet training program that employed high levels of client involvement, consultee training, and parent participation.

Definition of Terms

*Client Involvement:* Client involvement in an intervention occurs when the client is actively involved in the development, training, data collection, and/or the implementation of an intervention to change the client's behavior. Examples of
common interventions that involve the client include self-monitoring and self-management interventions. The concept of client involvement is termed participative management in the organizational behavior management literature.

**Consultation:** Ervin and Ehrhardt (2000) define consultation as “an indirect, problem-solving process involving a collegial relationship between the experimenter (e.g., school psychologist) and the consultee (e.g., teacher, parent) in order to help a client (e.g., student, class) change in a desired direction (e.g., increase on-task behavior during math class)” (Ervin & Ehrhardt, 2000. p. x).

**Direct Observation:** Direct observation entails the use of observers in the natural environment (e.g., child care center or home) to collect data on the effects of an intervention as determined by changes in specific client behaviors (Alessi, 1980; Barlow et al., 1984).

**Intervention Acceptability:** Intervention acceptability is a subset of social validity and refers to the judgments regarding the appropriateness, fairness, reasonableness, intrusiveness, and normalcy of interventions (Kazdin, 1980).

**Intervention Effectiveness:** Intervention effectiveness is the degree and immediacy of behavior change, maintenance, and generalization (Ehrhardt et al., 1996).

**Intervention Integrity:** Intervention integrity is defined as the degree to which an intervention is delivered or implemented as intended (Yeaton & Sechrest, 1981).
**Multiple Baseline Design:** With multiple-baseline designs, the effects of the intervention are evaluated by introducing the intervention to different baselines (e.g., different child care centers) at different points of time. If each baseline changes when the intervention is introduced, the effects can be attributed to the intervention rather than to extraneous events (Kazdin, 1992).

**Parent Participation:** For the purpose of this paper, parent participation occurs when a client’s parent(s)/guardian(s) are actively involved in the data collection, implementation, and evaluation of an intervention to change the client’s behavior.

**Phase Change:** In single case experimental design, a phase change involves the establishment of the stability, level, and trend within the series of data points across time taken under similar conditions and a change in the conditions while maintaining a consistency of measurement procedures (Barlow et al., 1984). Specific to this study, a phase change is defined as a change from the baseline condition (no toileting program) to the intervention condition (implementation of the toileting program).

**Social Validity:** Social validity refers to the judgments of social importance of the intervention goals, procedures, and outcomes by the consumers of the intervention (Kazdin, 1977; Wolf, 1978).
METHOD

Research Questions

The primary objective of this study was to use intervention integrity, intervention acceptability, and intervention effectiveness to evaluate the effects of a toilet training program implemented in a special education preschool classroom. The second objective was to assess the effects of parent participation. The third objective was to assess the effects of a toilet training intervention that employs high levels of client involvement, consultee training, and parent participation. Therefore, this study investigated the following research questions.

Research Question 1

What is the relationship between intervention integrity, intervention acceptability, and intervention effectiveness of a toileting intervention implemented in a special education preschool classroom?

1. What is the relationship between intervention integrity and intervention effectiveness?

2. What is the relationship between intervention acceptability and intervention integrity?

3. What is the relationship between intervention acceptability and intervention effectiveness?
Research Question 2

What is the relationship between parent participation with the toileting program (i.e., implementing the intervention as evidenced by data returned to the preschool classroom) and measures of intervention acceptability, intervention integrity and intervention effectiveness at the special education preschool classroom?

1. What is the relationship between parent participation and the acceptability of the toileting program?

2. What is the relationship between parent participation and the integrity of the toileting program implemented in the preschool classroom and at home?

3. What is the relationship between parent participation and the effectiveness of the toileting program implemented in the preschool classroom?

Research Question 3

What is the effect of a toilet training program that employed high levels of client involvement, consultee training, and parent participation?

Setting

The study took place in four special education preschool classrooms of the same school district located in the same city in a Midwestern state. Similar to many preschool programs, the children attended half-days. The study, including all observations and measurements, was implemented in each classroom during the
entire classroom period. Each classroom included one certified teacher, one paraprofessional, and a range of 5 to 10 clients between the ages of 2½ years and 6 years old. Pertinent to this study, each participating classroom also had private bathrooms with child-sized toilets.

Two of the participating classrooms provided services in the morning from 9:00 a.m. until 12:00 p.m., and two of the classrooms provided services in the afternoon from 1:30 until 3:30 p.m. The schedule for the afternoon classrooms was shorter than the morning classrooms due to the clients’ lunch time. The additional hour during a.m. classrooms was included because the morning bathroom and hygiene routine occurred during that time.

The setting was selected for the following reasons: (a) the teachers were interested in participating, (b) the school had several classrooms that serviced many young children, and (c) many of the students that attended the participating classrooms had a history of having trouble toileting.

Participants

Clients

Each child who was not toilet trained as identified by the classroom teachers (i.e., had less than two successes per day and at least one accident at school) was invited to participate in the study. To be included, signed parent/guardian permission for the child to participate and signed parent/guardian consent indicating a promise for the parent to also participate was required. See Appendices B and C for a copy
of the permission and consent forms. The initial sample included 11 children. During the course of the study, 1 child discontinued participation because his parent and his teacher felt his physical disability interfered with his ability to successfully participate. The other child (client C2) discontinued participation half way through the intervention phase. Although she experienced some success, her parents asked that she not continue with the toileting activities at school as they reported that they could not consistently implement the program at home due to family stressors.

A total of 9 children (2 females and 7 males) completed all phases of the study. In addition, client C2's data will be provided as she partially completed the intervention phase, yielding a final sample of 10 children (3 females and 7 males).

All 10 children were enrolled in special education and were scheduled to attend a preschool classroom 5 half-days per week. As previously mentioned, four classrooms participated in the study. These classrooms will be referred to as classrooms A, B, C, and D. Four children attended classroom A (clients A1 through A4), 2 children attended classroom B (clients B1 and B2), 2 children attended classroom C (clients C1 and C2), and 2 children attended classroom D (clients D1 and D2). It should be noted that unsuccessful attempts to toilet train all participating children were made by parents and classroom staff previous to this study.

Each of the participants had at least one of the following educational labels: visually impaired, hearing impaired, physically and otherwise health impaired, preprimary impaired, and autistically impaired. According to the Revised Administrative Rules for Special Education (including revisions effective October
15, 1996 and April 6, 1997) for the state of Michigan (Appendix D), the physically and otherwise health impaired label refers to a health impairment that adversely affects a student's educational performance. The child with the physically and otherwise health impaired label was diagnosed with Down's Syndrome. The pre-primary impaired label refers to impairment in one or more areas of development. The educational label, autistically impaired, is defined as a lifelong developmental disability that is characterized by disturbances in the rates and sequences of development and may include difficulties relating to people, events, and objects, speech/communication delays and disorders, unusual or inconsistent responses to sensory stimuli, and insistence on sameness as shown by stereotyped play patterns, or repetitive movements. Please refer to Table 1 for a summary of the demographic information for each participating client including classroom, sex, age, and educational label information.

Consultees

The consultees included two full-time teachers, two full-time classroom aides, and 9 parents. Initially 10 parents participated, and then the number dropped to 9 when C2 discontinued participation. Each consultee (including parents) signed informed consent prior to participation. See Appendix E for a copy of the preschool staff consent form.
Table 1
Client Demographic Information

<table>
<thead>
<tr>
<th>Child</th>
<th>Teacher</th>
<th>Classroom</th>
<th>Sex</th>
<th>Age (yr.-mo.)</th>
<th>Educational Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>A</td>
<td>M</td>
<td>3-10</td>
<td>Pre-primary impaired</td>
</tr>
<tr>
<td>A2</td>
<td>1</td>
<td>A</td>
<td>M</td>
<td>3-4</td>
<td>Visually impaired</td>
</tr>
<tr>
<td>A3</td>
<td>1</td>
<td>A</td>
<td>M</td>
<td>3-2</td>
<td>Hearing impaired</td>
</tr>
<tr>
<td>A4</td>
<td>1</td>
<td>A</td>
<td>M</td>
<td>3-6</td>
<td>Autistically impaired</td>
</tr>
<tr>
<td>B1</td>
<td>2</td>
<td>B</td>
<td>F</td>
<td>4-10</td>
<td>Physically and otherwise health impaired</td>
</tr>
<tr>
<td>B2</td>
<td>2</td>
<td>B</td>
<td>M</td>
<td>5-2</td>
<td>Pre-primary impaired</td>
</tr>
<tr>
<td>C1</td>
<td>1</td>
<td>C</td>
<td>F</td>
<td>4-11</td>
<td>Pre-primary impaired</td>
</tr>
<tr>
<td>C2</td>
<td>1</td>
<td>C</td>
<td>F</td>
<td>4-3</td>
<td>Pre-primary impaired</td>
</tr>
<tr>
<td>D1</td>
<td>2</td>
<td>D</td>
<td>M</td>
<td>2-10</td>
<td>Autistically impaired</td>
</tr>
<tr>
<td>D2</td>
<td>2</td>
<td>D</td>
<td>M</td>
<td>3-1</td>
<td>Pre-primary impaired</td>
</tr>
</tbody>
</table>

Consultee Training.

For this study, all consultees received training from the experimenter for each phase of the study. In sum, consultees were trained to: (a) record the frequency of target behaviors, (b) answer intervention acceptability questionnaires, (c) ensure that the clients wore training pants, (d) discontinue the use of diapers, (e) reinforce the clients' successes immediately, (f) verbally praise clients for sitting on the toilet, (g) give dry pants checks every hour, and (h) read *The Big Kid Book: Practical*
Activities for Successful Toilet Training (Holverstott-Cockrell, 1997a) at least once per day. Written training materials accompanied all oral instructions. See Appendices F and G for a copy of the training materials for consultees.

Training for parents and classroom staff took place during scheduled meetings at the school. The experimenter was available on site to provide ongoing training and to discuss individual issues on average 4 days per week. Phone contacts were also used to provide ongoing information to parents and to check on progress at home. Additionally, written notes were used to inform parents and classroom staff of progress and to remind them of the procedures. Regarding progress, the notes included information regarding the frequency of successes and accidents per week for each client. Written notes also included the experimenter’s phone number and all consultees were encouraged to contact the experimenter if any questions or concerns arose during the study.

