The development and validation of the Parent Instruction-Giving Game with Youngsters (PIGGY) in a Head Start population

Stephen Danial Anthony Hupp

Louisiana State University and Agricultural and Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_dissertations

Part of the Psychology Commons

Recommended Citation

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Doctoral Dissertations by an authorized graduate school editor of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
THE DEVELOPMENT AND VALIDATION OF THE PARENT INSTRUCTION-GIVING GAME WITH YOUNGSTERS (PIGGY) IN A HEAD START POPULATION

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Psychology

by

Stephen Hupp
B.A., University of Kansas, 1996
M.A., Louisiana State University, 1999
December 2002
# Table of Contents

Abstract...........................................................................................................................................iii

Introduction......................................................................................................................................1

Parenting Conceptualizations and Parent Management Training...................................................3

Assessment of Parent-Child Interactions.........................................................................................8

Purpose of Study............................................................................................................................18

Study 1: Discriminative and Convergent Validity.........................................................................22

Study 2: Clinical Application.........................................................................................................33

General Discussion........................................................................................................................45

References......................................................................................................................................48

Appendix A: PIGGY Definitions...................................................................................................54

Appendix B: PIGGY Observation Form........................................................................................57

Appendix C: PIGGY Quizzes........................................................................................................58

Vita.................................................................................................................................................63
Abstract

Head Start families demonstrate many of the risk factors that relate to the development of noncompliance and other behavior problems in young children, such as low income, limited education, teenage pregnancy, isolation, family stress, single parenthood, and parental psychopathology. Noncompliant preschool-aged children often continue to display difficulties through adolescence. Parent Management Training programs have been developed which can improve child compliance. However, many of the same risk factors that lead to child noncompliance also reduce the effectiveness of parenting interventions. Thus, more efficient assessment and intervention strategies need to be developed to facilitate the treatment of child behavior problems in Head Start families. This proposal attempts to validate the use of the Parent Instruction-Giving Game with Youngsters (PIGGY), a newly developed direct observation system. Using the PIGGY, parents provide standardized commands to their child (e.g., put the book on the table), and parenting skills used to gain compliance (e.g., instruction-giving, praise, discipline techniques) as well as child behavior (e.g., noncompliance) are coded on an observation form. For the first part of study, 14 noncompliant and 14 compliant children and their mothers were selected based on parent report of child behavior. For the second part of the study, two families were selected for a single-case, multiple-baseline (across behaviors) study which used the PIGGY to monitor the effectiveness of Parent Management Training.
Introduction

Research suggests that up to 25% of preschool children demonstrate clinically significant defiant behavior including noncompliance to requests, arguing, aggression, tantrums, and whining (Offord, Alder, & Boyle, 1986; Offord, Boyle, & Szatmari, 1987). Children exhibiting these behaviors are often diagnosed with one or more of the externalizing disorders in the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV; American Psychiatric Association, 1994), including Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Attention-Deficit/Hyperactivity Disorder (ADHD).

Head Start families have many risk factors related to child defiant behavior, such as low income, limited education, teenage pregnancy, isolation, family stress, single parenthood, and parental psychopathology (Querido, Warner, & Eyberg, 2002; Webster-Stratton, 1990). Thus, many children enrolled in Head Start programs demonstrate behavior problems and are at increased risk for exhibiting defiant behavior in later years (Webster-Stratton, 1998). Additionally, these children are more likely to experience peer rejection, drug abuse, depression, and school drop-out in adolescence (Campbell, 1991; Loeber, 1991). The cycle may be continued when these adolescents and young adults expose their children to many of the same risk factors.

The preschool years are an ideal time to screen for child behavior problems and to attempt early interventions. Research consistently demonstrates that parenting practices significantly influence child behavior (O Leary, Slep, & Reid, 1999; Stormshak, Bierman, McMahon, & Lengua; 2000). Parent Management Training programs have been used to alter
the parenting practices that function as antecedents and consequences to children's behavior, and parenting interventions are usually more effective with young children than adolescents (Kazdin, 1997).

Several self-report questionnaires have been developed which assess parent behavior and attitudes (Lovejoy, Weis, O Hare, & Rubin, 1999; Reitman, Rhode, Hupp, Altobelle, 2002; Shelton, Frick, & Wootton; 1996; Strayhorn & Weidman, 1988); however, questionnaires are limited by reporter bias and recall. Thus, direct observation methods are also used to assess parent-child interactions (Eyberg, Bessmer, Newcomb, Edwards, Robinson, 1994; Forehand & McMahon, 1981). Observational methods are used to determine the function of child behavior and to monitor treatment effectiveness. Limitations of most observational methods include, a) observer effects, b) time to learn the coding systems, c) time and expense to complete observations, and d) low structure, making comparisons between observations difficult.

The current study examines the reliability and validity of a newly developed direct observational system, the Parent Instruction-Giving Game with Youngsters (PIGGY). The PIGGY addresses some of the limitations of other observational systems by imposing increased structure on parent-child interactions, and the increased structure may make it easier to learn and use this observational system in a time-efficient manner. The PIGGY is not intended to replace less structured observational systems, since it is often beneficial to see parent-child interactions without additional constraints. However, the PIGGY may compliment less structured observations by enhancing the opportunity to observe the parent and child behaviors most germane to Parent Management Training.
Parenting Conceptualizations and Parent Management Training

Early Conceptualizations

In the early part of the 20th century, both behavioral and psychodynamic theorists were interested in the impact of parents’ behavior on child development (see Darling & Steinberg, 1993 for a review). Behavioral psychologists suggested reinforcement history influenced child development (Watson, 1928). On the other hand, psychodynamic theorists argued that biologically determined drives were frequently in conflict with parental desires, and the interaction between the child’s drives and the parent’s desires influenced development (Freud, 1933). Thus, behavioral and psychodynamic theorists agreed that parenting behavior influenced child development; however, these theoretical approaches differed on how parenting influenced child behavior. Theorists also disagreed on the specific parenting practices that were important. Watson (1928) emphasized parental control of the child’s behavior, and Freud (1933) emphasized parental nurturance of the child.

Baumrind’s Parenting Styles

Distinguishing between Authoritarian, Authoritative, and Permissive parenting styles, Baumrind (1966) had arguably the largest impact to date on parenting theory. Baumrind’s parenting styles differed across several attributes. Authoritative parents were described as displaying high levels of parental control, maturity demands, parent-child communications, and nurturance with their children. Authoritarian parents were described as high in maturity demands and parental control, while displaying low amounts of communication and nurturance. Finally, the attributes of Permissive parents may be described diametrically opposed to those of
Authoritarian parents. That is, Permissive parents display high rates of communication and
nurturance but low rates of maturity demands and parental control.

Maccoby and Martin (1983) expanded on Baumrind’s tripartite model, by attempting
to focus on two dimensions with which to view parenting: responsiveness and demandingness.
Demandingness was referred to as the number and type of demands made by the parents, and
responsiveness was the contingency of parental reinforcement (Darling & Steinberg, 1993).
Thus, within Baumrind’s topology, Authoritative parents are both highly responsive and
demanding, whereas Authoritarian parents are highly demanding but not responsive. Maccoby
and Martin (1983) further designated two types of Permissive parents, suggesting that Indulgent
parents were highly responsive but not demanding, and Neglecting parents were neither
responsive nor demanding. Baumrind (1991) has further expanded on these concepts, by
suggesting,

*Demandingness* refers to the claims parents make on the child to become integrated into the family whole by their maturity
demands, supervision, disciplinary efforts and willingness to confront the child who disobeys. *Responsiveness* refers to actions
which intentionally foster individuality, self-regulation and self-assertion by being attuned, supportive and acquiescent to the
child’s special needs and demands (p. 748).

The conceptualizations of demandingness and responsiveness are included in most current
discussions of parenting.

**Relation Between Parenting Styles and Child Behavior**

Several investigations have reported correspondence between parenting style and child
behavior. For example, an Authoritative parenting style has been associated with child
behaviors such as cooperation, academic success, self-reliance, curiosity, self-control, and
friendliness (Baumrind, 1971; 1991; Maccoby & Martin, 1983). An Authoritarian parenting style is associated with lower cognitive abilities and higher rates of impulsivity (Baumrind, 1991; Reitman & Gross, 1997). Interestingly, Baumrind (1991) also found that Authoritarian discipline correlated with socially assertive behavior in girls but not boys. Permissive styles of discipline are associated with children who are more likely to be immature, impulsive, dependent, and irresponsible (Baumrind, 1967; 1971; 1991). The majority of research addressing relations between parent and child behavior has been conducted with Caucasian, middle class families; however, some research suggests that the positive outcomes corresponding with an Authoritative parenting style may not generalize to minority populations (Baumrind, 1972; Dornbusch et al., 1987; Steinberg, Lamborn, Dornbusch & Darling, 1992).

