

*AN ENRICHED TEACHING PROGRAM FOR REDUCING  
RESISTANCE AND INDICES OF UNHAPPINESS AMONG  
INDIVIDUALS WITH PROFOUND MULTIPLE DISABILITIES*

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We evaluated an enriched teaching program for reducing resistance and indices of unhappiness displayed by 3 individuals with profound multiple disabilities during teaching sessions. The program involved presentation of preferred activities before, during, and after each teaching session, discontinuation of identified nonpreferred activities, and a brief break and preferred activity following occurrence of resistance. Implementation of the enriched teaching program was accompanied by reductions in resistance and indices of unhappiness for each participant. Results also indicated no negative impact of the program on participant performance of the teaching steps or staff teaching proficiency. Staff questionnaire responses provided a degree of social validation for the observed changes in that staff reported the participants liked the enriched teaching program more than the traditional teaching process. Directions for future research discussed include identifying critical aspects of the overall program and the potential relation between teaching proficiency and the program's enrichment effectiveness.

DESCRIPTORS: unhappiness, responsive teaching, profound multiple disabilities

One of the most challenging populations facing service providers in developmental disabilities is people who have profound multiple disabilities. These individuals represent the extreme lower end of the continuum of people with profound disabilities in terms of severity of challenges (Logan et al., 2001). The profound cognitive, sensory, and physical disabilities of this population often result in minimal responses to typical program services (Logan et al., 1998; Bailey, 1981). Due in part to problems encountered with traditional programs, increased attention is being directed to programs that focus more on enhancing quality of life among these individuals by increasing enjoyment with daily activities (Ivancic & Bailey, 1996; Green & Reid, 1999).

One common activity that can interfere with apparent enjoyment among people with profound multiple disabilities is provision of teaching services. Various teaching procedures are aversive, as evidenced by problem behavior reinforced by escape from instructional demands (Ebanks & Fisher, 2003; Vaughn & Horner, 1997). Despite the potential aversiveness and the recognized difficulty in teaching this population (Ivancic & Bailey, 1996; Logan et al., 1998), teaching services are still frequently considered necessary to maintain existing skills or to attempt to increase independence when possible (Reid, Phillips, & Green, 1991).

Several strategies exist for altering teaching procedures that occasion problem behavior among the general population of people with developmental disabilities. One strategy is functional communication training (Durand & Carr, 1991). However, most research with this approach has involved people with less pronounced challenges than profound multiple

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disabilities, and may be contraindicated for the latter population. Functional communication training requires that a person acquire skills to request and obtain specific types of reinforcement (Durand, 1999). Due to the difficulty in teaching functional skills to people with profound multiple disabilities, teaching them more conventional means to obtain desired events can be problematic or time consuming. Caregivers can become frustrated and abandon teaching attempts or implement programs incompletely (cf. Reid & Parsons, 2002, chap. 4).

Another strategy for reducing problem behavior during teaching sessions is escape extinction (see Carr, Coriaty, & Dozier, 2000, for a summary). This approach may also be contraindicated for people with profound multiple disabilities. Problem behavior during teaching sessions may not be harmful (e.g., self-injury or aggression) but may represent non-compliance in the form of physically resisting teaching procedures accompanied by negative affect. In light of the difficulty these individuals experience in acquiring more advanced communication skills, such behavior may be their sole means of expressing displeasure. If such is the case, it may not be desirable to extinguish this behavior, because it allows individuals to indicate activities that they dislike. Hence, the behavior can be helpful for identifying activities that can be removed from the daily routine to make their day less unpleasant if the activities are not considered critical to their overall support plan (Green & Reid, 1999).

A third strategy that has had success with some individuals in reducing problem behavior occasioned by teaching procedures and related demands is to enrich the procedures to make them potentially more preferred or less aversive (Foster-Johnson, Ferro, & Dunlap, 1994; Long, Hagopian, DeLeon, Marhefka, & Resau, *in press*). In consideration of the concerns with functional communication training and escape extinction, enhancing the preferred nature of teaching procedures appears to be a reasonable

strategy to overcome resistance among people with profound multiple disabilities. If teaching procedures can be carried out in a manner that learners appear to enjoy, or at least do not seem to seriously dislike, then caregivers responsible for teaching may be more likely to persist with teaching attempts.

The purpose of this investigation was to evaluate an enriched teaching program for reducing resistance to teaching and accompanying negative affect among people with profound multiple disabilities. The intent was to reduce resistance and negative affect without detrimentally affecting the learner's response to the teaching procedures (i.e., enriching the teaching process is of questionable value if it reduced the learners' skill development or maintenance). The enriched teaching program was based on a program designed to decrease indices of unhappiness during therapeutic exercises (Green & Reid, 1999). This investigation attempted to extend work with the previous program in several ways. First, whereas the Green and Reid program focused on exercise activities designed by a physical therapist to maintain range of motion and muscle tone, the current program focused on teaching procedures designed to enhance or maintain functional skills. Second, the earlier program focused directly on indices of unhappiness as the dependent variable in terms of contingencies built into the program, whereas the current program placed contingencies on resistance during teaching and monitored effects on indices of unhappiness. Third, in light of the potential impact on caregivers of conducting procedures that appear to be disliked, this investigation added social validity measures concerning caregiver views of the impact of the program on individual enjoyment.

