

A Collaborative Approach to Implement Positive Behavior Support Plans for Children with Problem Behaviors: A Comparison of Consultation versus Consultation and Feedback Approach

Dilek Erbas
Erciyes University

Abstract: The purpose of this study is to compare the effectiveness of consultation alone and consultation plus feedback on the proper use of positive behavior support strategies (PBS) on behaviors of three mothers with children with developmental disabilities. Results indicated that consultation plus feedback was more effective than consultation alone condition on the mothers' behavior. Also, results showed that when mothers implemented PBS procedures correctly, children's problem behaviors decreased and remained at low rate.

Students with disabilities frequently display problem behaviors (Carr, Taylor, & Robinson, 1991; Koegel & Koegel, 1996). The presence of problem behaviors in school settings is often associated with negative outcomes for students (e.g., segregation, punitive discipline, poor academic outcomes) (e.g., McLeskey, Henry, & Hodges, 1999; Sprague & Walker, 2000; Sugai et al., 2000). Problem behaviors can cause teacher stress and have adverse effects on peers as well (Emmer & Strought, 2001; Sterlin-Turner, Robinson, & Wilczynski, 2001).

The negative impact of problem behaviors

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on the parents of children with developmental disabilities has also been reported (Fox, Vaughn, Wyatte, & Dunlap, 2002). Demands for caring a child with problems has been reported as a significant source of stress for the parents (Dunlap & Fox, 1999; Turnbull & Ruef, 1996). Furthermore, problem behaviors can cause disruptions in family routines and activities (Fox, Vaughn, Dunlap, & Bucy, 1997). Given the negative consequences of problem behaviors, problem behaviors should be prevented and reduced.

Positive behavioral support program (PBS) has been found as being one of the most effective methods to reduce problem behaviors. Positive behavior support (PBS) is a "collaborative assessment based on an approach to developing effective individualized interventions for people with problem behavior" (Lucyshyn, Horner, Dunlap, Albin, & Ben, 2002, p. 7). Principles of applied behavior analysis greatly contributed to the development of PBS. PBS evolved in the mid-1980s as an alternative to punitive approaches for the individuals with severe disabilities who exhibit severe problem behaviors (Hieneman, Dunlap, & Kincaid, 2005). It originally was defined as a non-aversive approach to replace the use of painful and stigmatizing consequent approaches (Hieneman et al.). PBS emphasizes the value of multi-component interventions that include teaching new skills, modifying the

environment, and providing consequences for positive and negative behaviors (Carr & Carlson, 1993). Over the past two decades, the use of PBS approach has expanded from being an individual student focused intervention, to one that meets the needs of whole classrooms and entire schools (Sugai & Horner, 2002). Furthermore its use has been adapted by many disciplines including mental health, school psychology, and general education (e.g., Clark & Hieneman, 1999; Crone & Horner, 2003; Scott & Eber, 2003). Although the existing literature on PBS has contributed greatly to reducing the problem behaviors of individuals with developmental delays, the majority of studies examining effectiveness of PBS have been conducted in clinical settings by researchers (Carr et al., 1999; Nelson, Roberts, Mathur, & Rutherford, 1999; Reid & Nelson, 2002). To increase ecological validity of PBS, it is critical to implement PBS in natural settings by using those individuals who are indigenous to these environments (e.g., teachers and parents) (Carr et al.; Reid & Nelson).

Parent involvement is critical in planning and implementing PBS strategies for children with problem behaviors (Vaughn, Dunlap, Fox, Clarke, & Bucy, 1997). The rationale for including parents in PBS is that parents typically spend more time with their children than any others and have more information about the contexts in which problem behaviors occur (Dunlap & Fox 1999). Also, PBS is both child and family centered (Lucyshyn et al., 2002). Goals in PBS are defined in partnership with families and reflect their preferences based on their time and resources that are available for them (Lucyshyn & Albin, 1993). Thus, effective and efficient parent training methods are needed to train parents to manage their children's problem behaviors.

A variety of training methods, including verbal instruction, modeling, rehearsal, and feedback have been shown to be effective in training parents as interventionist to implement behavioral interventions successfully (Dunlap & Fox, 1999; Dunlap, Newton, Fox, Benito, & Vaughn, 2001; Fox, Dunlap, & Philbrick, 1997; Lucyshyn et al., 2002, Vaughn et al., 1997; Symes, Remington, Brown, Hasting, 2006). However, few studies have compared the effectiveness among different components of a

training package (Feldman et al., 1992) and many of intervention studies did not use parents as interventionists (Iwata et al., 2000; Moore et al., 2002). Therefore, the extent to which the training techniques will produce same results with parents is not clear.