Data Collection Personnel

One graduate and two undergraduate students from the Psychology Department at Western Michigan University served as data collection personnel. These data collection personnel assisted with the collection of target behavior data and intervention integrity data using scripts. In addition to these duties, they also assisted in classroom activities (e.g., sat at circle time, read a book to the children, and assisted with the preparation of art projects) that did not interfere with data
collection. This assistance was provided to maintain rapport and to support the classroom staff while they were implementing the toileting procedures.

Data Collection Personnel Training

All data collection personnel were provided with initial and ongoing training. First, data collection personnel were given oral and written instructions to follow when conducting observations. Oral and written instructions were provided for the collection of target behavior data and the collection of intervention integrity data. In addition, data collection personnel were provided with written vignettes for which they were required to collect target behavior data and intervention integrity data. All data collection personnel met a 95% agreement criterion prior to collecting data onsite. Refer to Appendix H for a copy of the training materials for data collection personnel, and refer to Appendices I through L a copy of the data collection sheets on which written directions were also provided.

Experimenter

The author was the experimenter. Activities of the experimenter included problem solving, direct observation, data collection, intervention design, administration of intervention acceptability questionnaires, and analysis of the results. The experimenter was also responsible for the training of the consultees (teachers, classroom staff, and parents) and data collection personnel, organization
of data collection methods, and provision of materials. The experimenter was on site for over 95% of all data collection sessions.

To provide ongoing feedback to teachers and parents, the experimenter distributed weekly feedback notes to parents and teachers regarding the number of accidents and successes for each client. See Appendix M for a sample copy of a parent feedback note and Appendix N for a copy of a teacher feedback note.

Dependent Variables and Measurement

Intervention Effectiveness

Two target behaviors, successes and accidents, were measured throughout the entire study and are considered to be indicators of intervention effectiveness. A success is defined as urination or defecation in the toilet. An accident is defined as urination or defecation in areas other than the toilet. Data on successes and accidents were collected through direction observations. See Appendices I through L for a copy of the data sheets for the target behaviors.

The classroom staff and parents/guardians collected the frequency of accidents and successes. As mentioned previously, classroom staff and parents received training for the data collection of accidents and successes.

Intervention Acceptability

Intervention acceptability was assessed at each phase of the experiment as recommended by Schwartz and Baer (1991). Intervention acceptability was
measured with a questionnaire in which the consultees and parents/guardians rated the acceptability on a scale from 1 to 6. The experimenter provided the questionnaires to the consultees at the end of each phase. The questionnaire for this study was adapted from the "Acceptability of Classroom Management Strategies" by Witt and Elliott (1985). See Appendix O for a copy of the intervention acceptability questionnaire.

Using descriptive statistics, data obtained from the acceptability questionnaires are tabled and analyzed in the results section to determine the consultees' acceptance of the intervention. Additionally, anecdotal ratings of acceptability by the consultees are reported in the results section.

**Intervention Integrity**

Intervention integrity was assessed during each phase of the intervention with the integrity script. The integrity script specified the definition of each step of the intervention for each phase. See Appendix P through Appendix S for a copy of the intervention integrity script for each phase of the study. Observers were provided with a training session in which they were trained to record each step executed by the teacher consultees. Each opportunity to complete a step was identified on the data sheet with a slash. The slash was circled if the consultee completed the step correctly. When the consultee added a step not included in the intervention, it was noted at the bottom of the datasheet. Other relevant information
(e.g., teacher absences, special activity day, etc.) was also noted at the bottom of the datasheet.

For 25% of total time (including time during both the baseline and intervention phase), intervention integrity was measured by calculating the percentage of steps on the script carried out by the consultees.

**Interobserver Agreement**

Interobserver agreement was calculated for intervention integrity data by two independent observers across each phase for 27.5% of all sessions. Agreement percentages for the integrity data were calculated based on the number of exact agreements per script item divided by the sum of agreements plus disagreements, multiplied by 100. An agreement for the intervention integrity data is defined as the event in which an independent observer and a classroom staff member check the same items on the integrity script. Due to limited accessibility, interobserver reliability measures were not assessed with data collected in the child’s home.

**Materials**

The following forms and data sheets were provided by the experimenter: (a) informed consent forms, (b) consultee and parent or guardian training materials, (c) target behavior data sheets, (d) intervention acceptability questionnaires, and (e) intervention integrity scripts. In addition to the forms and data sheets, the experimenter also provided copies of *The Big Kid Book: Practical Activities for*
Successful Toilet Training (Holverstott-Cockrell, 1997a). Stamps and pens for data collection, and reinforcers such as candy, small toys, and stickers were provided to the classrooms.

Procedures

Prior to the onset of the study, an introductory meeting was held to determine if any classroom teachers would be interested in participating in the study. Following this meeting, consent procedures as directed by Western Michigan University's Human Subjects Institutional Review Board (HSIRB) were implemented. Also during this meeting, potential clients were identified. An introductory notice was sent to all parents. Interested participants were asked to indicate their interest to their classroom teacher. The teachers then made the first contacts with the parents and appointments were scheduled on an individual basis.

During the initial meeting with the parents, a general description of the overall study was provided, and permission and consent was obtained. Also at this meeting, the baseline procedures were trained (using oral and written directions) and data collection materials were distributed. During the same week, the classroom staff members were also provided with baseline training and materials.

Prior to the phase change, parents and classroom staff members were contacted to receive training regarding the procedures for the intervention phase. The meetings with classroom staff and parents/guardians were scheduled individually and in small groups. Written training materials were provided for this
second training meeting and intervention materials (i.e., coloring book, stamp, reinforcers, and datasheets) were provided contingent upon completion of training.

Collection of Intervention Acceptability and Intervention Integrity Data

During each phase, the consultees recorded the frequency of the target behaviors (accidents and successes per day) using the provided data sheets. Also during each phase, the data collection personnel collected intervention integrity data and the experimenter administered intervention acceptability questionnaires and collected data to assess interobserver reliability.

Baseline

For the baseline condition, the consultees were instructed to continuously record the target behaviors for each client on the target behavior data sheets. The baseline condition consisted of no programmed consequences for the target behaviors. During this condition, consultees measured the target behaviors and no changes were introduced nor were any instructions provided regarding the use of diapers. The data collection personnel collected integrity data during baseline to determine if changes were introduced.

Intervention Package Implementation

Prior to the onset of intervention, the consultees were instructed to: (a) put the clients in training pants (any thick, absorbent, cloth underwear); (b) discontinue the use of diapers; (c) reinforce the successes immediately; (d) verbally praise the
clients for sitting on the toilet without depositing; (e) continue to record target behaviors on the data sheet; (f) give dry pants checks every hour using a timer (see page 11 for the definition of dry pants checks); and (g) read *The Big Kid Book: Practical Activities for Successful Toilet Training* (Holverstott-Cockrell, 1997a) (Appendix A) at least once per day. Additionally, the consultees were instructed not to punish (e.g., yell, reprimand, or give time-out) or to reinforce (e.g., give soothing comments, hugs, or praise) accidents.

**Follow-up**

One day of target behavior data for each client was collected 2 weeks, 4 weeks, and 6 weeks after the conclusion of the intervention. Due to the end of the school year, 4- and 6-week follow-up data were not available for clients in classroom D.

**Experimental Design**

The intervention was assessed through the use of a multiple baseline design with a replication. This design was used to evaluate the intervention effectiveness across classrooms A and B and was replicated across classrooms C and D. First, baseline data collection was implemented simultaneously in classroom A and B. After 1 week, the intervention package was implemented in classroom A. Collection of baseline data continued in classroom B during this time. After an effect was demonstrated in classroom A, the intervention package was implemented in
classroom B. Baseline data collection was then implemented in classrooms C and D. After 1 week, the intervention package was implemented in classroom C. Collection of baseline data continued in classroom D during this time. Baseline data collection in classroom D continued for a total of 3 weeks as requested by the classroom teacher due to excessive absences of the participants. On the beginning of the 4th week, the intervention package was implemented in classroom D. The continuous collection of intervention data continued in classrooms A and B for 6 weeks. Intervention data were collected in classroom C and D for 4 weeks. Across all phases and classrooms, intervention acceptability, intervention integrity, and interobserver reliability data were collected.
RESULTS

The data for each dependent measure (i.e., intervention effectiveness, intervention acceptability, and intervention integrity) are described in the following sections.

Intervention Effectiveness

Effectiveness per Classroom Data

The results for this section are described using visual analysis of level, trend, and variability across phases. Given the variability in the data across all of the classrooms, the trend was determined with the linear regression formula provided in the Microsoft Excel program. The actual trend lines, however, are not displayed on the individual figures to permit readability.

To describe the effectiveness of the toileting program, the sum of the accidents and successes per classroom across phases are presented in Figures 1 and 2.

As shown in Figures 1 and 2, the level of accidents during the baseline phase was higher than successes with the exception of classrooms B and C. During the toileting program phase, the level of successes increased and the level of accidents decreased across all classrooms. The trend of successes in classroom A increased and the trend of accidents decreased. In classroom B, the trend of successes was
relatively stable; however, the trend of accidents decreased. The trend of successes in classroom C was relatively stable with a slight decrease and the trend of accidents decreased. In classroom D, the trend of accidents decreased and the trend of successes remained stable.

Regarding the frequency of target behaviors, both classrooms A and D had a low frequency of successes during the baseline condition. Specifically, the mean of successes in classroom A and D per day during baseline was .6 and .07, respectively.
During the toileting program phase, the frequency of successes increased to an average of 4.0 per day for classroom A, and 2.1 per day for classroom D. For classroom A, the frequency of accidents per day decreased from an average of 2.2 during baseline, to 1.2 during the toileting program phase. For classroom D, the frequency of accidents decreased from an average of 1.5 per day during the baseline phase, to an average of .6 per day during the toileting program phase.
In classrooms B and C, both accidents and successes were observed during baseline. In fact, at times, successes were observed at a higher frequency than accidents. Specifically, for classroom B and C the average number of successes per day during baseline was 2.4 and 2.2, respectively. During the toileting program phase, successes increased to 4.3 for classroom B, and 3.2 for classroom C. For classrooms B and C accidents dropped to near zero during the toileting program phase. Specifically, the average number of accidents per day in classroom B dropped from 1.1 during baseline, to .7 during the toileting program phase. For classroom C the average number of accidents per day dropped from 1.2 accidents during baseline, to .3 during the toileting program phase.