**Ethnicity and Parent Behavior**

Recent research provides evidence of the cross-cultural validity of Baumrind’s parenting styles (Querido, Warner, & Eyberg, 2002). Additionally, Forehand and Kotchick (1996) examined the cultural context of parenting for four ethnic groups, suggesting that considering the cultural context was crucial in the assessment and modification of parenting behavior. The present discussion will focus on African American parents, the primary population examined in this study. Forehand and Kotchick (1996) reported African American parents are more likely to rely on extended family networks, teach certain cultural values (i.e., family strength, positive self-image, perseverance in the face of adversity, and positive racial identity), and to use religion in the socialization of their children. Research suggests that African American parents are more likely to be strict disciplinarians than Caucasian parents (Portes et al., 1986; Reis, Barbara-Stein & Bennett, 1986). Thus, African American parents are more likely to demonstrate an
Authoritarian style of discipline and less likely to demonstrate a Permissive style of discipline than Caucasian parents. Although African American parents have traditionally been viewed as using harsh discipline techniques (i.e., emotional withdrawal and physical punishment) (Peters, 1981), research suggests socioeconomic status, rather than ethnicity, accounts for harsher discipline style (Dodge, Petit, & Bates, 1994).

**Parent Management Training**

Parent Management Training programs attempt to replace permissive, harsh, and inconsistent discipline styles with effective behavior management strategies (Forehand, & McMahon, 1981; Hembree-Kigin, & McNeil, 1995), and Parent Management Training has successfully improved child compliance in Head Start children (Webster-Stratton, 1998). Parent Management Training programs typically focus on parenting behaviors such as: a) giving effective instructions, b) providing rewards for appropriate behavior, and c) providing consequences, such as time-out, for behavior problems.

Parents often give indirect and ambiguous instructions, and child compliance can be improved by changing the types of commands that parents provide (Rickert, et al., 1988; Roberts, McMahon, Forehand, & Humphreys, 1978). Children are more likely to comply with simple, direct, and clear instructions in which the parent makes eye contact, uses a firm tone of voice, and uses physical gestures (Mandal, Olmi, Edwards, Tingstrom, Benoit, 2000). Furthermore, parents often interrupt child compliance before the child has a chance to comply with the instruction, and compliance can be improved by giving the child at least five seconds to initiate compliance (Forehand, Gardner, & Roberts, 1978). When children do comply, parents often do not provide praise or other rewards, and parenting programs also focus on improving
compliance through increasing the positive consequences of the behavior (Hembree-Kigin & McNeil, 1995).

Parents of noncompliant children often deliver consequences inconsistently. During Parent Management Training, therapists select discipline strategies which can be used across a wide range of behaviors and settings. Time-out is one of the most commonly utilized discipline strategies recommended by clinicians and has been shown to improve compliance and decrease other behavior problems (Rickert et al., 1988). With preschool-aged children, time-outs generally occur in a boring place in which the child sits on a large, sturdy chair. Parents are instructed to set a timer and ignore the child’s protests until a few minutes have elapsed (often one minute for each year of age) (Reitman & Drabman, 1996). Other strategies, such as response cost (e.g., removal of reinforcers), have also been shown to be effective (Little & Kelley, 1989). Parent Management Training programs which focus on these skills often report immediate improvements in child compliance, and treatment gains have been shown to last up to 14 years following treatment (Long, Forehand, Wierson, & Morgan, 1994).
Assessment of Parent-Child Interactions

The state-of-the-art assessment of childhood externalizing problems includes multiple methods and informants (Reitman, Hummel, Franz, & Gross, 1998). The present discussion will focus on assessment methods that consider behavior at home rather than school behavior. Assessment often begins with parent interviews. The purpose of a behavioral interview is to gain information regarding target behaviors, identify controlling variables, facilitate treatment formulation, and build rapport with the family (Ollendick & Cerny, 1981). Behavioral interviews are frequently used in clinical practice because they are practical (i.e., time-efficient and easy to use) compared to other assessment measures (Reitman et al., 1998). Behavioral interviews are often unstructured, leaving great flexibility for the clinician. Depending on the focus of the interview, this type of assessment may focus solely on the child but usually includes a focus on parent-child interactions.

Structured interviews have been developed which have higher diagnostic reliability and validity than less structured interviews. The Diagnostic Interview Schedule for Children-4 (DISC-4) is one of the most commonly studied structured interviews and conforms to the DSM-IV criteria for childhood psychopathology. The DISC-4 focuses primarily on symptoms rather than controlling variables, and thus does not include information regarding parent-child interactions. Some have suggested that the increased reliability comes at the expense of rapport with clients (La Greca & Stone, 1992). Semi-structured interviews, such as the Child Assessment Schedule (CAS; Hodges, Kline, Stern, Cytryn, & McKnew, 1982), attempt to preserve rapport while also yielding highly reliable information. Both the DISC-4 and CAS have extensive psychometric data and usually require an hour or more to implement. Recently,
Webster-Stratton (1998) revised the Oregon Social Learning Center’s (OSLC) Discipline Questionnaire to function as a semi-structured interview which focuses on parent-child interactions rather than child behavior alone.

In addition to interviews, assessment includes rating scales and direct observation methods, and these methods can be further broken down into those which focus solely on the child and those that consider parent-child interactions. Additionally, rating scales and direct observation methods vary based on the broadness of focus (e.g., narrow-band vs. broad-band questionnaires). Refer to Table 1 for each of the possible types of assessment used to evaluate children’s behavior.

Table 1. Types of Assessment Focusing on Children’s Behavior at Home

<table>
<thead>
<tr>
<th>Focus of Assessment</th>
<th>Method</th>
<th>Child Behavior Only</th>
<th>Parent-Child Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating Scales</td>
<td>Narrow-Band</td>
<td>Narrow-Band</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Broad-Band</td>
<td>Broad-Band</td>
</tr>
<tr>
<td></td>
<td>Direct Observation</td>
<td>Narrow-Band</td>
<td>Narrow-Band</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Broad-Band</td>
<td>Broad-Band</td>
</tr>
</tbody>
</table>

Rating Scales Focusing on Child Behavior Only

Several rating scales reliably and validly assess oppositional behavior in children. Rating scales can be used to quickly gather information from parents, teachers, and other caregivers, without much therapist time or effort. Many rating scales also include normative data for comparison to age- and gender-matched children and can be used to determine statistical
deviance. Rating scales which focus solely on the child's behavior are more frequently used and better developed than rating scales considering parent-child interactions. For example, the Child Behavior Checklist (CBCL; Achenbach, 1991) and the corresponding Teacher Report Form (TRF) are broad-band questionnaires which include subscales covering both internalizing and externalizing problems, and thus may be useful in screening for diagnostic comorbidity. Regarding externalizing behavior, the CBCL includes subscales tapping behaviors related to aggression, conduct problems, and attention problems. Similarly, the Conners Rating Scales - Revised (CRS-R; Conners, 1997) include several subscales for both internalizing and externalizing problems. The CRS-R has separate subscales for inattention and hyperactivity and also has an oppositional subscale. Compared to the CBCL, the CRS-R more closely matches the DSM-IV criteria for ADHD but focuses less on internalizing problems.

The Eyberg Child Behavior Inventory (ECBI; Eyberg, 1974) is a narrow-band questionnaire which focuses exclusively on childhood externalizing behavior. Recently, strong evidence has been provided for a three factor structure of the ECBI, including oppositional defiant, inattentive, and conduct problem subscales (Burns & Patterson, 2000). The ECBI is frequently used as a screen for behavior problems and a measure of treatment effectiveness during Parent Management Training (Mullin, Quigley, & Glanville, 1994; Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993). The Compliance Probability Questionnaire (CPQ; Durcharme, 1996) is used much less frequently than the other measures but yields promise in the assessment of child compliance. The CPQ includes approximately 120 items, representing a broad range of requests parents make to children. Items include requests surrounding hygiene, dressing, leisure, and social activities, and parents report the likelihood of child compliance with
the request. One major benefit of the CPQ could be to identify the types of requests to require parents to use during observational assessment procedures.

**Rating Scales Focusing on Parent-Child Interactions**

Several questionnaires have been designed to measure parenting constructs. The Parent-Child Relationship Inventory (PCRI; Gerard, 1994) is a broad-band questionnaire in which parents rate: a) support from family and friends, b) satisfaction with parenting, c) involvement with their children, d) communication with children, e) limit-setting with children, f) promotion of the children's independence, and g) attitudes regarding gender roles in parenting. The PCRI was designed to assist with treatment development for family conflicts and for monitoring treatment effectiveness. The manual provides evidence for the reliability and validity; however, few studies have included this instrument.

The Parenting Scale (PS; Arnold, O Leary, Wolff, & Acker, 1993) is a more narrowly focused questionnaire which assesses three parenting discipline styles: laxness, overreactivity (i.e., harshness), and overly verbose. The laxness subscale corresponds closely with Baumrind's Permissive parenting style, and the overreactivity subscale corresponds with Authoritarian discipline. The PS has demonstrated adequate internal consistency and test-retest reliability, and mothers of clinic-referred children reported higher scores on the PS than comparison children. Scores on the PS also correlated with observational measures. The PS was developed with a primarily middle class, Caucasian population; however, the permissive and overreactive factors were supported with a primarily African-American Head Start population (Reitman et al., 2001).