The purpose of the current study was to replicate and extend this literature by examining the effectiveness of two intervention programs (Consultation meeting vs. consultation meeting plus feedback) on the parents' implementation of antecedent and consequence procedures of PBS. Also, outcomes related to children's problem behaviors are presented in both training package in this study.

Method

Participants

Prior to the study, an approval from Ministry of Education and an informed parental consent were received. Three parent-children dyad participated in the study. Participants were selected based on three criteria: (a) having a child with a developmental disability exhibiting problem behavior (s), (b) no prior experience and training in PBS, and (c) willingness to participate in this study. All of the children were toilet trained, and could perform self-help skills independently (e.g., grooming and dressing).

Participant 1. Davut is a 4-year 6 month old boy diagnosed with developmental disabilities. Davut is reportedly taking Risperdal, but his mother is unable to provide specific information about the dosage prescribed. He receives 20 hr per week of one-on-one behavior intervention in his school. He is nonverbal although he can repeat a few sounds following an adult model. The child answers questions with yes/no responses; maintains eye contact in social interactions. His parents have BA in education and work as primary teachers in a public school. Davut's mother is concerned about his aggressive behavior. His aggressive behaviors include hitting, kicking and spiting at other children. She also reported that these behaviors result in peer exclusion during play. He engages in challenging behaviors when asked to participate in activities in playground. He frequently requests playing with

sand, and independently engages for short periods of time, but soon begins to spill sand on children playing in the playground. Davut's mother was concerned that these behaviors kept him excluded from peers.

Participant 2. Alp was 5 years 2 months at the beginning of the study and lived at home with his mother, father and older and younger brothers. He was diagnosed with developmental disabilities. He communicates verbally through one to two-word phrases and gestures. Alp receives part time special education services in a resource room for functional skills instruction. Alp's father works as a medical doctor in a state hospital. Alp's mother has Ph.D. in Medicine and works as an assistant professor in College of Medicine. Alp's parents were concerned about Alp's challenging behaviors during play time with his peers. When he plays with his peers, he hits, kicks, or pushes them. He also forcefully takes play materials from his peers. When given non preferred tasks or activities, he refuses to complete the activity.

Participant 3. Yakup is a 5-year, 4-month-old boy who lives with his mother, father, and older brother. Yakup's mother has a high school degree and does not have a job. His father has Bachelor's degree and works as a faculty secretary in the university. Yakup does not attend preschool program but he receives 8 hr of one-on-one intervention in special education school weekly. Yakup primarily communicates his needs verbally using short phrases and completes short sentences. Yakup's mother is concerned about Yakup's problem behaviors during shopping at stores. Yakup always wants to buy multiple items requested without paying the cashier. When he is asked to put items back or buy only one item instead of multiple ones, he screams, hits and refuses to follow directions. His parents also reported that they avoid doing shopping because of his problem behaviors.

Setting

This study was conducted in the settings in which children show problem behaviors most frequently. For Alp and Davut, the setting was a neighborhood playground. There were typically four to six typically developing children and their parents in the playground. For

Yakup, the setting was the shopping center in which Yakup's parents regularly shop. Other customers and responsible people present in the environment. Shopping center had lots of checkout lanes and wide aisles.

The author served as primary interventionist throughout the study, conducting or coordinating research activities and collaborating with the family training and support activities. She has a doctoral degree in special education and extensive training and experience in the theory and practice of applied behavior analysis. Training sessions occurred in the park and community one to three times per week ($M = 1.3$ times per week) and lasted 15 to 25 min.

Experimental Design

An adapted within-subject alternating treatments design was used to examine which training package resulted in high accuracy of implementation of antecedent and consequence procedures by mothers of children with developmental disabilities. Also, to evaluate whether mother application of antecedent and consequence procedures resulted in progress by target children's problem behaviors, the following analyses were conducted. First, level of children's problem behaviors was compared between condition 1 (consultation alone) and condition 2 (consultation plus feedback).