Across all classrooms, there were more successes than accidents during follow-up observations. Please refer to Table 2 for a listing of the mean and range of accidents and successes during both phases (including follow-up) per classroom.

Effectiveness per Client Data

The following section describes the results as they pertain to individual client data. A general summary of these results is provided at the end of this section. Figures 3 through 13 display the frequency of accidents and successes per day for each client at preschool and at home for clients A1, A4, B1, B2 and D2. In addition, Table 3 is provided to display the mean and range of the target behaviors during both phases per client.
Table 2
Mean and Range of Target Behaviors During Both Phases per Classroom

<table>
<thead>
<tr>
<th>Classroom</th>
<th>Baseline Phase</th>
<th>Toileting Program Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Successes</td>
<td>Accidents</td>
</tr>
<tr>
<td>Classroom A</td>
<td>Mean .6</td>
<td>Mean 2.2</td>
</tr>
<tr>
<td></td>
<td>Range 0–1</td>
<td>Range 1–3</td>
</tr>
<tr>
<td>Classroom B</td>
<td>Mean 2.4</td>
<td>Mean 1.1</td>
</tr>
<tr>
<td></td>
<td>Range 1–4</td>
<td>Range 0–3</td>
</tr>
<tr>
<td>Classroom C</td>
<td>Mean 2.2</td>
<td>Mean 1.2</td>
</tr>
<tr>
<td></td>
<td>Range 1–3</td>
<td>Range 0–2</td>
</tr>
<tr>
<td>Classroom D</td>
<td>Mean 0.07</td>
<td>Mean 1.5</td>
</tr>
<tr>
<td></td>
<td>Range 0–1</td>
<td>Range 0–2</td>
</tr>
</tbody>
</table>

Clients in Classroom A

Across all clients in classroom A, the level of accidents was higher during the baseline phase than the toileting program phase and the level of successes was higher during the toileting program phase than the baseline phase. For clients A1, A3, and A4, the trend of successes increased and the trend of accidents decreased during the intervention phase. For client A2, the trend of both accidents and successes was relatively stable. According to Table 3, the number of accidents decreased and the number of successes increased during the toileting program phase. During follow-up, the number of successes exceeded accidents for all clients in classroom A.

It is noted that clients A1 and A4 had home data. The average number of accidents during the toileting program phase is higher in the home data than the
### Table 3

Mean and Range of Target Behaviors During Both Phases per Client

<table>
<thead>
<tr>
<th>Client: Setting</th>
<th>Baseline Phase</th>
<th>Toileting Program Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Successes</td>
<td>Accidents</td>
</tr>
<tr>
<td>Client A1: Preschool</td>
<td>Mean 0</td>
<td>Mean 1.2</td>
</tr>
<tr>
<td></td>
<td>Range 0</td>
<td>Range 1–2</td>
</tr>
<tr>
<td>Client A1: Home</td>
<td>Mean 0</td>
<td>Mean 6.2</td>
</tr>
<tr>
<td></td>
<td>Range 0</td>
<td>Range 6–7</td>
</tr>
<tr>
<td>Client A2: Preschool</td>
<td>Mean .8</td>
<td>Mean .3</td>
</tr>
<tr>
<td></td>
<td>Range 0–1</td>
<td>Range 0–1</td>
</tr>
<tr>
<td>Client A3: Preschool</td>
<td>Mean 0</td>
<td>Mean 0</td>
</tr>
<tr>
<td></td>
<td>Range 0</td>
<td>Range 0</td>
</tr>
<tr>
<td>Client A4: Preschool</td>
<td>Mean 0</td>
<td>Mean .8</td>
</tr>
<tr>
<td></td>
<td>Range 0</td>
<td>Range 0–2</td>
</tr>
<tr>
<td>Client A4: Home</td>
<td>Mean 2.6</td>
<td>Mean 1.2</td>
</tr>
<tr>
<td></td>
<td>Range 0–4</td>
<td>Range 0–4</td>
</tr>
<tr>
<td>Client B1: Preschool</td>
<td>Mean 2</td>
<td>Mean 1.1</td>
</tr>
<tr>
<td></td>
<td>Range 1–4</td>
<td>Range 0–3</td>
</tr>
<tr>
<td>Client B1: Home</td>
<td>Mean 1.4</td>
<td>Mean 4.3</td>
</tr>
<tr>
<td></td>
<td>Range 0–3</td>
<td>Range 3–7</td>
</tr>
<tr>
<td>Client B2: Preschool</td>
<td>Mean 1.7</td>
<td>Mean .3</td>
</tr>
<tr>
<td></td>
<td>Range 1–2</td>
<td>Range 0–1</td>
</tr>
<tr>
<td>Client B2: Home</td>
<td>Mean 5.3</td>
<td>Mean 2.3</td>
</tr>
<tr>
<td></td>
<td>Range 4–7</td>
<td>Range 0–4</td>
</tr>
<tr>
<td>Client C1: Preschool</td>
<td>Mean 2.2</td>
<td>Mean 1.2</td>
</tr>
<tr>
<td></td>
<td>Range 1–3</td>
<td>Range 0–2</td>
</tr>
<tr>
<td>Client D1: Preschool</td>
<td>Mean 0</td>
<td>Mean 1</td>
</tr>
<tr>
<td></td>
<td>Range 0</td>
<td>Range 1</td>
</tr>
<tr>
<td>Client D2: Preschool</td>
<td>Mean .07</td>
<td>Mean .9</td>
</tr>
<tr>
<td></td>
<td>Range 0–1</td>
<td>Range 0–1</td>
</tr>
<tr>
<td>Client D2: Home</td>
<td>Mean 2.7</td>
<td>Mean 2.3</td>
</tr>
<tr>
<td></td>
<td>Range 2–3</td>
<td>Range 1–3</td>
</tr>
</tbody>
</table>
school data; however, a similar trend of successes (increasing) and accidents (decreasing) is observed (see Figures 3–6).

![Graph showing baseline, toileting program, and follow-up phases with data points for successes and accidents.]

**Figure 3. Client A1.**

**Clients in Classroom B**

Figures 7 and 8 display the frequency, level and trend of target behaviors for clients in classroom B (clients B1 and B2). Specifically, the figures show that the level of successes and accidents at the preschool during the baseline phase was variable with an increasing trend. At times, successes occurred at higher frequency than accidents during baseline. During the toileting program phase, the level of
successes increased and remained higher than baseline levels, and the level of accidents decreased and remained lower than baseline levels. The trend of successes in client B1's data during the toileting program phase decreased and the trend of successes in client B2's data increased. During follow-up, the number of successes exceeded accidents for both clients. As shown in Table 3, the mean frequency of successes increased during the toileting program phase and the mean frequency of accidents decreased or remained the same.
Both clients in classroom B had home data. For client B1, accidents occurred more frequently at home than at the preschool; however, an increasing trend in successes and a decreasing trend is accidents is noted. For client B2, the pattern of data at home is similar to the one observed at the preschool. Specifically, both accidents and successes were observed during the baseline phase; however, the level and trend of successes increased and accidents decreased in trend and remained relatively low during the toileting program phase.
Clients in Classroom C

Figure 9 shows the frequency, level, and trend of accidents and successes across phases for client C1. Similar to clients in classroom B, both accidents and successes were observed during the baseline phase. During the toileting program phase, successes increased in level and remained stable in trend while accidents dropped in both level and trend. During follow-up, successes remained high and no accidents were observed. Client C1 data in Table 3 also show a decrease in the average frequency of accidents across phases; however, the average frequency of successes is similar.
As mentioned previously, client C2 did not complete the study. In addition, data for client C2 during the baseline phase is not available due to absences; therefore, a comparison across phases is not possible. The data that do exist for
client C2 include 7 days during the toileting program phase (see Figure 10). During this time, successes occurred at a higher level and frequency than accidents. The mean and range of client C2’s data are not provided on Table 3 due to the few data points available for comparison.

Figure 10. Client C2.

**Clients in Classroom D**

Figures 11 and 12 show the individual data for clients in classroom D (D1 and D2). For both clients, the baseline phase consisted of a stable trend at or near zero and average of one accident per day for both clients. During the toileting program phase, the level and trend of successes increased and the level of accidents decreased to near zero. According to Table 3, the mean frequency across phases for both clients also supports an increase in successes and a decrease in accidents. At follow-up, zero accidents were observed and two successes were observed for both clients.
Client D2's parent turned in home data. According to that data, accidents and successes occurred at about the same average frequency (see Table 3);
however, during the intervention phase, successes increased and accidents decreased in frequency and trend.

**Summary of Individual Client Data**

In summary, across all clients, an increase in successes and a decrease in accidents are evident within the first few days of the toileting program phase at school and at home. Overall, by the end of the study, the number of successes increased and the number of accidents decreased. Some clients (A1, A2, B1, and B2), continued to have some accidents; however, the number of successes increased significantly following the introduction of the intervention.