Several other parenting scales have also been developed. The Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996), measures parenting behaviors, such as
parental involvement, positive parenting, parental supervision, inconsistent discipline, and corporal punishment. Additionally, the Parent Behavior Inventory (PBI; Lovejoy, Weis, O Hare, & Rubin; 1999) assesses both supportive/engaged and hostile/coercive parenting styles and can be used as a self-report measure or as an observational rating scale. Thus, the PBI can capture information from multiple methods and informants. The Parent Behavior Scale (PBS; Ortiz, 1999) measures specific behaviors usually targeted during Parent Management Training and includes positive parenting skills (e.g., effective directions, praise, time-out). The PBS may be ideal for measuring treatment effectiveness during Parent Management Training. Finally, the Parental Authority Questionnaire-Revised (PAQ-R; Reitman, et al., 2002), measures parent's attitudes (rather than behaviors) regarding Authoritative, Authoritarian, and Permissive parenting and has been validated with a Head Start population.

The major limitation of parent interviews and questionnaires is that they rely on the parent's report (Reitman et al., 1998). Thus, direct observation systems have been developed which are free from many of the threats to reliability and validity (e.g., low reading ability and inaccurate accounts of behavior) which hinder the interpretation of parent-report methods.

Direct Observations Focusing on Child Behavior Alone

Rating scales are frequently used to screen for childhood problems, and then direct observation measures are used with a subgroup of children identified during the screening (Loeber, 1990). This two-step process is ideal for identifying a high-risk group of children for treatment. Several observational procedures have been developed for children in clinic or home settings.
Roberts and Powers (1988) Compliance Test evaluates a child’s compliance to parental requests, and this method focuses on child behavior alone rather than parent-child interactions. During the test, parents provide 30 standardized commands (e.g., Put the block in the box) and child compliance is observed. Parents are told to deliver each command in a consistent way (i.e., direct and clear) and are instructed to provide no consequences for compliance or noncompliance. Thus, the Compliance Test was designed to be a measure of the child’s true compliance while diminishing the influence of parent behavior. Strengths of the Compliance Test include: a) measurement of child compliance independent of parent behavior, b) brief testing time, c) strong interrater and test-retest reliability, and d) ability to distinguish between clinic-referred and non-referred children. One major limitation of the Compliance Test is that it should not be used as a post-treatment measure of Parent Management Training since it inhibits appropriate parent responses to child behavior (Roberts & Powers, 1988). The Compliance Test is also limited in that it focuses exclusively on clean-up tasks, leaving out the wide range of other types of requests that parents make. In response to this limitation, Powers and Roberts (1995) developed three simulations with which child compliance was assessed during wake-up/dressing, mealtime, and clean-up/bedtime.

Whereas the Compliance Test measures the degree of child noncompliance in a controlled setting, analyses of child behavior have been conducted which measure the function of noncompliance in a controlled setting. Reimers et al.’s (1993) conducted a functional analysis of noncompliant behavior with 5 normally developing participants (4 to 6 years old) and one participant diagnosed with a moderate mental handicap. Noncompliant behavior was coded during both Attention and Escape conditions. During the Attention condition, parents made
requests every 30 seconds and discussed the request each time the child failed to comply.
During the Escape condition parents made a series of requests, and following noncompliance parents stopped making requests for approximately 20 seconds. Results of the analysis indicated that for 4 of the 6 children noncompliance appeared to occur as a function of both attention and escape. Additionally, one child’s noncompliance appeared to occur primarily as a function of attention, and for the other child noncompliant behavior occurred primarily as a function of escape. The benefit of this type of analysis is that individualized treatments can be developed based on the function of behavior.

Direct Observations Focusing on Parent-Child Interactions

Direct observation methods have been developed which focus on both the general family environment (i.e., broad-band) and specific parent-child interactions (i.e., narrow-band). The Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1979) is a broadly developed home observation and interview procedure. During the HOME, the observer rates the environment regarding: a) parental emotional responsivity to the child, b) parent acceptance of the child’s behavior, c) organization of the environment, d) provision of play materials, e) parental involvement with the child, and f) opportunities for variety in the child’s life. The HOME has extensive research supporting its reliability and validity; however, scores may produce limited variability within socioeconomic strata (Bradley, Munform, Whiteside, Casey, & Barrett, 1994). Other direct observation methods have been developed which more narrowly focus on parent-child interactions. For example, the Family Interaction Coding System (FICS; Reid, 1978) is a 29-category coding system in which the behavior of all
family members are coded continuously. Codes include both antisocial and prosocial behaviors for children and parents.

Other coding systems focus on the interaction between one parent and one child (Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994; Forehand & McMahon, 1981). These measures were heavily influenced by Hanf’s (1969) two-stage model for modifying oppositional child behavior. The first stage includes teaching differential attention skills to parents, and the second stage includes teaching direction-giving and consequence-based skills. The Dyadic Parent-Child Interaction Coding System II (DPICS-II; Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994) is a coding system used during Child-Directed Play, Parent-Directed Play, and Clean-up tasks. Parent codes include direct and indirect commands, information questions, descriptive and reflective statements, and labeled and unlabeled praise. Child codes include compliance, noncompliance, smart talk, criticism, yell, whine, physical negative, and destructive behavior. Observers code behaviors as they occur, providing a temporal description of interactions, although a simpler tally form is also available. The reliability and discriminative validity of the original DPICS has been well established (Eyberg & Robinson, 1982; Webster-Stratton, 1985). The DPICS has also been shown to be sensitive to treatment effects during Parent-Child Interaction Therapy (PCIT), a specific type of Parent Management Training (Eyberg & Robinson, 1982; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989).

The Behavior Coding System (BCS) was developed by Forehand and McMahon (1981) as an observational system for use during both parent- and child-directed play situations. During the Child’s Game, parents are instructed to let their child play whatever he or she would like for 5 minutes and parents play along. During the Parent’s Game, parents are instructed to
direct a 5-minute interaction with their children. During the observation, parent behaviors are
coded such as commands, warnings, questions, attending, rewarding, and time-out. Children’s
compliance and other deviant behaviors are also coded. Other than instructing parents to direct
the interaction, the parent’s game is a relatively unstructured situation, and modifications have
been made to increase structure. The Home Task Analogue and the Clinic Task Analogue use
the BCS during clean-up tasks at the home and clinic. During the Home Task Analogue, parents
disperse toys in 20 locations and instruct their child to clean up the toys. Similarly, during the
Clinic Task Analogue parents instruct their children to place toys in specific containers.

Table 2. Examples of Assessments Focusing on Children’s Behavior at Home

<table>
<thead>
<tr>
<th>Method</th>
<th>Focus of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>China Behavior Only</td>
</tr>
<tr>
<td>Rating Scales</td>
<td>Broad-Band</td>
</tr>
<tr>
<td></td>
<td>CBCL</td>
</tr>
<tr>
<td></td>
<td>CRS-R</td>
</tr>
<tr>
<td></td>
<td>Narrow-Band</td>
</tr>
<tr>
<td></td>
<td>ECBI</td>
</tr>
<tr>
<td></td>
<td>CPQ</td>
</tr>
<tr>
<td>Direct</td>
<td>Broad-Band</td>
</tr>
<tr>
<td>Observation</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Narrow-Band</td>
</tr>
<tr>
<td></td>
<td>Compliance Test</td>
</tr>
<tr>
<td></td>
<td>Functional Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
One major advantage of direct observation methods is that they provide direct evidence of the effectiveness of Parent Management Training. During follow-up interviews and rating scales parents may try to please the therapist by reporting behavior change when no change has occurred. Direct observation can provide evidence of behavior change for both children and parents. Each of the discussed examples of assessment methods are presented in Table 2.
Purpose of Study

Limitations of Direct Observation Methods

Direct observation methods are limited by the possibility that parents and children may not respond naturally when they are being observed, and elaborate coding systems require significant training and may be difficult to use in clinical practice. Roberts (2001) suggested that existing direct observations are psychometrically underdeveloped. That is, most direct observation methods have limited or no data regarding convergent validity with questionnaires, test-retest reliability, normative information, and clinical utility.

One common feature of most direct observation approaches is that the number of commands provided may vary substantially from one observation to the next, making it difficult to compare trials. In some situations it may be interesting to know how many commands the parent will give in a specified time period; however, imposing structure on the number of commands may stabilize responding. Increased structure would be particularly useful for repeated uses of the coding system to monitor treatment effectiveness. The Clinic Task Analogue and Home Task Analogue are previous attempts to create greater standardization (Brumfield & Roberts, 1998); however, the number of commands provided can still vary substantially, and these analogues are also limited in that they included different procedures for different settings. Additionally, research using the Clinic and Home Task analogues has traditionally used the BCS which leaves out many codes included in the DPICS-II. Finally, the Clinic and Home Task Analogues are limited in that they rely solely on clean-up tasks rather than including other types of commands.
The Parent Instruction-Giving Game with Youngsters (PIGGY) was developed to provide a more structured observation of the parent-child interaction than other coding systems. The PIGGY is a derivative of the BCS and DPICS-II and utilizes a format similar to the more structured Compliance Test. During the PIGGY, parents instruct their child to comply with 4 tasks, 5 times each (i.e., 20 commands). Two of the tasks are clean-up tasks (i.e., place a block in a box, and put a book on a table) and two of the tasks are not clean-up related (i.e., sit in the chair, and knock on the door). Every 35 seconds, a tape-recorded voice says a number, indicating that the parent should provide the next instruction. Numbers correspond with pictures representing each of the four tasks (e.g., picture of a chair). Pictures are used rather than sentences, so that parents are more likely to say the command like they normally would rather than read the instruction off the card. A coding form has been developed specifically for the PIGGY which includes many of the same codes from the BCS, DPICS-II, and a few additional codes.