An adapted within-subject alternating treatments design for instructional research was used to demonstrate experimental control (O'Reilly et al., 1992). Each mother was received one training package on antecedent procedure (consultation alone or consultation plus feedback), and the other training package that she was not exposed to (consultation alone or consultation plus feedback) on consequences procedure. In other words, Davut's mother received condition 1 (consultation alone) on antecedent procedure and condition 2 (consultation plus feedback) on consequence procedures, whereas Alp's mother received condition 1 (consultation alone) on consequences procedure and condition 2 (consultation plus feedback) on antecedent procedures. Yakup's mother received condition 1 (consultation alone) on antecedent procedure and condition 2 (con-

TABLE 1

Alternating Treatments Design Pattern Across Condition

	<i>Condition 1 (Consultation Alone)</i>	<i>Condition 2 (Consultation plus Feedback)</i>
Davut's mother	antecedent procedures	consequence procedures
Alp's mother	consequence procedures	antecedent procedures
Yakup's mother	antecedent procedures	consequence procedures

sultation plus feedback) on consequence procedures (see Tables 1 and 2). Training procedures (consultation meeting vs. consultation meeting plus performance feedback) were counterbalanced across consequences and antecedent procedures across mothers. Once a differential effect between two training packages (Condition 1 and 2) occurred for a mother in the alternating treatment phase, the more effective of the two training packages was implemented for both antecedent and consequence procedures.

Prior to Alternating Treatment Phase

Prior to the start of the alternating treatment phase, mothers were given theoretical and practical information about PBS by using the Individualized Intensive Interventions: Determining the Meaning of Challenging Behavior Module and Individualized Intensive Interventions: Developing a Behavior Support Plan Module (<http://www.vanderbilt.edu/csefel/modules.html>) in a two day workshop as a group. These modules were translated into Turkish by two special education faculty who are fluent in both English and Turkish. In the workshop, the case studied was used to provide

vide experience of applying their knowledge of PBS strategies to an actual case study child in this phase.

Maintenance Phase

Maintenance sessions were employed 2, 4, and 6 months to examine the effect of intervention after terminating sessions. Following each maintenance session, feedback was provided for correct implementation of target procedures. Feedback was delivered immediately after each maintenance session.

Target Behaviors for Mothers-Child Dyads and reliability

Dependent variables: The following two target behaviors (dependent variable) were recorded in this study: Percentage of steps implemented as written by mothers in both antecedent and consequence procedures and percentage of child problem behaviors.

To collect data on mothers' behaviors a data collection sheet was adapted from the one used in Coddington, Feinberg, Dunn, & Pace (2005). Data sheet included (a) the type of procedure (i.e. antecedent and consequence)

TABLE 2

Independent Variable (Parent Training) Condition Pattern Across Sessions

<i>Sessions</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Davut's mother	C1	C2	C1	C1	C2	C2	C1	C2	C1	C2	C1	C2							
Alp's mother	c2	c1	c2	c1	c2	c1	c2	c2	c1	c1	c2	c2	c1	c2	c1	c2	c1	c2	c1
Yakup's mother	C1	C2	C1	C1	C2	C1	C2	C1	C2	C1	C2								

Note. C1 = consultation with antecedent procedures, C2 = consultation plus feedback with consequence procedures, c1 = consultation with consequence procedures, c2 = consultation plus feedback antecedent procedures

that was prescribed for the target child, (b) an operational definition of each component of the intervention (c) observer ratings the mothers implementation of each components using of the following levels, and (d) space for the observer to record comments or examples (Coddling et al.). One of three levels of implementation was scored under the implementation rating section of the data sheet (a) implemented as written (i.e., the entire component was implemented every time the target behavior occurred or when the situation (b) not implemented as written, (i.e., sometimes implemented the entire component as written, implemented the entire component as written or did not employ the component as written), (c) no opportunity to observe (i.e., the target behavior did not occur, or the antecedent was not present) (Coddling et al.). Percentage of correct implementation was calculated by dividing the number of mother behaviors implemented correctly by the total number of items in the data sheet.

Data on child target behaviors were recorded using a 15-s partial interval recording system and were reported as percentage of intervals in which problem behaviors occurred. A stopwatch was used to code behaviors from the videotapes. Problem behaviors were disruptive or destructive behaviors, which included throwing objects, and kicking or hitting peers.