**Intervention Acceptability**

To describe the consultees’ (parents’ and classroom staff members’) ratings of acceptability, Table 4 lists intervention acceptability for both the first and second administration of each question. The questionnaire was first administered during the baseline condition, and it was administered again during the toileting program phase. Six of the 13 consultees (classroom staff and parents) returned the first questionnaire yielding a response rate of 46%. Eight of the 13 consultees returned the second questionnaire yielding a response rate of 62%.
**Table 4**  
Consultee Acceptability Ratings

<table>
<thead>
<tr>
<th>Questions</th>
<th>Ratings (1 = Strongly Disagree, 6 = Strongly Agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>This is an acceptable program for toilet training.</td>
<td>0 0 0 16.7 50 33.3</td>
</tr>
<tr>
<td>Most caregivers would find this program appropriate for toilet training.</td>
<td>0 0 0 16.7 50 33.3</td>
</tr>
<tr>
<td>This program should prove effective in teaching children to use the toilet.</td>
<td>0 0 0 12.5 12.5 75</td>
</tr>
<tr>
<td>I would suggest the use of this program to other caregivers.</td>
<td>0 16.7 0 0 66.7 16.7</td>
</tr>
<tr>
<td>Most caregivers would find this program suitable for toilet training.</td>
<td>0 0 0 16.7 66.7 16.7</td>
</tr>
<tr>
<td>I am willing to use this program</td>
<td>0 0 16.7 0 66.7 16.7</td>
</tr>
<tr>
<td>This program would not result in negative side-effects for children.</td>
<td>0 0 0 16.7 16.7 66.7</td>
</tr>
<tr>
<td>This program would be appropriate for a variety of children.</td>
<td>0 0 12.5 25 37.5 16.7</td>
</tr>
<tr>
<td>This program is consistent with those I have used before.</td>
<td>0 16.7 16.7 33.3 16.7 16.7</td>
</tr>
<tr>
<td>The program is a fair way to handle toilet training.</td>
<td>0 0 0 0 62.5 12.5</td>
</tr>
<tr>
<td>This program is reasonable for toilet training.</td>
<td>0 0 0 0 33.3 66.7</td>
</tr>
<tr>
<td>I like the procedures used in this program.</td>
<td>0 16.7 0 0 50 33.3</td>
</tr>
<tr>
<td>This program was a good way to handle toilet training.</td>
<td>0 0 0 0 16.7 33.3</td>
</tr>
<tr>
<td>Overall, this intervention is beneficial for children.</td>
<td>0 0 0 16.7 66.7 16.7</td>
</tr>
<tr>
<td><strong>AVERAGE PERCENT</strong></td>
<td>0 0 1.1 3.0 35.2 62.0</td>
</tr>
</tbody>
</table>

Note: Results from Second Administration are shaded.
On average the consultees indicated that they found the intervention to be highly acceptable (97% either agreed or strongly agreed) during both phases; however, ratings were slightly higher for the second administration.

Intervention Integrity

Preschool Data

To provide specific information regarding intervention integrity, Table 5 lists the percent of intervention integrity per intervention component across each classroom. As shown in Table 5, compared to the other components, the classroom staff implemented dry pants checks and read *The Big Kid Book* (Holverstott-Cockrell, 1997a) with low integrity. In summary, intervention integrity ranged from an average of 66% to 86% across components.

The trend of the integrity data for each classroom is presented graphically in Figures 13 through 16. These figures include the percent of integrity per session which is derived by dividing the number of intervention components completed by the number of intervention components possible and multiplying by 100. Additionally, these data are co-plotted with the frequency of accidents and successes. Therefore, these figures also display the relationship between intervention integrity and intervention effectiveness (i.e., frequency of accidents and successes). This relationship is described in detail in the discussion section.

The percent of intervention components completed varied considerably across time in Classroom A. The percent of intervention components completed per
Table 5
Percent Integrity per Intervention Component per Classroom

<table>
<thead>
<tr>
<th>Intervention Component</th>
<th>Classroom A</th>
<th>Classroom B</th>
<th>Classroom C</th>
<th>Classroom D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of training pants</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>83%</td>
</tr>
<tr>
<td>Read Big Kid Book</td>
<td>0%</td>
<td>0%</td>
<td>33%</td>
<td>0%</td>
</tr>
<tr>
<td>Data sheet posted</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Use of dry pants checks (min. one per hour per child)</td>
<td>66%</td>
<td>43%</td>
<td>83%</td>
<td>43%</td>
</tr>
<tr>
<td>Reinforced dry pants</td>
<td>95%</td>
<td>69%</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td>Reinforced successes immediately</td>
<td>94%</td>
<td>93%</td>
<td>100%</td>
<td>89%</td>
</tr>
<tr>
<td>Accidents and successes recorded accurately</td>
<td>88%</td>
<td>89%</td>
<td>100%</td>
<td>81%</td>
</tr>
<tr>
<td>Total Percent Integrity</td>
<td>78%</td>
<td>71%</td>
<td>88%</td>
<td>66%</td>
</tr>
</tbody>
</table>

session ranged from 57% to 100%. In Classroom B, the data were also variable (i.e., range of 57% to 100%) and a slightly downward trend is evident. In Classroom C, there was less variability; however, there are fewer data points to compare. Again, a slightly downward trend is apparent. In Classroom D, the last classroom to implement the program, integrity was relatively low (range of 41% to 58% during the toileting program phase), especially during the toileting program phase. No trend was evident here.
Figure 13. Integrity and Effectiveness: Classroom A.

Home Data

Four of the 10 clients' parents collected at least one day of intervention integrity data at home and returned it to the classroom. The returned data indicated that those clients' parents implemented the intervention with 100% integrity. Integrity data collected at home are shown co-plotted with integrity data for school data, and the frequency of accidents and successes at both home and preschool in Figures 17 through 20.
Figure 14. Integrity and Effectiveness: Classroom B.
Figure 15. Integrity and Effectiveness: Classroom C.
Figure 16. Integrity and Effectiveness: Classroom D.
Figure 17. Integrity and Effectiveness: Client A1.
Figure 18. Integrity and Effectiveness: Client A4.
Figure 19. Integrity and Effectiveness: Client B1.
Figure 20. Integrity and Effectiveness: Client B2.
DISCUSSION

Discussion of Research Questions

The following sections describe and discuss the results as they pertain to the research questions posed in the beginning of the Methods section. Conclusions, limitations, and recommendations for future research are offered in the final section.

Research Question 1

The first research question regarded the relationship between intervention integrity, intervention acceptability, and intervention effectiveness of a toileting intervention implemented in a special education preschool classroom. Specifically, the question investigated the following relationships: (a) the relationship between intervention acceptability and intervention integrity, (b) the relationship between intervention acceptability and intervention effectiveness, and, (c) the relationship between intervention integrity and intervention effectiveness.

Relationship Between Intervention Acceptability and Intervention Integrity

Using this small sample, a relatively weak relationship between intervention acceptability and intervention integrity existed, because intervention acceptability was relatively high as measured by the questionnaires, but intervention integrity varied (see Figures 13 through 16) across time and classrooms and was not
uniformly high. It is noted that the small sample of intervention acceptability questionnaires limits conclusions regarding the relationship between intervention acceptability and intervention integrity in this study.

In addition to the data shown in the figures, the experimenter also collected anecdotal information via conversation with classroom teachers. Pertinent to this research question, the teachers reported that they often forgot to reset the timer used to remind them to do dry pants checks. In addition, during the intervention phase, two teachers reported that they did not like to interrupt classroom activities to perform dry pants checks.

Additionally, both participating teachers and one classroom assistant reported to the experimenter that although they agreed with the intervention component prior to the intervention, after they started the intervention, they stated that they did not like to give reinforcers for dry pants and failed to do so on several occasions. Although not evident from the questionnaires, it may be reasonable to assume low acceptability of the two intervention components (dry pants checks and the delivery of reinforcers contingent upon dry pants) may be related to low integrity in implementing them.

**Relationship Between Intervention Acceptability and Intervention Effectiveness**

The relationship between intervention acceptability and intervention effectiveness is congruent with Witt and Elliott’s (1985) model, because intervention acceptability was rated as quite high, and after the toileting program was...
implemented, success increased and accidents decreased. However, a strong conclusion regarding the relationship between intervention acceptability and intervention effectiveness is limited due to the small sample of intervention acceptability questionnaires.

**Relationship Between Intervention Integrity and Intervention Effectiveness**

For a visual description of the relationship between intervention integrity and intervention effectiveness, refer to Figures 13 to 16 as they include the frequency of accidents and successes co-plotted with integrity percentages. The data in Figures 13 and 14 support with Witt and Elliott's (1985) conceptual model, because the percent of intervention integrity appears to co-vary with the target behaviors. More specifically, the figures show that as intervention integrity increased, the number of successes also increased and the number of accidents decreased. Simple correlational statistics support a relationship between the percent of successes and the percent of integrity for classrooms A, C, and D. Specifically, the correlation for classrooms A and C is 0.3, and for classroom D, the correlation is 0.7. According to Figure 14, a relationship between intervention integrity and the target behavior is less clear in classroom B. In fact, the correlation between the percent of successes and the percent of intervention integrity was –0.5.

It is possible that this variability is due to error in data collection, and it is also possible that the criteria with which intervention integrity was measured required more than was necessary to teach toileting skills. For example, consultees
were required to perform dry pants checks for each client once per hour and read the book once per day. It is possible that the students did not need such frequent checks.

The variability may also be due to the nature of an applied setting. For example, some of the variability may also be related to inconsistencies in intervention application due to teacher absences, student absences, holiday celebrations (i.e., Valentine’s Day party, Easter party, etc.), and field trips.

**Research Question 2**

The second research question investigated the relationship between parent participation with the toileting intervention (i.e., implementing the intervention as evidenced by data returned to the preschool classroom) and measures of intervention acceptability, intervention integrity, and intervention effectiveness. Specifically, this question investigated the following relationships: (a) the relationship between parent participation and the acceptability of the toileting intervention, (b) the relationship between parent participation and the integrity of the toileting intervention implemented in the preschool classroom, and (c) the relationship between parent participation and the effectiveness of the toileting intervention implemented in both settings.

It is noted that the discussion of this research question is limited by the small number of clients whose parents turned in data to indicate that they participated in the toileting program at home. Only 5 of the 10 clients had data to substantiate
claims that the program was used at home. Specifically, the parents of clients A1, A2, B1, B2, and D2 turned in data to the preschool classroom. In addition, this discussion is further limited by the fact that it is possible that parents implemented the program but did not turn in data sheets.

**Relationship Between Parent Participation and Acceptability of the Toileting Intervention**

According to the acceptability questionnaires, participating parents deemed the toileting program highly acceptable (see Table 2), suggesting a positive relationship between participation and acceptability. In addition to small sample size, this conclusion is limited by potential sampling bias because it is possible that the parents that returned the acceptability questionnaire were the same parents that returned data sheets. The possibility that parents turned in positive reports to “please” the experimenter is another limiting factor that should be considered.

**Relationship Between Parent Participation and the Integrity of the Toileting Program Implemented in the Preschool Classrooms**

To investigate the relationship between parent participation and integrity, Figures 17 through 20 include target behavior data collected from the clients’ home co-plotted with intervention integrity data collected at preschool and at home, and target behavior data collected at preschool. It is noted that most of the participating parents collected data inconsistently; therefore, interruptions and missing data are evident in the figures. Absences from school also account for the interruptions in the figures depicting school data.
The variability in the data across clients suggests that no relationship between parent participation and integrity of the toileting program implemented in the classrooms. However, there is some anecdotal evidence via conversations with teachers that support a relationship not detected by the measures used in this study. For example, during the first week of the intervention phase, one of the teachers believed that one of her students' parents were not using the toileting program at home. She asked if she could stop using the toileting program with that client. She was persuaded to continue by the experimenter, but only after she confirmed with the parents that they were indeed using the procedures at home.