The PIGGY Coding Form is divided into parent commands, child behavior, and parent consequences. Most codes were derived from the DPICS-II (Eyberg et al., 1994). Regarding commands, the PIGGY distinguishes between Direct and Indirect Commands, and during each command sequence the observer indicates if the parent gave the child enough time to initiate compliance (i.e., 5 seconds) or No Opportunity to comply before issuing a Repeat Command or Warning. The four Child Defiance codes include: Slow Compliance, Noncompliance, Inappropriate Verbal Behavior, and Inappropriate Physical Behavior. The other child behavior code is Immediate Compliance (i.e., within 5 seconds of first command). Labeled and
Unlabeled Praise are coded following compliance. Discipline strategies coded on the PIGGY include Time-out/Token Removal and Physical Guidance. Parent behavior can also be coded as Overreactive. For Study 2, one additional code of parent Descriptions of child behavior was added (see Appendix A for definitions).

The PIGGY combines the strengths of the BCS, DPICS-II, and Compliance Test. This system attempts to provide a more standardized method to assess parenting skills and child behavior in order to improve the early identification and prevention of significant childhood problems. The PIGGY was designed to be easy to code so that it can be administered to many children in several settings (i.e., home, school, and clinic). Head Start programs may benefit from a standardized assessment of parenting skills, and a screening early in the year can be used to target parents and children that may benefit from Parent Management Training programs.

The primary goal of this project is to show that the PIGGY can be used as an assessment device for parent-child interaction difficulties and can also monitor the effects of the treatment of child noncompliance.

**Research Questions and Hypotheses.**

The present project attempts to address four primary questions. First, is the PIGGY a reliable instrument for assessing parent and child behavior? Second, will the PIGGY differentiate between previously defined groups of Noncompliant and Compliant children and their mothers. Third, will PIGGY scores correlate with rating scales assessing child and parent behavior? Fourth, will the PIGGY be sensitive to treatment effects during Parent Management Training?
We predicted that: a) the PIGGY codes would demonstrate at least 80% reliability across observers, b) the PIGGY would differentiate between a Noncompliant and Compliant group of children on Child Defiance codes, c) Child Defiance on the PIGGY would correlate significantly (p<.05) with the ECBI and Oppositionality subscale of the CPRS-R, d) Overreactive ratings on the PIGGY would correlate significantly (p<.05) with the Parenting Scale, e) ratings of Labeled/Unlabeled Praise on the PIGGY would be negatively correlated (p<.05) with the Parenting Scale, f) ratings of Labeled/Unlabeled Praise on the PIGGY would be positively correlated with the Supportive/Engaged subscale from the PBI (p<.05), and g) the PIGGY will show improvements in parent and child behavior following Parent Management Training, as evidenced by visual analysis of a single-case research design.
Method

Participants. Parents who enrolled their children for the 2000-2001 academic year, attended an orientation meeting at four Head Start Centers. We explained the purpose of the project and obtained consent to participate from 214 (out of a possible 240) Head Start parents. At the end of the orientation meeting, parents were asked to complete a packet of questionnaires designed to assess child and parent behavior. The questionnaires included: Eyberg Child Behavior Inventory (ECBI), Conners Parent Rating Scale - Revised (CPRS-R), Parenting Scale (PS), and the Parent Behavior Inventory (PBI). Graduate and undergraduate psychology students were available to answer questions and collect the packets. Parents received a $10.00 check in the mail for completing the packets.

Fourteen children were selected to be included in a Noncompliant group, and an additional fourteen families were selected for a Compliant group. Criteria to be in the Noncompliant group included: a) the child received a t-score of 65 or higher (i.e., 1 ½ standard deviations above the mean) on either the ECBI or the Oppositional subscale of the CPRS-R, and b) the parent agreed to participate in a home observation. Criteria for inclusion in the Compliant group included: a) the child received a t-score below 55 on both the ECBI and the Oppositional subscale of the CPRS-R, and b) the parent agreed to participate in a home observation.

Additionally, children were matched by gender, age (within 6 months), race, Head Start Center, and score on the Brigance Preschool Screen (within 1 standard deviation) (Brigance, 1998). The Brigance is a developmental screen routinely administered at Head Start. Brigance scores range between 0 and 100, and scores below 60 were typically referred for a more thorough
developmental assessment. Three families from the Noncompliant group, and one family from the Compliant group did not agree to participate in the study and were replaced by other families meeting criteria. Demographic characteristics of both groups are included in Table 3.

Table 3. Demographic Characteristics of the Noncompliant and Compliant Groups

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Noncompliant Group</th>
<th>Compliant Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Child Age (years - months)</td>
<td>4 - 8</td>
<td>4 - 4</td>
</tr>
<tr>
<td>% Females</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>% African American</td>
<td>64%</td>
<td>64%</td>
</tr>
<tr>
<td>% Caucasian</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>Brigance Score</td>
<td>72</td>
<td>71</td>
</tr>
</tbody>
</table>

Materials. Several materials were used during PIGGY observations. Toys included a grey castle, pink castle, parking garage, matchbox cars, dump truck, action figures, dolls, blocks, and Play-Doh. A carpet (3 feet by 5 feet) was used to provide a clean area to play on the floor. Eight children's books and a box (with a small hole in the lid) were used as part of the tasks. Other materials included a picture sheet (i.e., for instructions), a timer, tape-player (i.e., with 35-second intervals), PIGGY Coding Forms, and clipboards. Finally, a portable screen (3 feet by 6 feet) with a one-way mirror (2 feet by 3 feet) was constructed for observers to stand behind during home PIGGY observations.

Procedures. To set up home observations, parents were telephoned and offered a $20.00 gift certificate to participate. Two trained observers visited participants' homes during weekday afternoons. Upon entering the home, confidentiality was discussed and parents were reminded
they already signed a consent form upon completing the questionnaires. For the first ten minutes, several toys were placed around the small carpet, and the parent was prompted to instruct her child to sort 30 blocks by color and then re-sort them until 10 minutes had elapsed. The block sorting was intended to provide a period of the time for parents and children to become accustomed to the situation and observers. Observers stood behind the portable one-way mirror. Following the block sorting task, the PIGGY was administered, and the following instructions were provided:

Now, I am going to play this tape. When it says a number, give your child the instruction on this sheet of pictures. (Each of the four tasks was demonstrated without saying the commands). There are about 30 seconds between each instruction. After your child completes each instruction, he/she can go back to playing with the toys, and you can play with your child between instructions. Try to act the way you normally would when telling your child to do an important task.

Observers stood behind the one-way mirror as they coded the child’s and parent’s behavior.

Response Definitions. Most of the PIGGY codes were derived from the DPICS-II (Eyberg, et al., 1994). Additional definitions and more detailed definitions are presented in Appendix A. A Direct Command was defined as a clearly stated order, demand, or direction in declarative form. Repeat Commands were defined as the parent repeating part or all of the instruction, including: a) saying the same instruction twice in a row very quickly, b) any other additional verbal attempts to get the child to comply, and c) attempts to get the child to do a better job of complying. Only one repetition per command was included during data analysis. Child Defiance was a combination of Inappropriate Verbal Behavior (i.e., cry, yell, whine, talking back, or complaining), Inappropriate Physical Behavior (i.e., destructive or aggressive),
Slow Compliance (i.e., child takes longer than 5 seconds to comply), and Noncompliance (i.e., child does not comply). Praise was defined as the parent praising the child for compliance in a manner that describes what the child did (e.g., Good job putting it in the box) or is unlabeled (e.g., Great job.) Overreactive parent behavior was defined as the parent being verbally or physically harsh with the child.

Reliability. One undergraduate and one graduate student in psychology were trained to code the parent and child behaviors using the PIGGY Coding Form (see Appendix B). Training occurred on a video tape of a parent-child interaction with actors, and coders were required to reach at least 80% reliability across all codes for at least three PIGGY observations. Additionally, six PIGGY quizzes (see Appendix C) were developed which focused on identifying codes, distinguishing between Direct and Indirect Commands, coding Repeat Commands and Warnings, coding child behavior, distinguishing between Labeled and Unlabeled praise, and coding Time-out/Token Removal, Physical Guidance, and Overreactivity. Coders were required to receive at least a 90% on all six quizzes before beginning observations. Study 1 reliability for each PIGGY code is presented in Table 4.

Point-by-point interrater reliability was calculated on 86% of the PIGGY observations by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Agreement for the child and parent behaviors ranged from 86% (i.e., Direct Commands) to 99% (i.e., Inappropriate Physical Behavior). Several of the codes were expected to be used primarily after Parent Management Training and were not observed during home observations (i.e., Warning, Labeled Praise, Description, Time-Out/Token Removal, and
Overall, agreement between raters was high, indicating the PIGGY has good interrater reliability.