Reliability data for dependent variables (correct implementation of antecedent and consequence procedures for parent's behaviors, and children's target behaviors) were collected during 20% of all experimental sessions. These sessions were selected randomly and recorded by a second observer. The second observer was a PhD candidate in special education and was naïve to the purpose of the study. Assigned sessions were observed independently by both researcher and the observer; then, agreement between researcher and the observers was calculated. Dependent variable reliability was calculated by using the point-by-point method with a formula of the number of agreements divided by the number of agreements plus disagreements multiplied by 100. Interobserver agreement scores for mothers behaviors were 94% for condition 1, ranging from 70% to %100, and 98 % for condition 2, ranging from 88% to 100%. In-

terobserver agreement scores for children's problem behaviors were 92% for condition 1, ranging from 78% to 100%, and 96% for condition 2, ranging from 86% to 100%.

Independent Variables

Two types of training procedures were implemented: Consultation meeting alone and consultation meeting plus feedback.

Consultation meeting alone. Four 15 to 30 minute consultation meetings were provided individually to mothers. In the first consultation meeting, definitions of problem behaviors of his children were discussed by using functional assessment interview form. For the second consultation meeting, mothers were asked to observe their children in home using The *Home Observation Card* (<http://csefel.uiuc.edu/modules/module3a/handout3.pdf>) until the third consultation meeting. In the third consultation meeting, mothers were expected to generate a problem behavior statement. At minimum, acceptable behavior statements had to be contained in one sentence and included at least two different components in the correct antecedent, behavior, consequence sequence. Based on these criteria, each *Home Observation Card* was carefully scanned and examined. Target problem behaviors were videotaped while parents were conducting direct observation in their home. Before fourth consultation meeting, detailed written descriptions of the tapes were prepared at each viewing to indicate the target student's behaviors, antecedents and consequences of problem behaviors. These descriptions were later compared and rechecked until agreement between researcher developed and mother-developed hypotheses were examined. After agreement between these hypotheses was settled, the fourth consultation meeting was conducted.

At the fourth consultation meeting, mothers were asked to identify potential consequences and antecedent procedures for problem behavior of their children based on information they learned for pre-intervention workshop. Then, the individualized behavior support plans were created with mother-researcher collaboration (see Table 3, 4, 5, and 6). Mothers were expected to employ these behaviors based on the support plan under

TABLE 3

Yakup's Positive Behavior Support Plan

<i>Antecedent Strategies</i>	<i>Consequence Strategies</i>
<p>Choice</p> <ol style="list-style-type: none"> 1. Given choice of 2 preferred items during shopping. 2. Never finish a shopping without getting preferred item. <p>Script story for shopping (see Table 5)</p> <ol style="list-style-type: none"> 1. Before going to shopping, review the scripts story with child. 2. Make eye contact with child. 3. Read a story with showing pictures to the child. <p>Using cue card</p> <ol style="list-style-type: none"> 1. Gain child's attention (e.g., look at me and I am going to show a picture). 2. Show him the picture cue card along with simple verbal cue (e.g., walk through aisles, choice only one preferred item, stop, if your mother stop the section to find preferred items from the list, and wait until your mother pay cashier). 3. Wait 5 sec. for child to perform the correct behavior showed cue card. 	<p>Give the preferred item.</p> <p>Give the verbal praise (good boy, you listen the story, and then we can go the shopping).</p> <p>If he has difficulty during shopping, anticipate the difficulty, and cue him to do what it is appropriate.</p> <p>If he engages in appropriate shopping behaviors, mother will provides specific praise as an attention.</p>

specific condition (consultation alone or consultation plus feedback) without further training. But mothers had written guidelines to follow about behavior support plan.

Consultation meeting plus feedback. During this condition, consultation meetings were implemented as stated above. Also, feedback was provided for each mother. Feedback was

focused on (a) praise for correct implementation of target procedures, (b) corrective feedback on mothers' performance, (c) addressing mothers' question and comments. All sessions were videotaped by the mothers. Before feedback session, the researcher took careful notes while observing the session to be able to give feedback about correct or incorrect use of the procedures. Feedback was delivered immediately prior to the start of the next session. The researcher played the video tape and to discuss performance on the target condition for that session. These feedback sessions were conducted in a room in the Yakup's and Davut's home, and Alp's mother's office, and lasted approximately 10–15 min. When the mother showed an incorrect behavior while implementing the condition, the researcher stopped the video, indicated the error, and asked how to correct the behavior (e.g., "Zeynep, let's review what you have done. What else we could use in this situation? When the mother gave a correct response to