Also pertinent to this research question, one of the classroom teachers reported that she put forth more effort (implemented the intervention components more frequently) with clients whose parents were believed to be participating at home.

**Relationship Between Parent Participation and the Effectiveness of the Toileting Program Implemented in Both Settings**

To investigate the relationship between parent participation and the effectiveness of the toileting program, the data of clients whose parents participated as evidenced by returned data sheets were compared with those whose parents did not. Specifically, data from clients A1, A2, B1, B2, and D2 (Figures 3, 4, 7, 8, and 11, respectively) were compared to the rest of the clients (Figures 1, 2, 5, 6, 9, and 10). Based on this comparison, there is no indication that parent participation
affected the success of the program at school. In fact, effectiveness as measured by accidents and successes for participating clients varied considerably.

Research Question 3

The final research question investigated the effects of a toilet training program that employs high levels of client involvement, consultee training, and parent participation. For each client, the target behavior data collected at home and at school is co-plotted in Figures 12 through 21. As with the previous figures, absences from school and missing data from home account for the interruptions in the figures.

Overall, the toileting program was effective in increasing successes and decreasing accidents across all participants. It is noted that Classrooms B and C both had tried a toileting program the semester prior to the study. Although the teachers and parents claimed that the program did not work, it may have affected the baseline condition in which more successes compared to other classrooms were observed during baseline. In addition, it is noted that the clients in classrooms B and C were, on average, older than the clients in classrooms A and D. This may have influenced results. Nonetheless, and consistent with earlier reports, the present data indicate that the toileting program described in *The Big Kid Book* (Holverstott-Cockrell, 1997a) is generally effective and acceptable to teachers.
General Limitations

In addition to the limitations described in the previous section, there are several general limitations to this study. First, this study was conducted with a small sample of children. This small sample yields limited external validity. Another limitation of this study is potential reactivity by consultees and clients. This possible limitation was minimized because repeated measurement over time tends to reduce reactivity and the participants will habituate to the presence of observers (Kazdin, 1992). Additionally, response bias (e.g., “faking good”) limits this study with regard to the intervention acceptability questionnaires and data collected by the client’s parents. For these reasons, data collected from home are interpreted with caution and specific instructions to caregivers about the purpose of the observations and acceptability questionnaires was be provided in effort to minimize this potential problem. This tactic is suggested for increasing candor and reducing reactivity (Kazdin, 1992).

Conclusions and Recommendations

Relationship Between Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness

In general, this study supports the proposed relationship between intervention integrity and intervention effectiveness found in the literature; however, this study does not support a reciprocal relationship between intervention acceptability and intervention integrity. Limitations such as those listed in the
limitation section may account for this incongruence between these findings and the conceptual models. Alternatively, these findings may contribute to the literature as evidence that this relationship is not evident in a natural setting.

Recently, Eckert and Hintze (2000) and Nastasi and Truscott (2000) summarized the research literature and concluded that the initial conceptual models of the relationship between intervention integrity, acceptability, and effectiveness (e.g., Witt & Elliott, 1985) have not been well supported by research conducted in natural settings. It was noted that much of the research regarding these models has been conducted with analog procedures in which consumers are provided with case descriptions of the presenting problems and treatment case summaries. Such research methods are associated with limitations that include limited generalizability, ecological validity, potential bias, and reactivity effects (Eckert & Hintze, 2000).

It is also noted that the current methods to assess acceptability in a naturalistic setting, questionnaires and rating scales, also pose similar limitations. For example, it is highly possible that the ratings in this study are biased by initial interest in receiving the help of the experimenter, pressure from administration to participate in the study, and other such variables. It has been noted that verbal comments made by the teachers involved in this study did not always correspond to their ratings of acceptability on the questionnaires.

Nastasi and Truscott (2000) offer another explanation as to why the initial conceptual models have not been observed in natural settings. Nastasi and Truscott stated that the lack of evidence in applied research is due to the difficulty of
translating scientific theory and controlled experimental research into the reality of practice. Given the uncontrollable variables introduced to this study on a daily basis (e.g., client illness, teacher illness, field trips, classroom celebrations, etc.), this explanation may apply to this study. Given these limitations, further research to assess and to develop alternative methods to assess intervention acceptability and its relationship to intervention integrity and intervention effectiveness in a naturalistic setting is recommended.

Parent Participation

Strong conclusions regarding the effects of parent participation cannot be offered due to a number of issues, and, in particular, the lack of parent participation as evidenced by the small number of clients whose parents returned data to the preschool. Given this, a need for future research to develop easy and effective methods to increase the exchange of data and information from home to school is identified in order to assess the effects of parent participation. Although there is much research to indicate the positive effects of parent participation when parents are on-site, research identifying methods to increase parent participation and the sharing of data across sites is needed.

*Big Kid Toileting Program*

Progress was made and the toileting program was effective as evidenced by the general increase in successes and decrease in accidents; however, it appears that
not all of the components are necessary, specifically *The Big Kid Book* (Holverstott-Cockrell, 1997a). The present data suggest that some modifications or additions may be necessary for the program to be useful for most parents of clients with developmental disabilities. In that regard, it is noteworthy that classroom data suggest the program was effective even when some components were not consistently implemented. Component analysis in principle could isolate the minimal elements of a useful toileting program, and such a “stripped-down” program might be easier to utilize than a more elaborate program. Similarly, components of the present program that were not consistently implemented, such as reading the manual, could be alternated to be more user-friendly. For instance, the coloring book’s contents could be videotaped and parents or teachers could be asked to watch the tape, instead of reading the book. Such steps could further enhance the value of a toileting program that is generally, but not universally, easy to use and effective in its present form.
The Big Kid Book: A Practical Guide for Successful Toilet Training

Written and researched by Katy Holverstott-Cockrell, M.S.
Pictures by Boardmaker Application Software, Copyright 1994
Many researchers have discovered effective and efficient methods to help toilet train young children. Unfortunately, the reports are tucked away in research libraries making it difficult for parents and caregivers to access the useful information. This book was created to combine the effective methods found by researchers with the ease of a children's book. The story's text and all of the instructions are based on previously proven methods to make toilet training easy and fast. In addition, this book has been tested for effectiveness with over 30 children. I hope that you find it effective too.

This book is all you need. The text at the bottom of each page is intended to provide helpful information. The Reward Menu is to be filled out with your child to help you effectively reward successful toileting. The data sheets are also included to help you and your child track his or her progress and success.

For best results, the following procedures are encouraged:

1. Read the Big Kid Book to your child often and encourage active participation.
2. Keep track of progress by recording the number of accidents (wet pants) and successes (deposits in the toilet) per day on the data sheets. Help your child record his or her successes with a stamp or sticker.
3. Reward (see Reward Menu) successes and minimize attention for accidents. Never shame or punish your child if he or she has an accident, just remind her, "First go potty, then treats."
4. Do "dry pants checks." This is a good way to catch your child doing a good job and to teach your child the differences between wet and dry. Be sure to reward dry pants! If you catch your child wet, say, "First go potty, then treats." Again, never shame or punish your child for an accident. Be sure to record the accident on the data sheet. If your child is unsure if she is wet, have her feel her pants.
5. Put your child in thick cotton training pants. Discontinue use of diapers and Pull-ups. Diapers and Pull-ups will confuse your child and it will take longer for your child to learn.
6. Most important, have fun!
We're going to learn how to go to the potty, just like the big kids! And we're going to have fun!

Though many parents dread "potty training," the goal of this book is to make it as painless as possible and perhaps even fun for you and your child!
First, I think about how my tummy feels. If it has a too full feeling, I sit on the potty. Tummy feel funny? Go sit on the potty honey!

Give your child lots of fluids. Limiting fluids is not only unhealthy, but it also limits learning opportunities. By giving lots of fluids, your child has more chances to learn the body cues that indicate when it's time to go.
Sometimes I can go right away. Sometimes I need to wait for a little while. Sometimes while I wait, I read a book, or sing my favorite song. Sit on the potty, sing and read, a little time is all I need!

It is not uncommon for children to misread body cues. Be sure to reward good tries with praise and encouragement, but save bigger rewards for "deposits." If your child is having a hard time waiting for success, try using a Cherrio as a target!
First go potty, wipe, then flush. No need to rush, soon I will be done and having some fun!

Teach your child how to wipe him or herself. Although it may seem easier for you to do it, teaching your child will increase his or her independence and your convenience.
Next wash hands, then tell the good news. Smiles are sure to come, I can't lose!

Make sure your child can reach the sink, soap, and towels.
After you wash your hands, go to your chart! I put a sticker on my chart, boy am I smart!

Monitor the progress of the program by keeping track of the number of accidents per day. Help your child record successes on the data sheet with a stamp or sticker. This will help your child know how he or she is doing.
After I use my chart, I run to tell the good news! I am such a big kid!

First go potty, then stickers and treats! I love to go potty, it's so easy and neat!

This is the fun part! Let your child know how proud you are of his or her success! Be sure to help your child record the success and reward right away!
Sometimes when I'm playing, I get "dry pants checks." If my pants are dry, I remembered to try and I get treat!

Giving frequent "dry pants checks" is a good way to catch your child doing a good job. Be sure to reward when you catch your child dry.
Sometimes when I get a "dry pants check," my pants aren't dry. I forgot to go to the potty. If pants aren't dry, don't cry, give it another try!

If you catch your child wet, have your child try to go some more in the toilet and let your child know that next time, if their pants are dry, they will get a special treat. Do not shame or punish your child. Just record the accident on the data sheet.
Reward Menu

When you do a good job on the potty, it's time to celebrate! How would you like to celebrate?