Table 4. Mean Percentage Interrater Reliability for PIGGY Codes During Study 1

<table>
<thead>
<tr>
<th>PIGGY Code</th>
<th>% Reliability (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Commands</td>
<td></td>
</tr>
<tr>
<td>Direct Command</td>
<td>86 (35-100)</td>
</tr>
<tr>
<td>Indirect Command</td>
<td>86 (35-100)</td>
</tr>
<tr>
<td>Warning</td>
<td>--</td>
</tr>
<tr>
<td>Repeat Command</td>
<td>93 (80-100)</td>
</tr>
<tr>
<td>No Opportunity</td>
<td>91 (70-100)</td>
</tr>
<tr>
<td>Child Behavior</td>
<td></td>
</tr>
<tr>
<td>Inappro. Verbal Behavior</td>
<td>93 (75-100)</td>
</tr>
<tr>
<td>Inappro. Physical Behavior</td>
<td>98 (90-100)</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>99 (90-100)</td>
</tr>
<tr>
<td>Slow Compliance</td>
<td>95 (85-100)</td>
</tr>
<tr>
<td>Compliance</td>
<td>95 (85-100)</td>
</tr>
<tr>
<td>Parent Consequences</td>
<td></td>
</tr>
<tr>
<td>Labeled Praise</td>
<td>--</td>
</tr>
<tr>
<td>Unlabeled Praise</td>
<td>94 (80-100)</td>
</tr>
<tr>
<td>Description</td>
<td>--</td>
</tr>
<tr>
<td>Time-out/Token Removal</td>
<td>--</td>
</tr>
<tr>
<td>Physical Guidance</td>
<td>--</td>
</tr>
<tr>
<td>Overreactive</td>
<td>90 (65-100)</td>
</tr>
</tbody>
</table>

Results.

Group Comparisons. For ease in interpretation, two parental command codes (e.g., Direct Commands and Repeat Commands), one general Child Defiance score (e.g., a combination of Inappropriate Verbal Behavior, Inappropriate Physical Behavior, Slow
Compliance, and Noncompliance), and 2 parental consequences (e.g., Unlabeled Praise and Overreactive) were compared across the compliant and noncompliant groups. PIGGY scores for both groups are presented in Table 5 and Figure 1.

Table 5. Group Means (and Standard Deviations) for Noncompliant and Compliant Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Parent Commands</th>
<th>PIGGY Score</th>
<th>Parent Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Repeat</td>
<td>Defiant</td>
</tr>
<tr>
<td>Noncompliant</td>
<td>11.9 (3.9)</td>
<td>9.4 (3.3)</td>
<td>6.9 (5.0)</td>
</tr>
<tr>
<td>Compliant</td>
<td>13.7 (5.9)</td>
<td>6.3 (3.6)</td>
<td>2.6 (3.1)</td>
</tr>
<tr>
<td>t-score</td>
<td>1.203</td>
<td>-1.948*</td>
<td>-2.639**</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

On average, participants in the Compliant group engaged in 2.6 Child Defiant behaviors during the PIGGY, and participants in the Noncompliant group engaged in 6.9 Child Defiant behaviors. The Noncompliant group engaged in significantly more Child Defiant behavior during the PIGGY than the Compliant group (t = 2.639, p < .01).

Regarding commands, parents in the Noncompliant group demonstrated an average of 9.4 Repeat Commands, and parents in the Compliant group demonstrated 6.3 Repeat Commands. Parents in the Noncompliant group repeated significantly more commands than parents in the Compliant group (t = 1.948, p < .05). On the other hand, groups did not significantly differ on the number of Direct or Indirect Commands provided.
Figure 1. Parent and Child PIGGY Scores for Compliant and Noncompliant Groups.
Regarding consequences, parents in the Noncompliant group demonstrated Overreactive behavior an average of 5.2 times, and parents in the Compliant group were Overreactive during 1.3 commands. Parents in the Noncompliant group were significantly more Overreactive than parents in the Compliant Group ($t = 1.948, p < .05$). On the other hand, groups did not significantly differ on the number of Labeled/Unlabeled Praises provided. Neither group engaged in any Labeled Praise. Interestingly, parents in the Noncompliant group provided more Unlabeled Praise than parents in the Compliant group; however, the difference was not significant.

Convergent Validity. As shown in Table 6, Pearson product-moment correlations were calculated between the PIGGY scores, ECBI scores (i.e., Intensity & Problem), and CPRS subscale scores (e.g., Oppositional & ADHD Index). As predicted, the ECBI Intensity Score was positively correlated with Child Defiant behavior, Repeat Commands, and parent Overreactivity ($r = .52, .43, & .59$, respectively). The ECBI Problem score was correlated with Child Defiant behavior and parent Overreactivity, but it was not significantly correlated with Repeat Commands. Similarly, the CPRS Oppositional subscale and the ADHD Index were significantly correlated with Child Defiant behavior, Repeat Commands, and parent Overreactivity. Due to the small sample size and skewed distributions the assumption of normality was violated. Thus, Spearman rank-order correlations were also conducted. Most of the above correlations were supported with the rank-order procedure, and significant rank-order correlations are demarcated in Table 6.
Table 6. Correlations of the PIGGY and Rating Scales

<table>
<thead>
<tr>
<th>Parent Ratings</th>
<th>PIGGY Score</th>
<th>Parent Commands</th>
<th>Child Behavior</th>
<th>Parent Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct</td>
<td>Repeat</td>
<td>Defiant</td>
</tr>
<tr>
<td>ECBI Intensity Score</td>
<td>-.052</td>
<td>.425**s</td>
<td>.518**s</td>
<td>.337</td>
</tr>
<tr>
<td>Problem Score</td>
<td>.115</td>
<td>.285</td>
<td>.359*</td>
<td>.241</td>
</tr>
<tr>
<td>CPRS Oppositional</td>
<td>-.029</td>
<td>.345*</td>
<td>.430**s</td>
<td>.190</td>
</tr>
<tr>
<td>Social Problems</td>
<td>.011</td>
<td>.165</td>
<td>.103</td>
<td>.138</td>
</tr>
<tr>
<td>ADHD</td>
<td>-.045</td>
<td>.337*</td>
<td>.468**s</td>
<td>.322</td>
</tr>
<tr>
<td>Parenting Scale Laxness</td>
<td>.042</td>
<td>.016</td>
<td>.043</td>
<td>.207</td>
</tr>
<tr>
<td>Overreactive</td>
<td>-.257</td>
<td>.227</td>
<td>.256</td>
<td>.281</td>
</tr>
<tr>
<td>PBI Supportive</td>
<td>.325</td>
<td>-.055</td>
<td>.145</td>
<td>.083</td>
</tr>
<tr>
<td>Hostile/Coercive</td>
<td>-.247</td>
<td>.473**s</td>
<td>.504**s</td>
<td>.107</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001, s = significant Spearman rank-order correlation (p < .05)

Table 6 also includes Pearson product-moment correlations between PIGGY scores and subscale scores from the Parenting Scale (i.e., Laxness & Overreactivity) and the Parent Behavior Inventory (i.e., Supportive/Engaged & Hostile/Coercive). The PIGGY Overreactive score was significantly correlated with the PS Overreactive (r = .48) and Laxness (r = .43) scores. The PBI Hostile/Coercive score was correlated with Child Defiant behavior, parent Repeat Commands, and parent Overreactivity on the PIGGY (r = .50, .47, & .50). Contrary to predictions, the PBI Supportive/Engaged score and PIGGY Unlabeled Praise score were not significantly correlated. All of these correlations were supported with the Spearman rank-order procedure. Since the 28 participants in the study were not selected randomly (i.e., they were
chosen based on high and low levels of reported compliance) all correlations should be interpreted with caution.

**Discussion.**

Study 1 demonstrated that the PIGGY can be coded reliably and provided initial evidence of validity. Regarding interrater reliability, an undergraduate psychology student was able to learn the coding system with 10 hours of training. Compared to the DPICS-II (from which PIGGY codes were derived) the PIGGY may be easier to code due to increased structure. That is, coders know exactly when parents will provide commands, making them more prepared to code behavior.

Regarding discriminative validity, parents in the Noncompliant group received higher scores on Repeat Commands and Overreactivity than parents in the Compliant group. Children in the Noncompliant group demonstrated higher rates of Child Defiance on the PIGGY. Thus, the PIGGY is able to differentiate between families with noncompliant children and comparison families. On the other hand, groups did not significantly differ regarding Direct/Indirect Commands or Labeled/Unlabeled Praise on the PIGGY. One conclusion drawn from these results may be that the PIGGY is not effective at differentiating between families regarding Direct/Indirect Commands and Labeled/Unlabeled Praise. Alternatively, this study may provide evidence that parents of compliant and noncompliant children do not differ in the types of commands and amount of praise they provide.