TABLE 4

Script Story

<i>Going to Shopping</i>
<p>I like to go shopping. It is fun to go store. It is fun to buy what I want. Sometimes I feel like to buy everything. But I can choice one preferred item form shopping list. Sometimes I feel like running. But running inside of store could hurt me or other people. I will try to walk through the aisles and get one item. I will wait for mother to pay cashier</p>

TABLE 5

Alp’s Positive Behavior Support Plan

<i>Antecedent Strategies</i>	<i>Consequence Strategies</i>
Use of safety signal (say “We will be gone in 5 minutes.”).	
Using cue card	
1. Gain child’s attention (e.g., look at me and I am going to show a picture).	If he has difficulty during playing into playground, and cue him to do what it is appropriate.
2. Show him the picture cue card along with simple verbal cue (e.g., get permission from friends to use their toys, when I reminded you to go home, you finish playing).	If he engages in appropriate playing behaviors, mother will provides specific as praise and give token for appropriate playing behavior. Tokens exchanges for preferred activities (i.e., go to McDonald’s).
	Redirection strategies (Guiding a student toward a positive interaction with peer) Hands are for playing, eating, and hugging; use your words.
	Logical, natural consequences when problem behavior occurred (If he grasps a toy from other children without permission, the toy is unavailable for his use for 10 minutes).

this question, the session was continued to watch. When the mother gave incorrect or no

response to this question, the researcher explained the correct response verbally (e.g., the

TABLE 6

Davut’s Positive Behavior Support Plan

<i>Antecedent Strategies</i>	<i>Consequence Strategies</i>
	Differential reinforcement
	If he engages in appropriate social interaction a play behavior with peer provide specific social praise.
	Gives social praise if engaged in other appropriate behavior.
Using cue card	
1. Gain child’s attention (e.g., look at me and I am going to show a picture)	If he has difficulty during playing into playground, and cue him to do what it is appropriate.
2. Show him the picture cue card along with simple verbal cue (e.g., get permission from friends to use their toys, when I reminded you to go home, you finish playing).	If he engages in appropriate playing behaviors, mother will provides specific as praise and give token for appropriate playing behavior.
Use of safety signal (say “We will be gone in 5 minutes.”).	
	Logical, natural consequences when problem behavior occurred (If he grasps a toy from other children without permission, the toy is unavailable for his use for 5 minutes).

researcher told the mother that “As soon as the child exhibited appropriate behavior, you should have gone to next to him”. At the end of the feedback session, the researcher delivered specific verbal praise for the mother’s performance on the target condition, and asked to mother whether she had any questions or comment about that session or not.

Results

Figure 1 shows mothers’ percentage of correct implementation of antecedent and consequent procedures during condition 1 (consultation alone) and 2 (consultation plus feedback). Figure 2 shows percentage of intervals in which children showed problem behaviors during condition 1 and 2. Table 7 represents means and ranges of child and mother behaviors in each condition.

Parent Behavior

During condition 1 (consultation alone), percentage of the correct implementation of antecedent and consequence procedures were low for all parents: Davut’s mother’s percentage of the correct implementation of antecedent procedures ($M = 20,58$ with a range of 12% and 20%), Alp’s mother’s percentage of the correct implementation of consequence procedures ($M = 22,40$ with range of 15% and 30%); and Yakup’s mother’s percentage of the correct implementation of antecedent procedures ($M = 5$ with a range of 0% and 10%). Unlike other two parents, Yakup’s mother showed delay for 2 sessions to use antecedent procedures. Yakup’s mother had several sessions in which they performed all the antecedent procedures (9 of 12 sessions).

During condition 2 (consultation plus feedback), percentage of the correct responses increased dramatically for all parents: Davut’s mother ($M = 73,3\%$ for consequence procedures with a range of 45% and 90%), Alp’s mother ($M = 77\%$ for antecedent procedures with a range of 40% and 100%); and Yakup’s mother ($M = 67,50\%$ for consequence procedures with a range, 35% to 90%).