A treat I would to eat:
☐ piece of candy ☐ juice
☐ popcorn ☐ cookie
☐ pop ☐ other: __________

A fun thing to do: A fun thing to have:
☐ play a game ☐ a sticker
☐ play an instrument ☐ a stamp
☐ sing a song ☐ a hug
☐ hear a story ☐ a dime
☐ swing ☐ a mystery toy
☐ dance the potty dance ☐ other: __________
☐ other: __________

This menu is to help you think of effective rewards. This is important because if your child doesn't want it, it's not a reward and it won't help your child learn. The "potty dance" was created by some preschoolers in Michigan. It involves a quick parade around the room singing, "I went potty!" Be creative, use a variety of rewards, and have fun!
With special thanks to Peter Holmes and Luann Holverstott
Appendix B

Permission Form for Parents
My child has been invited to participate in a toileting project. The title is, “Using Measures of Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness to Evaluate a Toilet Training Program in a Preschool Classroom for Children with Special Needs.” One of the purposes of the study is to use the following measures to evaluate a previously validated toilet training intervention: (a) intervention integrity (the extent to which a intervention is implemented as intended); (b) intervention acceptability (how caregivers perceive the intervention), and; (c) intervention effectiveness (how well the intervention works).

Another purpose of the study is to determine if parent participation (e.g., collecting data and implementing the toilet training program at home) will affect (a) the integrity with which the intervention is implemented at the preschool; (b) the effectiveness of the intervention, and; (c) the extent to which caregivers find the toilet training intervention acceptable.

The study will begin on January and will run for approximately 8 weeks or until all of the children are toilet trained. In addition, one day of data will be collected at two weeks, four weeks, and six weeks after the end of the program to gather information regarding the long term effects of the intervention. This project is being conducted to fulfill Katy Holverstott’s dissertation requirement.

My permission for my child to participate in this project means that my child will take part in the following activities: (a) my child will have a children’s story about toileting read to him or her; (b) my child will color in coloring book about toileting; (c) my child will be asked if his or her pants
are wet or dry; (d) my child will earn rewards for dry pants, and for voiding on the toilet; (e) my child will help record all successful uses of the toilet, and; (f) my child's accidents will be recorded by the preschool staff. All procedures will be implemented by preschool staff, and no procedures will be implemented by research assistants. Additionally, there will be no form of punishment associated with this toileting program.

My permission for my child to participate in this project also means that the preschool staff and myself will take part in the following activities: (a) place my child in training pants (or any thick, absorbent, cloth underwear) during the intervention phase; (b) read a children's story book to my child about toileting; (c) ask my child to color in the coloring book about toileting, and; (d) record and help my child record all of his or her accidents and successful uses of the toilet.

The records of my child's accidents and successful uses of the toilet will be confidentially maintained. That means that my child's name will be omitted from all records and code number will be attached. The principal investigator will keep a separate master list with the names of the children and the corresponding code numbers. Once the data are collected and analyzed, the master list will be destroyed. All other forms will be retained for three years in a locked file in the principal investigators' office. No names will be used if the results are published or reported at a professional meeting.

If we choose to participate, my child and myself may profit from the following benefits: (a) free participation in an organized, research-based toileting program; (b) reduction in accidents; (c) increase in successful use of the toilet; (d) savings in diapers; (e) free rewards (stickers and stuff) and treats; and, (f) free story book/coloring book about toileting. It is possible, however, that my child and I may not profit at all.

If we choose to participate, my child and myself may be exposed to the following risks: (a) momentary and minor discomfort associated with voiding in underwear if my child voids in underwear; (b) missed opportunity from a reward if my child voids in an area other than the toilet; (c) possibility of seeing another student receive an award when one is not
provided to my child due to an accident; and, (d) missed opportunity to stamp a success on the data sheet if my child voids in an area other than the toilet. As in all research, there may be unforeseen risks to my child. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me or my child except as otherwise specified in this permission form.

My child and I will be free at any time to choose not to participate. If we choose not to participate, there will be no negative consequences or penalties and our choice will not affect my child's enrollment in the preschool. If I have any questions or concerns about this study, I may contact either Katy Holverstott at 387-4498, or Kristal Ehrhardt at 387-4478. I may also contact the chair of the Human Subjects Institutional Review Board at 387-8293 or the vice president for research 387-9298 with any concerns that I have.

This permission document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Subjects should not sign this document if the corner does not have a stamped date and signature.

My signature below indicates that I, as parent or guardian, can and do give my permission for:

______________________________
Child's name

______________________________  __________
Parent/Guardian signature       Date

______________________________  __________
Witness                        Date

Permission obtained by: __________________
Researcher's initials
Appendix C

Consent Form for Parents
The Big Kid Toileting Program
Statement of Consent for Parents/Guardians

Western Michigan University
Department of Psychology, School Psychology Program
Principal Investigator: Kristal Ehrhardt, Ph.D.
Research Associate: Katy Holverstott, M.S.

I have been invited to participate in a research project entitled, "Using Measures of Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness to Evaluate a Toilet Training Program in a Preschool Classroom for Children with Special Needs." This project is being conducted to fulfill Katy Holverstott's dissertation requirement and it is noted that she created this toileting program as a part of her thesis project.

One of the purposes of the study is to use the following measures to evaluate a previously validated toilet training intervention: (a) intervention integrity (the extent to which an intervention is implemented as intended); (b) intervention acceptability (how caregivers perceive the intervention), and; (c) intervention effectiveness (how well the intervention works). Another purpose of the study is to determine if parent participation (e.g., collecting data and implementing the toilet training program at home) will affect (a) the integrity with which the intervention is implemented at the preschool; (b) the effectiveness of the intervention, and; (c) the extent to which caregivers find the toilet training intervention acceptable. It is emphasized that the toilet training program, not the participating children will be evaluated.

The study will begin in January and will run for approximately 8 weeks or until all of the children are toilet trained. First, baseline data will be collected and then the toilet training program will begin. During baseline, parents and classroom staff will be asked to record the number of
successful uses of the toilet and the number of accidents. During this
time, the usual procedures for toileting will continue and the participating
children will not experience any changes to their usual care. Two weeks,
four weeks, and six weeks after the end of the program has ended, one day
of data will be collected to gather information regarding the long-term
effects of the intervention.

I will be asked to take part in the following activities: (a) place my child in
training pants (or any thick, absorbent, cloth underwear) during the
intervention phase; (b) read a children's story book to my child; (c) ask my
child to color in the coloring book about toileting; (d) ask my child whether
his or her pants are wet or dry; (e) reward my child if his or her pants are
dry and they use the toilet, and; (f) record and help my child record all of
his or her accidents and successful uses of the toilet.

As in all research, there may be unforeseen risks. If an accidental injury
occurs, appropriate emergency measures will be taken; however, no
compensation or treatment will be made available to me except as
otherwise specified in this consent form.

Potential risks of my participating in this project may include the
inconvenience associated with participating in the following activities: (a)
reading the Big Kid Book: Practical Activities for Successful Toilet
Training to my child; (b) allowing time for my child to color in the Big Kid
Book: Practical Activities for Successful Toilet Training; (c) asking my
child if his or her pants are wet or dry; (d) rewarding my child when his or
her pants are dry, and for voiding on the toilet; (e) allowing my child to
help record all successful uses of the toilet on a chart; and, (f) recording
accidents (wetting pants). There are other toilet training methods
available to me. For example, I may choose to teach my child myself, or I
may choose to use another method available from my local library or
bookstore.

If I choose to participate, I may profit from the following benefits: (a)
free participation in an organized, research-based toileting program; (b)
reduction in accidents; (c) increase in successful use of the toilet; (d)
savings in diapers; (e) free materials for my classroom (stickers and small
toys, or treats); and, (f) free story book/coloring books about toileting. It is possible, however, that I may not profit from a reduction in accidents and an increase in successful use of the toilet.

All of the information collected from me is confidential. This means that my name will be omitted from all records and code number will be attached. Code numbers will not be reported in an identifiable manner to my peers or anyone at my child's preschool. The principal investigator will keep a separate master list with the names of the children and the corresponding code numbers. Once the data are collected and analyzed, the master list will be destroyed. All other forms will be retained for three years in a locked file in the principal investigators' office. No names will be used if the results are published or reported at a professional meeting and I will not be able to ask for information on a classroom staff's performance.

I will be free at any time to quit or not participate. If I choose not to participate, there will be no negative consequences or penalties. If I have any questions or concerns about this study, I may contact either Katy Holverstott at 387-4498, or Kristal Ehrhardt at 387-4478. I may also contact the chair of the Human Subjects Institutional Review Board at 387-8293 or the vice president for research 387-9298 with any concerns that I have.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Subjects should not sign this document if the corner does not have a stamped date and signature.

My signature below indicates that I have read and had explained to me the purpose and requirements of the study and that I agree to participate.

Signature __________________________ Date ____________

Consent obtained by: ________________ (Researcher's initials)
Appendix D

Revised Administrative Rules for Special Education
By the Michigan State Board of Education
(5) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.

R 340.1707 Determination of hearing impaired.
Rule 7. (1) The term “hearing impaired” is a generic term which includes both deaf persons and those who are hard of hearing and which refers to students with any type or degree of hearing loss that interferes with development or adversely affects educational performance in a regular classroom setting. The term “deaf” refers to those hearing impaired students whose hearing loss is so severe that the auditory channel is not the primary means of developing speech and language skills. The term “hard of hearing” refers to those hearing impaired students with permanent or fluctuating hearing loss which is less severe than the hearing loss of deaf persons and which generally permits the use of the auditory channel as the primary means of developing speech and language skills.

(2) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team which shall include an audiologist and an otolaryngologist or otologist.

(3) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.

R 340.1708 Determination of visually impaired.
Rule 8. (1) The visually impaired shall be determined through the manifestation of both of the following:

(a) A visual impairment which interferes with development or which adversely affects educational performance.

(b) One or more of the following:
   (i) A central visual acuity for near or far point vision of 20/70 or less in the better eye after routine refractive correction.
   (ii) A peripheral field of vision restricted to not more than 20 degrees.
   (iii) A diagnosed progressively deteriorating eye condition.

(2) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team which shall include an ophthalmologist or optometrist.

(3) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.

R 340.1709 Determination of physically and otherwise health impaired.
Rule 9. (1) The physically and otherwise health impaired shall be determined through the manifestation of a physical or other health impairment which adversely affects educational performance and which may require physical adaptations within the school environment.

(2) Determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team, which shall include 1 of the following:

(a) An orthopedic surgeon.

(b) An internist.

(c) A neurologist.

(d) A pediatrician.

(e) Any other approved physician as defined in Act No. 368 of the Public Acts of 1978, as amended, being §333.1101 et seq. of the Michigan Compiled Laws.

(3) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.
Determination of speech and language impaired.

Rule 10. (1) The speech and language impaired shall be determined through the manifestation of 1 or more of the following communication impairments that adversely affects educational performance.