Convergent validity was evaluated by comparing PIGGY scores to parent completed rating scales. Overall, PIGGY scores correlated with the parent ratings as predicted. The Parenting Scale scores correlated with PIGGY Overreactivity; however, it is unclear why the
Parenting Scale scores did not correlate with other PIGGY codes (i.e., Child Defiant behavior & Repeat Commands). On the other hand, the Hostile/Coercive scale of the PBI did correlate with several of the PIGGY codes. Another surprising finding was that PIGGY Praise was not correlated with the PBI Supportive/Engaged subscale. Indeed, the Supportive/Engaged subscale includes several behaviors in addition to praise (e.g., pleasant conversations, laughing, playing games); however, parents in the Noncompliant group actually praised their children more than parents in the Compliant group. Thus, parents in the Noncompliant group may have been using praise as a means to gain compliance. Parents of compliant children may not have needed to use praise during the PIGGY, although they may use more praise during other activities. Considering these results, the PIGGY appears to be a better measure of parenting strategies used to manage oppositional behavior than a measure of positive parent-child interactions.
Study 2: Clinical Application

Method.

Participants. A clinical application of the PIGGY was used with two families at a pediatric psychology clinic. Both Courtney (4 ½ year-old female) and Bernadine (3 ½ year-old female) met the diagnostic criteria for Oppositional Defiant Disorder in the Diagnostic and Statistical Manual of Mental Disorders - 4th Edition (DSM-IV; APA, 1994). Both children were described by their mothers as defiant and demonstrated frequent temper tantrums. During the initial visit to the clinic the mothers completed the ECBI. Both Courtney and Bernadine received Intensity scores (i.e., 143 & 160) and Problem scores (i.e., 18 & 20) in the clinically significant range. At the time of the assessment, Courtney evidenced delays in speech and toileting, and Bernadine was developing within normal limits. Neither child attended Head Start. Bernadine attended the same daycare throughout treatment. Soon after the initial assessment Courtney was moved to a daycare specializing in children with delays.

Materials. Study 2 used materials similar to those from Study 1. Specifically, the clinic room was equipped with children’s books, a box, blocks, a child’s chair, the picture sheet, a tape-player (i.e., with 35-second intervals), PIGGY Coding forms, and clipboards. Similar toys were used in the clinic room including dinosaurs, a parking garage, cars, action figures, and dolls. The clinic room was equipped with a one-way mirror.

Procedures. A multiple-baseline across parent behaviors design was used for both participants. During the initial assessment, confidentiality was discussed and consent forms signed. During PIGGY baseline observations, Study 2 differed from Study 1 in three primary ways. First, one additional code, parent Descriptions of child behavior (see Appendix A for a
definition), was added to the PIGGY Coding Form because Parent Management Training often first targets this skill. Second, the warm-up block sorting task was not used prior to the PIGGY because of time-constraints within sessions at the clinic. Third, each PIGGY observation consisted of 10 commands (rather than 20) because the PIGGY was going to be used repeatedly throughout treatment. Otherwise the same procedures from Study 1 were used during the baseline observations of Study 2.

During the second session at the clinic, both parents were introduced to the rationale behind Parent Management Training. Parent Management Training used during this study was adapted from Hembree-Kigin and McNeil (1995). Parent attending skills (i.e., descriptions, reflections, and imitation) were discussed and modeled by the therapist (a psychology predoctoral intern). Parents were then given the opportunity to practice these skills with feedback from the therapist, and parents were encouraged to practice attending skills at home for approximately 10 minutes each night. PIGGY observations were conducted at the end of the session and the beginning of the next session.

During Courtney’s third session, parent instructions and time-out were discussed, modeled, and practiced. Topics of instruction included giving direct commands, waiting 5 seconds before giving a time-out warning, and time-out. For Courtney, praise was not formally discussed until the fourth session. Courtney’s mother had already started providing unlabeled praise (e.g., good job) during previous observations, thus the focus during her fourth session was to provide labeled praise (e.g., good listening). In addition to coding the above parent behaviors, Courtney’s defiant behavior was also coded throughout treatment. Overall, Courtney participated in 8 treatment sessions (approximately 1 hour each) over 14 weeks. Additionally, at
2 months and 6 months following the last treatment session, Courtney and her mother returned to the clinic for follow-up observations. Courtney’s mother completed an ECBI at the end of treatment and 2 months following treatment.

During Bernadine’s third session, labeled praise was discussed, modeled, and practiced. Whereas Courtney’s mother was introduced to direct commands, waiting 5 seconds, and using time-out all at the same time, Bernadine’s mother was introduced to these skills sequentially. Following each session she was encouraged to practice these skills at home. Bernadine’s defiance was also coded during each observation. Overall, Bernadine participated in 4 treatment sessions (approximately 1 hour each) over 4 weeks. No follow-up observations were conducted with Bernadine because her mother declined further participation in the study. Bernadine’s mother also completed an ECBI at the end of treatment and 2 months following treatment.

Response Definitions. As mentioned in Study 1, most PIGGY codes were derived from the DPICS-II (Eyberg, et al., 1994), and additional and more detailed definitions are presented in Appendix A. Considering first definitions used with Courtney, Descriptions were defined as the parent a) making a declarative phrase that gives an account of the situation, or b) repeating an appropriate child verbalization. An Appropriate Instructions score was created, and during each command sequence one point was given if the command was a Direct Command and the parent waited 5 seconds before providing any needed Warnings. Praise included both Labeled Praise (i.e., parent praises the child for compliance in a manner that describes what the child did) and Unlabeled Praise (i.e., parent praises the child for compliance, but the praise is not descriptive). Child Defiance was a combination of Inappropriate Verbal Behavior (i.e., cry, yell, whine, talking back, or complaining), Inappropriate Physical Behavior (i.e., destructive or aggressive),
Slow Compliance (i.e., child takes longer than 5 seconds to comply), and Noncompliance (i.e., child does not comply).

Many of the response definitions for Bernadine (i.e., Descriptions, Praise, and Child Defiance) were the same as those included for Courtney. However, Appropriate Instructions were divided into Direct Commands, Waited 5 Seconds, and Time-Out Warning. A Direct Command was defined as clearly stated order, demand, or direction in declarative form. Waiting 5 Seconds was defined as parent waiting 5 seconds before the command is repeated or a warning issued. Time-Out Warning was defined as the parent providing any if...then statement in which time-out is the consequent event.

Reliability. A second rater, blind to the purposes of the study, completed PIGGY Coding Forms during 33% of the observations. The second rater was also a predoctoral psychology intern, previously familiar with similar codes from other parent-child observation systems. Training for the PIGGY codes took less than one hour. Point-by-point interrater reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Agreement for the child and parent behaviors ranged from 73% (i.e., No opportunity) to 100% (i.e., Labeled Praise). Study 2 provides initial evidence for two PIGGY codes (i.e., Labeled Praise and Descriptions) which were not observed in Study 1. A few of the codes (i.e., Warning, Time-Out/Token Removal, and Physical Guidance) were observed occasionally during the course of Study 2, however, not during observations with a second observer. Overall, agreement for codes corresponded with reliability estimates from Study 1. Reliability for PIGGY codes is presented in Table 7.
Table 7. Mean Percentage Interrater Reliability for PIGGY Codes During Study 2

<table>
<thead>
<tr>
<th>PIGGY Code</th>
<th>% Reliability (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Commands</td>
<td></td>
</tr>
<tr>
<td>Direct Command</td>
<td>99 (90-100)</td>
</tr>
<tr>
<td>Indirect Command</td>
<td>99 (90-100)</td>
</tr>
<tr>
<td>Warning</td>
<td>--</td>
</tr>
<tr>
<td>Repeat Command</td>
<td>79 (30-100)</td>
</tr>
<tr>
<td>No opportunity</td>
<td>73 (40-100)</td>
</tr>
<tr>
<td>Child Behavior</td>
<td></td>
</tr>
<tr>
<td>Inappro. Verbal Behavior</td>
<td>96 (80-100)</td>
</tr>
<tr>
<td>Inappro. Physical Behavior</td>
<td>94 (80-100)</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>97 (80-100)</td>
</tr>
<tr>
<td>Slow Compliance</td>
<td>93 (70-100)</td>
</tr>
<tr>
<td>Compliance</td>
<td>90 (70-100)</td>
</tr>
<tr>
<td>Parent Consequences</td>
<td></td>
</tr>
<tr>
<td>Labeled Praise</td>
<td>100 (100-100)</td>
</tr>
<tr>
<td>Unlabeled Praise</td>
<td>96 (80-100)</td>
</tr>
<tr>
<td>Description</td>
<td>74 (50-90)</td>
</tr>
<tr>
<td>Time-out/Token Removal</td>
<td>--</td>
</tr>
<tr>
<td>Physical Guidance</td>
<td>--</td>
</tr>
<tr>
<td>Overreactive</td>
<td>97 (80-100)</td>
</tr>
</tbody>
</table>

Results.