Child Behavior

During condition 1, level of problem behaviors was moderate for Yakup ($M = 28$, 18% of intervals; range, 5% to 52%), Davut ($M = 18,78\%$ of intervals; range, 0% to 35%), and Alp ($M = 17,09\%$ of intervals; range, 0% to 30%). During condition 2, the level of problem behavior decreased for Yakup ($M = 23$, 20% of intervals; range 0% to 48%) and ($M = Davut 17$, 10% of intervals; range, 0% to 32%), and Alp ($M = 15$, 81% of intervals; range, 0% to 32%).

Maintenance

The mothers’ percentage of correct implementation remained high across the three maintenance sessions. All mothers implemented all procedures during the three maintenance sessions.

All children’s level of problem behaviors during the maintenance phase reflected levels close to those observed during the intervention phase. Alp’s behaviors ($M = 5,5$; range, 0% to 9.5%) remained low and under 10% of intervals for all three maintenance sessions. Davut’s behaviors ($M = 19,5$; range, 0% to 24,3%) and Yakup’s behaviors remained lower.

Discussion

The results of the study indicate that consultation plus feedback is effective in teaching mothers of children with developmental disabilities to use consequence and antecedent procedures. Many of studies have shown the effectiveness of feedback increasing participants’ behaviors (Roscoe, Fisher, Glover, & Volkert, 2006; Scheeler & Lee, 2002, Coddington et al., 2005). The findings from the present study are consistent with previous study demonstrating that feedback is an important component of the parent training sessions (Dunlap & Fox, 1999; Dunlap, et al., 2001; Fox, Vaughn, Dunlap, & Bucy, 1997; Lucyshyn et al., 2002, Vaughn et al., 1997; Symes, et al., 2006). Children problem behaviors are inversely related to their mothers’ implementation consequence and antecedent procedures. The results showed that when mothers implemented PBS procedures correctly, chil-

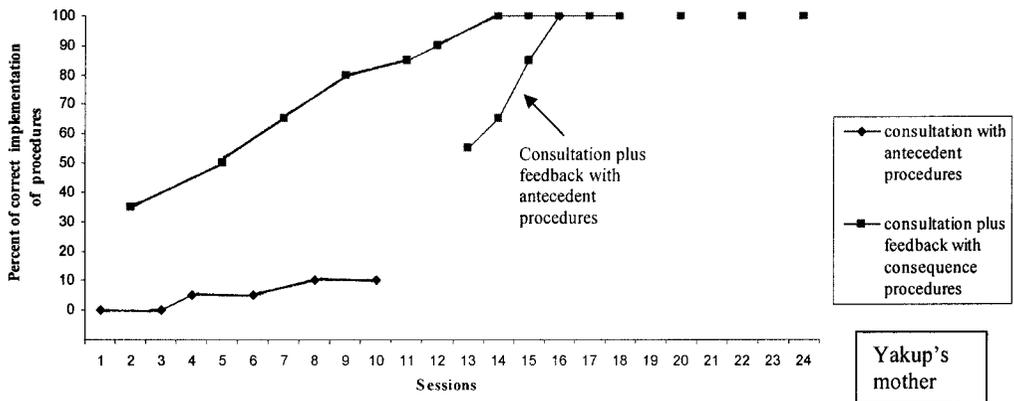
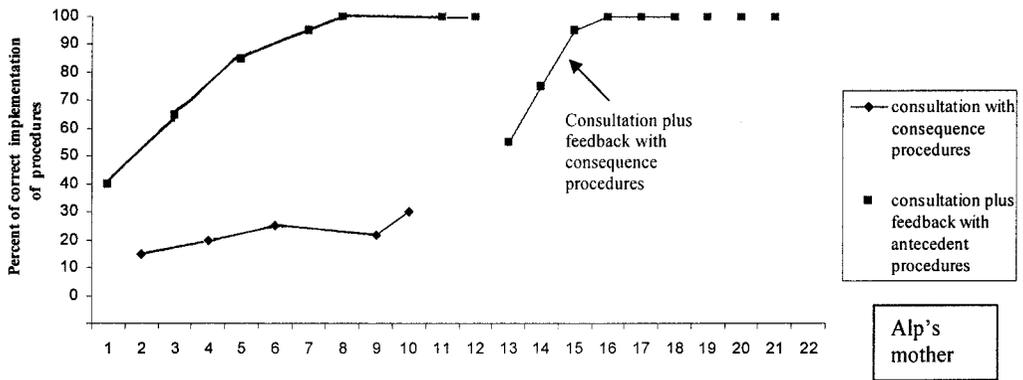
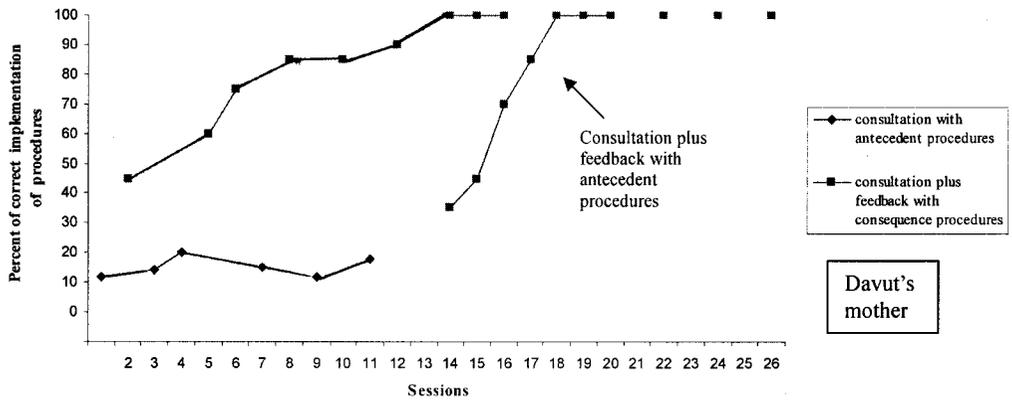