(a) Articulation impairment, including omissions, substitutions, or distortions of sound, persisting beyond the age at which maturation alone might be expected to correct the deviation.

(b) Voice impairment, including inappropriate pitch, loudness, or voice quality.

(c) Fluency impairment, including an abnormal rate of speaking, speech interruptions, and repetition of sounds, words, phrases, or sentences, that interferes with effective communication.

(d) One or more of the following language impairments as evidenced by a spontaneous language sample that demonstrates inadequate language functioning and test results, on not less than 2 standardized assessment instruments or 2 subtests designed to determine language functioning that indicate inappropriate language functioning for the child's age:

(i) phonological.

(ii) morphological.

(iii) syntactic.

(iv) semantic.

(v) pragmatic use of aural/oral language.

(2) Any student who is eligible for special education programs and services and who requires speech and language services shall be eligible for speech and language services pursuant to the provision of R 340.1745(a).

(3) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary team which shall include a teacher of the speech and language impaired.

(4) A determination of impairment shall not be based solely on behaviors that relate to environmental, cultural, or economic differences.

Preprimary impaired” defined; determination.

Rule 11. (1) “Preprimary impaired” means a child through 5 years of age whose primary impairment cannot be differentiated through existing criteria within R 340.1703 to R 340.1710 or R 340.1713 to R 340.1715 and who manifests an impairment in 1 or more areas of development equal to or greater than 1/2 of the expected development for chronological age, as measured by more than 1 developmental scale which cannot be resolved by medical or nutritional intervention. This definition shall not preclude identification of a child through existing criteria within R 340.1703 to R 340.1710 or R 340.1713 to R 340.1715.

(2) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team.

(3) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.

Specific learning disability” defined; determination.

Rule 13. (1) “Specific learning disability” means a disorder in 1 or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, of autism, or of environmental, cultural, or economic disadvantage.

(2) The individualized educational planning committee may determine that a child has a specific learning disability if the child does not achieve commensurate with his or her age and ability levels in 1 or more of the areas listed in this subrule, when provided with learning experiences inappropriate for the child’s age and ability levels, and if the multidisciplinary evaluation team finds
340.1715 "Autism" defined; determination.

Rule 15. (1) "Autism" means a lifelong developmental disability which is typically manifested before 30 months of age. "Autism" is characterized by disturbances in the rates and sequences of cognitive, affective, psychomotor, language, and speech development.

(2) The manifestation of the characteristics specified in subrule (1) of this rule and all of the following characteristics shall determine if a person is autistic:
   (a) Disturbance in the capacity to relate appropriately to people, events, and objects.
   (b) Absence, disorder, or delay of language, speech, or meaningful communication.
   (c) Unusual, or inconsistent response to sensory stimuli in 1 or more of the following:
      (i) Sight.
      (ii) Hearing.
      (iii) Touch.
      (iv) Pain.
      (v) Balance.
      (vi) Smell.
      (vii) Taste.
      (viii) The way a child holds his or her body.
   (d) Insistence on sameness as shown by stereotyped play patterns, repetitive movements, abnormal preoccupation, or resistance to change.

(3) To be eligible under this rule, there shall be an absence of the characteristics associated with schizophrenia, such as delusions, hallucinations, loosening of associations, and incoherence.

(4) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team. The team shall include, at a minimum, a psychologist or psychiatrist, a teacher of speech and language impaired, and a school social worker.

(5) A determination of impairment shall not be based solely on behaviors relating to environmental, cultural, or economic differences.
Appendix E

Consent Form for Preschool Staff
Western Michigan University  
Department of Psychology, School Psychology Program  
Principal Investigator: Kristal Ehrhardt, Ph.D.  
Research Associate: Katy Holverstott, M.S.

I have been invited to participate in a research project entitled, "Using Measures of Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness to Evaluate a Toilet Training Program in a Preschool Classroom for Children with Special Needs." One of the purposes of the study is to use the following measures to evaluate a previously validated toilet training intervention: (a) intervention integrity (the extent to which a intervention is implemented as intended); (b) intervention acceptability (how caregivers perceive the intervention), and; (c) intervention effectiveness (how well the intervention works).

Another purpose of the study is to determine if parent participation (e.g., collecting data and implementing the toilet training program at home) will affect (a) the integrity with which the intervention is implemented at the preschool; (b) the effectiveness of the intervention, and; (c) the extent to which caregivers find the toilet training intervention acceptable.

The study will begin in January and will run for approximately 8 weeks or until all of the children are toilet trained. In addition, one day of data will be collected at two weeks, four weeks, and six weeks after the end of the program to gather information regarding the long term effects of the intervention. This project is being conducted to fulfill Katy Holverstott's dissertation requirement.

I will be asked to take part in the following activities: (a) place participating children in training pants (or any thick, absorbent, cloth underwear) during the intervention phase; (b) read a children's story book...
to participating children; (c) ask participating children to color in the
coloring book about toileting; (d) ask participating children whether their
pants are wet or dry; (e) reward children if their pants are dry and they
use the toilet, and; (f) record and help participating children record all of
his or her accidents and successful uses of the toilet. In addition,
research assistants will observe me perform the activities listed above.

As in all research, there may be unforeseen risks. If an accidental injury
occurs, appropriate emergency measures will be taken; however, no
compensation or treatment will be made available to me except as
otherwise specified in this consent form.

Potential risks of my participating in this project may include the
inconvenience associated with participating in the following activities: (a)
reading the Big Kid Book: Practical Activities for Successful Toilet
Training® to the children; (b) allowing time for the child to color in the
Big Kid Book: Practical Activities for Successful Toilet Training®; (c)
asking the children if his or her pants are wet or dry; (d) rewarding the
children when his or her pants are dry, and for voiding on the toilet; (e)
allowing the children to help record all successful uses of the toilet on a
chart; and, (f) recording accidents (wetting pants). Another potential risk
is the discomfort occasionally associated with having a research assistant
observe me perform the activities listed above.

If I choose to participate, I may profit from the following benefits: (a)
free participation in an organized, research-based toileting program; (b)
reduction in accidents; (c) increase in successful use of the toilet; (d)
savings in diapers; (e) free materials for my classroom (stickers and small
toys, or treats); and, (f) free story book/coloring books about toileting. It
is possible, however, that I may not profit from a reduction in accidents
and an increase in successful use of the toilet.

All of the information collected from me is confidential. That means that
my name will be omitted from all records and code number will be attached.
The principal investigator will keep a separate master list with the names
of the children and the corresponding code numbers. Once the data are
collected and analyzed, the master list will be destroyed. All other forms

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
will be retained for three years in a locked file in the principal investigators' office. No names will be used if the results are published or reported at a professional meeting.

I will be free at any time to choose not to participate. If I choose not to participate, there will be no negative consequences or penalties. If I have any questions or concerns about this study, I may contact either Katy Holverstott at 387-4498, or Kristal Ehrhardt at 387-4478. I may also contact the chair of the Human Subjects Institutional Review Board at 387-8293 or the vice president for research 387-9298 with any concerns that I have.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Subjects should not sign this document if the corner does not have a stamped date and signature.

My signature below indicates that I have read and had explained to me the purpose and requirements of the study and that I agree to participate.

_________________________  ____________
Signature                        Date

Consent obtained by: ________________
Researcher's initials
Appendix F

Training Materials for Consultees,
Baseline Phase Training Materials
The Big Kid© Toileting Program
This Week's Directions
Baseline Phase

Please DO this:
Please record every time you change a child and every time a child goes to
the bathroom by him or herself. At this time, no one is expected to have
many successes.

NOTE: Accidents are when a child voids in areas other than the toilet, like
the diaper. Successes are when a child uses the toilet (and leaves a
deposit!) without a reminder or any help. Tries without a deposit deserve
praise, but they should NOT be counted as a success!

Please DON'T do this:
Do not try to teach the children to use the toilet. At this time, do not
prompt the children to try or even to sit on the toilet. Also, please do not
praise or punish accidents or successes at this point.

Why?
We want to compare this data without the program to the data with the
program in effect in order to see if the program is working. This
information is very valuable to us. Thank you for your patience.

THANKS! If you have any questions, please do not hesitate to call,
387-4498.
Appendix G

Training Materials for Consultees, Intervention Phase

Training Materials
The Big Kid© Toileting Program
This Week's Directions
Intervention Phase

Please DO this:

• Everybody in training pants? Make sure that all of the participating kids are wearing training pants (or some form of thick, absorbent, cloth underwear). NO DIAPERS! Hint: Plastic pants over the training pants will minimize the mess.

• Read the Big Kid Book: Practical Activities for Successful Toilet Training© to the children at least once a day. If possible, read it once in the morning, once after lunch, and once after nap.

• Have the children color the Big Kid Book at least once per day.

• Give dry pants checks. Set the timer to go off every hour. When the timer goes off, ask each child if his or her pants are dry. If the child answers incorrectly, guide the child's hand to feel the wetness or dryness. If the child is wet, record the accident. If he or she is dry, give a reward!

• Place the data sheet in the bathroom at child's eye level and have the children record their successes (using the toilet) on the feedback board. Let them use the stamp to record successes. Staff should record accidents (when you change them). Do not punish or shame the children for accidents. Just change the child without comment. This data is extremely important! Without this information, we cannot continue the program.

• Reward the children every time they make a productive deposit. Be sure to reward immediately after the success! The reward will not work if you wait too long. If a child sits on the toilet but does not make a deposit, be sure to praise the good effort, but it doesn't count as a success.