PIGGY Scores. Figures 2 and 3 show the results of parent and child behavior during PIGGY baseline and treatment observations. During baseline both mothers demonstrated no Descriptions on the PIGGY. Following their introduction during Parent Management Training, Descriptions increased for both Courtney’s mother (M = 5.3) and Bernadine’s mother (M = 6.4) between commands.
During baseline observations, Courtney’s mother demonstrated an increasing trend of Unlabeled Praise as Courtney’s behavior became less oppositional; however, she never used Labeled Praise. Bernadine’s mother demonstrated low rates of Unlabeled Praise and no Labeled Praise during baseline observations. With the introduction of Labeled Praise during Parent Management Training both mothers significantly increased their rates of Labeled Praise.

Courtney’s mother demonstrated low Appropriate Instructions scores during baseline ($M = 1.3$). The instructions and time-out training occurred concurrently for Courtney’s mother. The Appropriate Instructions score increased with training ($M = 6.6$). For Bernadine’s mother, the components of Appropriate Instructions and Time-out were introduced at separate times. Baseline observations of Direct Commands ($M = 3.0$), waiting 5 seconds (the inverse of No Opportunity; $M = 4.9$), and using time-out Warnings ($M = 0.0$) remained low, and these behaviors increased quickly following their introduction during Parent Management Training ($M = 9.8, 9.0, 2.0$, respectively). Although both parents provided several Time-outs during sessions, both Courtney and Bernadine were compliant with all Time-out Warnings during PIGGY observations. Thus, Time-outs are not included in Figures 2 and 3.

Regarding child behavior, Courtney demonstrated 10 Child Defiant behaviors (i.e., Noncompliance, Inappropriate Verbal Behavior, and Inappropriate Physical Behavior) during the initial PIGGY observation. Child Defiant behavior remained high after the introduction of parent descriptions, and Child Defiant behavior quickly decreased following the introduction of Appropriate Instructions and Time-out. Bernadine demonstrated 4 Child Defiant behaviors during the initial PIGGY. Child Defiant behaviors gradually decreased until Bernadine’s mother was instructed to wait 5 seconds before saying anything following a command. That is, once
Bernadine’s mother decreased her immediate repetition of commands, Bernadine became more defiant. On the other hand, Bernadine’s defiant behavior quickly decreased with the introduction of time-out during Parent Management Training.

Efforts were made to promote generalization to the natural environment during treatment, such as using home practices, using different commands, and using other less structured parent-directed interactions. Courtney and her mother were observed two and six months following the end of treatment. Parent Descriptions, Appropriate Instructions, and Labeled Praise remained high during the follow-up observations. Child Defiant behavior was zero during both follow-up observations. That is, Courtney continued to follow her mother’s instructions without being verbally or physically disruptive during the PIGGY up to 6 months following Parent Management Training. Bernadine and her mother were not observed following the last treatment session.

**Eyberg Child Behavior Inventory Scores.** The ECBI was given to each mother during the intake, last treatment session, and 2 months following the last treatment session. ECBI Intensity scores and Problem scores are shown in Figures 4 and 5. Pre-treatment Intensity scores fell above the clinically significant cut-off for both Courtney (143) and Bernadine (160). Courtney’s post-treatment Intensity score fell in the normal range (110), and Bernadine’s Intensity score (146) decreased but continued to fall in the clinically significant range. Two months following the last treatment session, both children’s Intensity scores fell in the normal range (98 & 103, respectively). ECBI Problem scores followed a similar pattern.
Figure 2: Parent and Child PIGGY Scores for Courtney during Baseline, Parent Management Training, 2-Month Follow-Up, and 6-Month Follow-Up.
Figure 3. Parent and Child PIGGY Scores for Bernadine during Baseline and PMT.
Figure 4. ECBI Intensity Scores During Pre-Treatment, Post-Treatment, and 2-Month Follow-Up
Figure 5. ECBI Problem Scores During Pre-Treatment, Post-Treatment, and 2-Month Follow-Up
Discussion.

Study 2 demonstrated the PIGGY was useful in evaluating the effectiveness of Parent Management Training, even though a briefer version of the PIGGY (10 commands) was used and no structured warm-up activities were included. On the PIGGY Coding Form, all of the parent skills increased following their introduction during Parent Management Training. The addition of the Descriptions code to the PIGGY Coding Form was reliably coded, and provided a means to assess how well parent descriptions generalized to a situation other than child directed interactions. In addition to providing a continuing assessment of parenting skills, the PIGGY gave parents the opportunity to practice these skills several times during each session.

As predicted, child defiance decreased during the PIGGY over the course of treatment. Surprisingly during the middle of treatment, Bernadine's defiant behavior was at its highest. That is, once her mother was instructed to start waiting 5 seconds before providing a Repeat Command, Bernadine was much slower to comply with commands. Thus, the frequent Repeat Commands were effective at prompting Bernadine to comply quickly; although they may have served to make the following initial commands less powerful. Fortunately, time-out Warnings served as an effective substitute for Repeat Commands.

Parent ratings on the ECBI also demonstrated decreased Child Defiant behavior during treatment. In fact, both parents rated their child in the clinically significant range before treatment, and children were rated to be in the normal range two months following treatment. Thus, the PIGGY was part of a successful treatment for two children meeting the diagnostic criteria for Oppositional Defiant Disorder.
General Discussion

Roberts (2001) suggested direct observation systems are in need of increased research on psychometric data, and the present studies provide evidence of the reliability and validity of a newly developed structured parent-child interaction observational system. The PIGGY Coding Form was coded reliably with minimal training. The PIGGY differentiated between previously defined families with noncompliant children and comparison families in a Head Start population. The PIGGY correlated with parent ratings of child defiant behavior and Overreactive parent behavior. Finally, the PIGGY was useful in monitoring the effectiveness of Parent Management Training. Whereas in Study 1, the PIGGY did not differentiate between the two groups regarding parent command type (i.e., Direct versus Indirect commands) or parent Praise, Study 2 demonstrated increases in Direct Commands and Labeled Praise during Parent Management Training.

Several strengths of the PIGGY emerged during the two studies. First, reliability and validity data were provided in two settings (i.e., home and clinic) which also varied based on the toys which were present and the preceding activity. Second, the PIGGY identified one child (out of 14) in the Compliant group who demonstrated oppositional behavior comparable, and in many cases more severe, than children in the Noncompliant group. Thus, the PIGGY, may provide a valuable compliment to parent report methods in identifying children who may benefit from behavioral health services and may yield promise as a screening instrument for identifying children at risk for developing behavior problems. Third, the stable number and content of commands provided during each PIGGY decreased variability in responding from one trial to the
next. Thus, the effects of manipulations during Parent Management Training were clearly evident.

In addition to measuring treatment effectiveness, the PIGGY also can be used to measure treatment integrity. Thus, it measures how quickly parents apply skills introduced during Parent Management Training. In addition to assessing parent skills, the PIGGY gives parents an opportunity to practice the skills during the session. Following the PIGGY, parents can be given feedback regarding their behavior. The 10-command PIGGY can quickly be used at the beginning of a session to assess retention from the last session and throughout the session for repeated practice. Additionally, PIGGY materials (tape-player, tape with intervals, command picture sheet) could be sent home with parents to ensure daily home practices are conducted with integrity, and parents may be able to code their own behavior or videotape home practices. On the other hand, an overuse of the PIGGY may inhibit the generalization of skills, thus practitioners should be careful to promote generalization by including practice sessions without the high structure of the PIGGY.

Study 1 was limited by the small number of subjects from a relatively homogenous population (i.e., Head Start Families from the same city). Additionally, the Noncompliant group did not represent a clinical population. A second limitation (of both studies) was that no other behavioral observation system was used to directly compare to the PIGGY. Finally, in Study 2 parent ratings of child behavior were assessed before and after treatment; however, self-report ratings of parent behavior were not collected following treatment. Thus, future research needs to continue to assess the validity of the PIGGY with other families. Future research should also compare the PIGGY to already established observation systems, and repeated trials with the
PIGGY should be compared to parents’ report of their own behavior during Parent Management Training.

Overall, the present study demonstrates the PIGGY yields promise in the assessment of parent-child interactions, and it may be useful in several other research endeavors. That is, the PIGGY could be used to conduct a functional analysis of inappropriate child behavior by instructing parents to modify consequences to inappropriate child behavior in different conditions. The PIGGY could be used to compare the effects of Direct and Indirect commands as well as Labeled and Unlabeled Praise. The PIGGY may also be enhanced by using the Compliance Probabilities Questionnaire to select commands children are likely to comply with (i.e., high probability) and less likely to comply with (i.e., low probability). That is, the commands provided during the PIGGY could be manipulated. In this manner, the PIGGY may also aid in research regarding behavioral momentum by comparing the effects of presenting low-probability commands after high-probability commands. Finally, research often demonstrates a poor correspondence between home and clinic observations (Roberts 2001), and the PIGGY should be directly compared across settings. Thus, the PIGGY may be valuable to both clinicians and researchers, and it may aid in conducting research in applied settings.
References


Appendix A: PIGGY Definitions

PARENT ANTECEDENTS

A. First Mand

Direct Command (Dir): A clearly stated order, demand, or direction in declarative form. The statement must be sufficiently specific as to indicate the behavior that is expected from the child, and it must be clear that the child has to complete the command alone.

- Put the block in the box.
- Go put the block in the box.
- Okay, put the block in the box.