Figure 1. Mothers' percent of correct implementation of antecedent and consequence procedures.

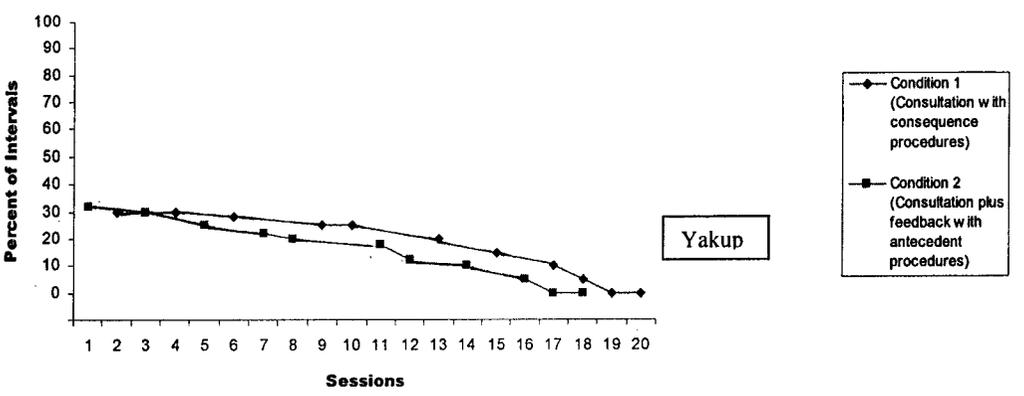
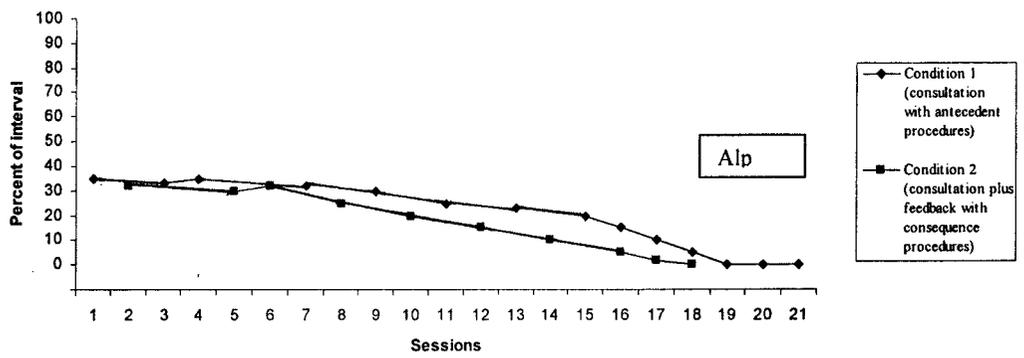
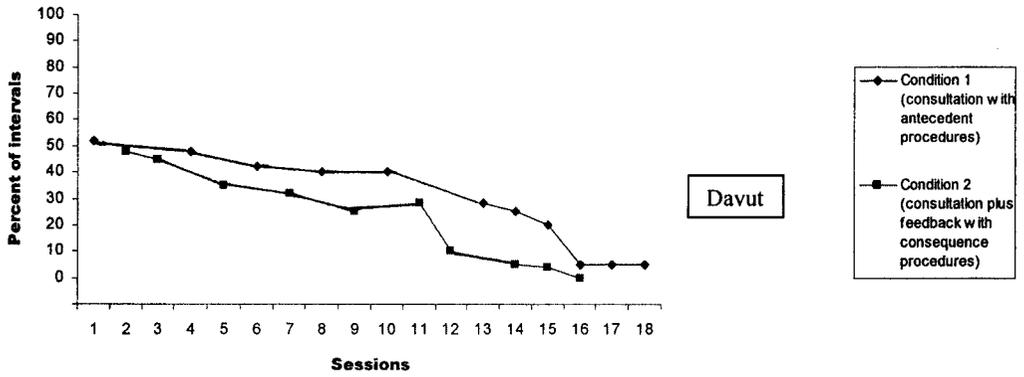