• Don't give extra attention, try to soothe, or punish accidents. Please be careful not to use shame or negative comments. With a neutral expression, just change the child's clothes without comment. THANKS! Have a great week!
Appendix H

Training Materials for Data Collection Personnel
Training Script for Observers

Script 1: (Added a step)
- Child is asked to "try to go" to the bathroom
- Child is successful
- Teacher records data
- Teacher rewards immediately

Script 2: (Rewards unproductive try)
- Child goes to the bathroom
- Child is not successful (sits but no deposit)
- Teacher helps child stamp a success
- Teacher provides reward

Script 3: (Forgot to record)
- Child goes to the bathroom
- Child is successful
- Teacher provides reward

Script 4: (Delayed reward)
- Child goes to the bathroom
- Child is successful
- Teacher helps child stamp
- Teacher tells child that after lunch, she will give the child her treat

Script 5: (Added punishment)
- Child has an accident
- While teacher is changing her, she says, "You need to straighten up and be a big girl and use the potty!"
- Teacher records accident

Script 6: (On target)
- Child has an accident
- Teacher changes child with neutral expression
- Teacher records accident

Script 7: (On target)
- Child goes to the bathroom
- Teacher helps child stamp success
- Teacher rewards child immediately
To prevent confusion due to teachers that prompt toileting during baseline, here are a few situations and the appropriate record:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Record this:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s pants are dry, child tries but no deposit.</td>
<td>Nothing</td>
</tr>
<tr>
<td>Child’s pants are wet, child tries but no deposit, teacher marks accident.</td>
<td>Line with circle around it under step 2</td>
</tr>
<tr>
<td>Child’s pants are dry, child leaves a deposit. Teacher marks a success.</td>
<td>Line with circle around it under step 1</td>
</tr>
<tr>
<td>Child’s pants are wet, child makes a deposit. Teacher marks a success and an accident.</td>
<td>Line with circle around it under step 1 AND step 2</td>
</tr>
<tr>
<td>Child’s pants are wet, child leaves a deposit. Teacher marks a success.</td>
<td>Line with circle around it under step 2 and line with no circle around it under step 1</td>
</tr>
<tr>
<td>Child’s pants are wet, teacher marks a success (by accident, no pun intended!)</td>
<td>Mark nothing under step 1 and 2 and make a note of it in the “Other behaviors” section. Please also make me aware of it.</td>
</tr>
</tbody>
</table>

If you ever feel stuck, just jot down the situation on the back of the data sheet and we can figure it out together.

Thanks! I really appreciate your help.
Training Tips for Observers

• Sit near the bathroom if possible.

• The teachers may be a little uncomfortable with you being there so go out of your way to be friendly and put them at ease.

• Offer to pitch in as long as it doesn't interfere with your ability to record data.

• If a teacher is unsure about the toilet training procedures, ask them to ask me. Come and get me if you need me right away.

• Please be on time. If you can't come due to illness, etc., please call me the night before (if you can) and let me know so I can make arrangements.

• If you notice that the kids are becoming uninterested in the treats, let me know.

• If you or the teachers run out of something let me know as soon as you can. I will keep extras of everything onsite.

• Before leaving, please give all data sheets to me.

Thank you so much for helping me!
Please let me know how if there is anything I can do to help you! Katy
Appendix I

Target Behavior Data Sheets for Preschool,
Baseline Phase
The Big Kid© Toileting Program
Preschool Data Collection Sheet

<table>
<thead>
<tr>
<th>Names</th>
<th>Success</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>Jack</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I I</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H H H H</td>
</tr>
</tbody>
</table>

Why record? Recording provides feedback so the children know how they’re doing!
Appendix J

Target Behavior Data Sheets for Home Data,
Baseline Phase
# The Big Kid© Toileting Program

## Home Data Collection Sheet

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date</th>
<th>Success!</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample 3/15/00**

<table>
<thead>
<tr>
<th>Date</th>
<th>Success!</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>HTT HTT HTT</td>
</tr>
</tbody>
</table>

**Why record?** Recording provides feedback so the children know how they're doing!
Appendix K

Target Behavior Data Sheets for Preschool, Intervention Phase
The Big Kid® Toileting Program
Preschool Data Collection Sheet

Date: __________________________

<table>
<thead>
<tr>
<th>Names</th>
<th>SUCCESSES!</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Let the kids stamp their successes here!</td>
<td>Teachers, place a check mark here.</td>
</tr>
<tr>
<td>Sample Jack</td>
<td>☀ ☀ ☀ ☀</td>
<td>1</td>
</tr>
</tbody>
</table>

Why record? Recording provides feedback so the children know how they're doing!
Appendix L

Target Behavior Data Sheets for Home Data, Intervention Phase
The Big Kid® Toileting Program
Home Data Collection Sheet

Name: ____________________________

<table>
<thead>
<tr>
<th>Dates</th>
<th>SUCCESSES!</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Jack</td>
<td>😊😊😊😊</td>
<td>😊😊</td>
</tr>
</tbody>
</table>

Let your child stamp his/her successes here!

Accidents
Please place a check mark here.

Why record? Recording provides feedback so the children know how they're doing!
Appendix M

Sample of Parent Feedback Note
Way to go!

BIG KID TOILETING PROGRAM UPDATE
2/26/01

We are so proud of [redacted]! Last week he had six successes and two accidents. One of his accidents happened on a day he was wearing a diaper. Switching back to diapers is confusing and it will take longer for [redacted] to become consistently successful if diapers are used. I strongly recommend using training pants all of the time.

We are very proud of [redacted]'s successes. He's on his way! Keep up the good work and continue to do dry pants checks and reward those successes!

If you have any questions at all, please give me a call.
Thanks, Katy 387-4498
Appendix N

Sample of Teacher Feedback Note
Happy Valentine's Day!

Big Kid Toilet Training Program Update 2/14/01

Miss [Name]'s a.m. classroom
We just started the toileting program and the data looks promising. Accidents are decreasing and successes are on the rise!

Miss [Name]'s p.m. classroom
We will start baseline on 2/19/01.

Miss [Name]'s p.m. classroom
This is the second week of the toileting program and successes are outnumbering accidents! Some of the kids are catching on really fast! A note will be sent home to participating children's parents to provide feedback regarding progress at school and to remind parents to keep working at it at home.

Miss [Name]'s a.m. classroom
We will start baseline on 2/19/01.

Thanks for everything! Katy
Appendix O

Intervention Acceptability Questionnaire
The Big Kid® Toileting Program

Program Rating Profile

The purpose of this questionnaire is to obtain information that will help evaluate this program. Please circle the number which best describes your agreement or disagreement with each statement. Thanks!

1= Strongly disagree  4= Slightly agree  2= Disagree  5= Agree  3= Slightly disagree  6= Strongly agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This would be an acceptable program for toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Most caregivers would find this program appropriate for toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. This program should prove effective in teaching children to use the toilet.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I would suggest the use of this program to other caregivers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Most caregivers would find this program suitable for toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I would be willing to use this program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. This program would not result in negative side-effects for children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. This program would be appropriate for a variety of children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. This program is consistent with those I have used before.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The program was a fair way to handle toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. This program is reasonable for toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I liked the procedures used in this program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. This program was a good way to handle toilet training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Overall, this intervention would be beneficial for children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix P

Intervention Integrity Script for Preschool, Baseline Phase
The Big Kid© Toileting Program

Integrity: Baseline Phase for Preschool

Directions: Make a mark (1) for each opportunity to complete a step. Circle the mark if the consultee completes the step for that opportunity. If a consultee performs a behavior related to toilet training not on this script (e.g., asks child to “try”), please record the time and step completed in the space provided below.

<table>
<thead>
<tr>
<th>Observer:</th>
<th>Date:</th>
<th>Start Time:</th>
<th>Stop Time:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Steps</th>
<th>Opportunities and Completed Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. SAMPLE</td>
<td>1</td>
</tr>
</tbody>
</table>

Other Behaviors (describe it)

<table>
<thead>
<tr>
<th>A. SAMPLE asks child to try</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
</tr>
</tbody>
</table>
Appendix Q

Intervention Integrity Script for Home Data, Baseline Phase
The Big Kid® Toileting Program

**Integrity: Baseline Phase for Home Data**

**Directions:** Please make a mark (1) for each time you complete a step for the baseline phase of the Big Kid Toileting program. THANK YOU!

<table>
<thead>
<tr>
<th>Steps</th>
<th>Completed Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. SAMPLE</td>
<td>H T T 1 1 1</td>
</tr>
</tbody>
</table>

- Record accidents on the data sheet.
- Record successes on the data sheet.
Appendix R

Intervention Integrity Script for Preschool,
Intervention Phase

127
# The Big Kid® Toileting Program

**Integrity: Intervention Phase for Preschool**

**Directions:** Make a mark (1) for each opportunity to complete a step. Circle the mark if the consultee completes the step for that opportunity. If a consultee performs a behavior related to toilet training not on this script (e.g., asks child to "try"), please record the time and step completed in the space provided below.

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time:</th>
<th>Observer:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steps</strong></td>
<td><strong>Opportunities and Completed Steps</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SAMPLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Children wearing training pants (or some form of absorbent, cloth underwear).</td>
<td></td>
<td>( \Box \Box \Box \Box \Box \Box \Box \Box )</td>
</tr>
<tr>
<td>2. Read <em>The Big Kid Book: Practical Activities for Successful Toilet Training®</em> to the kids.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Have the kids color <em>The Big Kid Book</em>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Give dry pants checks when prompted by timer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Reinforce dry pants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Have the children record successes with a stamp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Record accidents on data sheet.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Data sheet in the bathroom is placed at child’s eye level.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Behaviors (describe it)**

1. 
2. 
3. 

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Appendix S

Intervention Integrity Script for Home Data,
Intervention Phase

129
The Big Kid® Toileting Program

Integrity: Intervention Phase for Home Data
Directions: Please make a mark (I) for each time you complete a step for the intervention phase of the Big Kid Toileting program. THANK YOU!

<table>
<thead>
<tr>
<th>Child's Name:</th>
<th>Week of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps</td>
<td>Completed Steps</td>
</tr>
<tr>
<td>SAMPLE</td>
<td>IIII</td>
</tr>
</tbody>
</table>

1. My child is wearing training pants (or some form of absorbent, cloth underwear).
2. I read *The Big Kid Book: Practical Activities for Successful Toilet Training* to my child.
3. My child has colored in *The Big Kid Book*.
4. I gave dry pants checks.
5. I rewarded dry pants.
6. My child recorded successes with a stamp.
7. I recorded accidents on data sheet.
8. The data sheet is in the bathroom and is placed at my child's eye level.
Appendix T

Human Subjects Institutional Review Board
Letter of Approval
Date: 2 January 2001

To: Kristal Ehrhardt, Principal Investigator
    Katy Holverstott, Student Investigator for thesis

From: Michael S. Pritchard, Interim Chair

Re: HSIRB Project Number 00-10-28

This letter will serve as confirmation that your research project entitled “Using Measures of Intervention Integrity, Intervention Acceptability, and Intervention Effectiveness to Evaluate a Toilet Training Program in a Preschool Classroom for Children with Special Needs” has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 2 January 2002