Indirect Command (Ind): An order, demand, or direction for a behavioral response that is implied, nonspecific, or stated as a question. The command is indirect if the parent sounds hesitant or gives a double-barreled command.

- Put it on the table.
- Let’s put the block in the box.
- The block needs to go in the box.
- Umm–uh–alright, put the block in the box.
- It’s time to put the block in the box.
- The box wants a block in it.

You should put the block in the box.
Will you put the block in the box?
The block goes in the box.
Look at me. Put the block in the box.
Come here and put the block in the box.

B. Second, Third, and Fourth Mands

Warning (Wa): The parent provides any if...then statement in which the consequent event is aversive.

- If you don’t do it then...I’ll put you in time-out.

Repeat Command (Re): The parent repeats part or all of the instruction. This includes: 1) saying the same instruction twice in a row very quickly, 2) any other additional verbal attempts to get the child to comply, and 3) attempts to get the child to do a better job of complying (see below).

- Put the block in the box...in the box.
- Just do it.
- Do what I said.

- Sit the right way
- Put the block all the way in the box

C. Other Code for Mands

No Opportunity (5s): The parent does not give the child 5 seconds to comply with a command before the command is repeated or a warning issued. No Opportunity can occur even after the parent repeated the mand two times.
CHILD BEHAVIOR

D. Child Behaviors

**Inappropriate Verbal Behavior (VB):** The child exhibits inappropriate verbal behavior at any point during the interval. Any verbal behavior that seems to be an attempt at getting out of compliance is an Inappropriate Verbal Behavior (I'll do it later; No; I'm playing). Sighs are only coded if they are somewhat vocal.
- **cry** (inaudible utterance of distress)
- **whine** (words uttered in a slurring, nasal voice)
- **complaint** (this is boring)
- **yell** (loud screech, scream, shout)
- **talking back** (No, you do it)

**Inappropriate Physical Behavior (PB):** The child exhibits deviant physical behavior (other than noncompliance) at any point during interval.
- **destructive** (destroys, damages, or attempts to damage any object, such as throwing toy; banging toy on table, kicking box)
- **aggression** (hit, slap, bite, pinch, throw toy at parent, kick, pull hair, spit)

**Noncompliance (Non):** The child does not comply to the mand.

**Slow Compliance (C2):** Child complies to the mand at some point but not soon enough to be considered Compliance 1.

**Compliance (C1):** Child completes compliance to 1st mand within 5 secs. Even if the child says what start counting right away.
- **Sit on chair:** The child must be sitting up right. The child may sit on his or her feet/legs. The child may not lay down unless the parent provided the command, Lay down on the couch.
- **Block in Box:** The block must drop completely inside the box.
- **Touch the door:** The child may use any part of his/her body to touch the door. An object can also be used to touch the door (unless it is thrown at the door).
- **Book on table:** The child may put the book on any table. If the book falls off the table, the child must put it back to be considered compliant.
PARENT CONSEQUENCES

E. Responsiveness

Labeled Praise (Lab): The parent praises the child for compliance in a manner that describes what the child did.

- Good job putting it in the box.
- Thank you for moving so quickly.
- I like the way you did what I told you.

Unlabeled Praise (Unl): The parent praises the child for compliance, but the praise is not descriptive. This also includes nonverbal praise (high-fives or a pat on the back).

- Great job.
- Thank you.
- I like the way you did that.

Description (Des): At any point during the interval, the parent makes a declarative phrase that gives an account of the objects or people in the situation, the activity occurring during the interaction, or repeats an appropriate child verbalization.

- You’re playing with the red car.

F. Demandingness

Time-out or Token Removal (T): The parent attempts to make the child sit or stand away from the activity OR the parent takes a token away.

Physical Guidance (G): The parent attempts to physically prompt the child comply with the instruction. (The guidance may be firm, but if the guidance is harsh...then score Overreactive).

Overreactive (Over): During any point, the parent is physically harsh with the child. This includes quickly jerking the child’s body, spanking, and slapping a hand. OR the parent sounds verbally frustrated or is verbally harsh to the child (including mands provided in a frustrated tone of voice). This includes a harsh tone of voice, harsh words, threatening to use harsh punishment, or using don’t/stop commands.

- Do it or I’ll spank you.
- You’re a bad boy.
- Put the BLOCK in the BOX!
- Don’t do that.
- Stop squirming.

Note: PIGGY Codes were derived from the DPICS-II; Eyberg, et al., 1994).
Appendix B: PIGGY Coding Form

<table>
<thead>
<tr>
<th>Mand1</th>
<th>Mand2</th>
<th>Mand3</th>
<th>Mand4</th>
<th>Time</th>
<th>Child Behavior</th>
<th>Responsiveness</th>
<th>Demandingness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>2. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>3. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>4. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>5. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>6. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>7. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>8. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>9. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
<tr>
<td>0. Dir-Ind</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>Wa-Re</td>
<td>5s</td>
<td>VB PB Non--C2--C1</td>
<td>Lab-Unl Des</td>
<td>T G Over</td>
</tr>
</tbody>
</table>
Appendix C: PIGGY Quizzes

PIGGY Quiz #1

Name: 
Date: 
Score: 

Please write down what each code stands for.
C1
Unl
Re
Dir
Non
PB
G
Over
Ind
T
5s
C2
Lab
VB
Wa
PIGGY Quiz #2: Direct and Indirect Commands

Please write Dir (Direct Command) or Ind (Indirect Command) besides each command. For Indirect Commands, also underline the words which make it indirect.

1. _______ Come sit up here on the couch.
2. _______ Dave, can you put the book on the table, please.
3. _______ Put it on the table.
4. _______ Steve, put the block in the box...in the box.
5. _______ The block should go on the table please.
6. _______ You should put the block in the box.
7. _______ Go put the block in the box.
8. _______ Let s put the block in the box.
9. _______ Will you put the block in the box?
10. _______ Please go touch the door.
11. _______ The block needs to go in the box.
12. _______ Okay, put the block in the box.
13. _______ The block goes in the box.
14. _______ Umm-uh-alright, put the block in the box.
15. _______ Look at me. Put the block in the box.
16. _______ Steve, it s time to put the block in the box.
17. _______ Come here and put the block in the box.
18. _______ Sit on the chair please.
19. _______ The box wants a block in it.
20. _______ Put the book there.
PIGGY Quiz #3: All Mands

Please score the following parent behaviors...

1. Put the block in the box (sounds frustrated)...(1 second)... in the box ...(2 secs)... do it now.
2. Please, put the book on the table ...(5 secs)... Do it or I ll help you do it.
3. Sit up on the chair ...(5 secs)... sit there ...(5 secs)... sit there ...(1 sec)... sit there now.
5. Put the book on the table ...(2 secs)... good job ...(1 sec)... stop humming.

<table>
<thead>
<tr>
<th>Practice PIGGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dir-Ind Wa-Re Wa-Re Wa-Re 5s</td>
</tr>
<tr>
<td>2. Dir-Ind Wa-Re Wa-Re Wa-Re 5s</td>
</tr>
<tr>
<td>3. Dir-Ind Wa-Re Wa-Re Wa-Re 5s</td>
</tr>
<tr>
<td>4. Dir-Ind Wa-Re Wa-Re Wa-Re 5s</td>
</tr>
<tr>
<td>5. Dir-Ind Wa-Re Wa-Re Wa-Re 5s</td>
</tr>
</tbody>
</table>
PIGGY Quiz #4: Child Behavior

1. What are the five types of Inappropriate Verbal Behavior (VB)?
   A) 
   B) 
   C) 
   D) 
   E) 

2. What are two types of Inappropriate Physical Behavior (PB)?
   A) 
   B) 

3. When would you score Compliance 1 (C1)?

4. When would you score Compliance 2 (C2)?

5. Describe Compliance for the following types of commands:
   * Sit on chair:
   * Block in Box:
   * Touch the door:
   * Book on table:
PIGGY Quiz #5: Consequences

Please, write Lab (Labeled Praise) or Unl (Unlabeled Praise) besides each command.

1. _______ Great job doing that, Stevie.
2. _______ Thank you for moving so quickly.
3. _______ Good job putting it in the box.
4. _______ Thank you, my sweet baby.
5. _______ I like the way you did what I told you.
6. _______ Parent pats the child on the back following compliance.
7. _______ I like the way you did that.
8. _______ Thank you for being such a good little boy.
9. _______ Thank you for listening to me.
10. _______ Parent gives the child a high-five following compliance.

11. List and briefly describe three positive PIGGY discipline strategies that are often coded during Parent Training.

_______

12. Describe the ways a parent may be scored as Overreactive.
Vita

Stephen Hupp was born November 5, 1973 in St. Louis, Missouri, where he was raised by his parents Deanna and Dennis Hupp. He received his Bachelor of Arts degree in psychology from the University of Kansas before entering the graduate program in clinical psychology at Louisiana State University. Stephen completed a predoctoral internship at the University of Nebraska Medical Center, Munroe-Meyer Institute, and he accepted a position as a clinical-child psychology assistant professor at Southern Illinois University Edwardsville in the Community School Psychology program. His clinical, research, and teaching interests include applied behavior analysis, child behavior therapy, and parenting.