Figure 2. Child participants' percent of intervals problem behavior each session.

dren's problem behaviors decreased and remained low throughout the study.

Consultation plus feedback was more effective than consultation alone in teaching the

TABLE 7

Means and Ranges for Participants' Behaviors

<i>Participants</i>	<i>(# Sessions per condition)</i>	<i>% Intervals of Challenging Behaviors [Mean (Range)]</i>	<i>% of Correct Implementation of Procedures [Mean (Range)]</i>
Yakup's mother	Condition 1	Yakup 28,18	Mother 5 (0–10)
	Condition 2	23,20	67,50 (35–90)
Alp's mother	Condition 1	Alp 17,09	Mother 22,40 (15–30)
	Condition 2	15,81	77 (40–100)
Davut's mother	Condition 1	Davut 18,78	Mother 20,58 (12–20)
	Condition 2	17,10	73,33 (45–90)

proper use of antecedent and consequence procedures. These findings support the results of previous studies that have been done with teachers, and student teachers (e.g., Codding et al., 2005; Coulter & Grossen, 1997, O'Reilly et al., 1992; O' Reilly et al., 1994, Scheeler & Lee, 2002). Correct implementation of consequence and antecedent procedures did not improve rapidly during consultation alone condition (Condition 1). One explanation for why the parents did not demonstrate high level of correct performance during consultation alone condition might be because they were given information written and verbally about intervention procedures but not necessarily feedback on their performance. While parents were provided with verbal feedback and their errors were corrected by using video segments of their actual performance, they made resulted in an immediate improvement in performance during consultation plus feedback condition. In other words, they watched themselves perform target response on videotape and were given clear verbal description of what their errors were and how to correct them from researchers.

In general, mothers respond correctly in both conditions (consultation alone and consultation plus feedback). One explanation for this might be due to parents' high motivation to obtain necessary information to help and cope with their child's problem behavior.

Another interesting finding was that Alp's mother showed more rapid acquisition than

other parents during consultation plus feedback condition. This differential effect may have been due to Alp's mother education level.

A limitation of the study was that mothers of children with disabilities were selected based on willingness to participate. Thus, participants may represent a highly motivated group that may not be representative of mothers of children with disabilities in general. Also, this study compared the effect of consultation alone and consultation plus feedback on the proper use of a few specific antecedent and consequence strategies (e.g., using cue card, giving a choice, differential reinforcement), but not necessarily on all of the component skills necessary to implement PBS strategies. For example, actual implementation of PBS (both antecedent and consequence procedures) requires additional skills such as the ability to develop intervention corresponding to function of problem behaviors and data analysis. Moreover, a component analysis was not done to assess which antecedent or consequence procedure is implemented more accurately. Future research is needed to address these concerns.

In summary, the present results contributed to the literature in two ways. First, when mothers of children with disabilities learned how to use antecedent and consequences procedures in an ongoing PBS with consultation plus feedback, their children's problem behaviors were reduced to low level. Second, the study represents a replication of parent training in

PBS, in that a new group of researchers applied the procedures in a new country. Replications across investigative teams and countries are needed to further advance and strengthen the use of PBS.

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