## METHOD

### *Setting and Participants*

The settings were two homes in a residential center for adults with profound multiple

disabilities and significant medical needs. The participants were 3 women who resided in the two homes. Each participant had profound cognitive disabilities, was nonambulatory, exhibited no functional speech, and had impaired vision. Pam and Bea lived in one of the homes with 11 other individuals, and Tess lived in the other home with 14 individuals. Pam was 48 years of age, had spastic quadriplegia, a seizure disorder, tuberous sclerosis, and a partial hearing loss. She received nutritional intake through a gastrostomy tube. Bea was 48 years of age and had marked scoliosis and severe contractures. Tami was 31 years of age and had left hemiparesis and a seizure disorder. These individuals were selected based on requests to the person-centered teams that served individuals in each home regarding resistance to formal teaching programs. Indirect functional assessments (Durand & Crimmins, 1992; Iwata, 1995) indicated that resistance likely served an escape function. The teams were also requested to consider individuals who appeared to dislike teaching sessions. The 3 participants were subsequently selected from recommendations from the teams and baseline observations that substantiated resistance during ongoing teaching sessions.

All experimental procedures were carried out by staff who routinely worked in the participants' living areas and were assigned to conduct teaching programs as part of their regular duties. Each staff member had received training in how to teach with the *Teaching Skills Training Program* (Parsons & Reid, 1999) prior to being assigned to each participant's teaching program. With one exception, all staff were direct support personnel, with backgrounds similar to those of typical direct support staff in public residential facilities (Bradley, Taylor, Mulkern, & Leff, 1997). The exception was a supervisor who was one of several staff who carried out Bea's program. The supervisor had a master's degree and 20 years of experience. All other staff had a high school degree and at least

18 months of experience in a direct support role. One staff person conducted all of Pam's teaching sessions, and 1 carried out all of Tami's. For Bea, there were 4 primary staff who carried out most (65%) of her teaching sessions. The remainder of Bea's sessions were carried out by 4 substitute staff, who filled in for the primary staff when they were absent from work or otherwise unavailable to conduct Bea's session.

#### *Behavior Definitions*

The primary target behavior was *resistance*, defined as pulling away from the teacher's touch, continuing to hold an arm or hand in a contracted position when the teacher attempted to move the arm or hand, continuing to keep fingers closed when the teacher attempted to open a closed fist, or turning away from the teacher. A second primary target behavior, *indices of unhappiness*, represented the measure of negative affect. Social validation data have supported use of unhappiness indices as representing displeasure or unhappiness among people with profound multiple disabilities (Green & Reid, 1996; Parsons, Reid, & Green, 2001). Indices of unhappiness were defined as in previous research (Green & Reid, 1996; Ivancic, Barrett, Simonow, & Kimberly, 1997) as any facial expression or vocalization typically considered to be an indicator of unhappiness among people without disabilities, such as frowning, grimacing, crying, and yelling without smiling.

Secondary target behaviors included skill performance on the teaching tasks and staff teaching proficiency. Measurement of skill performance was based on the degree of each participant's independence in completing each step of the task-analyzed teaching program (see Parsons, Reid, & Green, 1993, for a description of the required prompt level as a measure of responsiveness to teaching among people with profound multiple disabilities). The teaching program protocols required staff to record the prompt level required for the participant to

complete each step in the program task analysis. Four levels of prompts were incorporated: completing a step following a verbal prompt (Level 4), a partial physical prompt at the participant's elbow (Level 3), a partial physical prompt at the wrist (Level 2), and full physical guidance by guiding the participant's hand through the step (Level 1). Following a teaching session, the numerical value of each prompt level required to complete a step was averaged across all steps and teaching trials. Hence, the higher the numerical value, the greater the degree of relative independence the participant demonstrated in completing the steps.

Staff proficiency in carrying out teaching programs was monitored to ensure that proficiency was not detrimentally affected by the intervention. Teaching proficiency was defined based on the procedure of Parsons and Reid (1999), which targets four sets of teaching skills. The first set, order of teaching, pertained to following the steps of the task analysis in the correct order (i.e., as listed in the task analysis). The second set, prompting, required a least-to-most assistive instructional strategy in which each successive prompt (if more than one prompt was used) involved more assistance than the previous prompt. The third set, reinforcement, required providing a positive consequence following the last correct step in the task analysis and not providing a positive consequence for any incorrectly performed step. The fourth set of teaching skills, error correction, required the staff member to provide increased assistance sufficient to ensure that the participant completed the step without an error if the participant exhibited a behavior incompatible with a task-analyzed step. Each of these teaching procedures was scored as correctly or incorrectly performed for each step. ("Not applicable" was scored if, for example, no error occurred and error correction was not required.)

#### *Observation System and Interobserver Agreement*

The observation system for resistance and indices of unhappiness involved a continuous

10-s partial-interval process. Observations were conducted for 3 min immediately before teaching was initiated, throughout the program implementation, and for 3 min immediately after the program was completed. The periods immediately before and after implementation of teaching procedures represented a natural, non-demand situation in the participants' regular environment (hence, resistance could not occur by definition, but indices of unhappiness could occur). Interobserver agreement checks were conducted during at least 21% of all teaching sessions for each participant, including each experimental condition. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Overall and nonoccurrence agreement averaged at least 98% for resistance (respective session ranges of 97% to 100% and 96% to 100%) and unhappiness indices (respective ranges of 82% to 100% and 75% to 100%). Occurrence agreement averaged 81% (range, 0% to 100%) for resistance and 88% (range, 33% to 100%) for unhappiness indices.

Interobserver agreement for participant performance during a teaching session was calculated by dividing the smaller average prompt level for a session recorded by one observer by the larger average recorded by the second observer and multiplying by 100%. Interobserver agreement averaged 78% (range, 50% to 100%). For staff teaching proficiency, interobserver agreement was calculated by dividing the smaller percentage of teaching steps scored correct by one observer by the larger percentage scored correct by the second observer and multiplying by 100%. Interobserver agreement averaged 89% (range, 55% to 100%).

#### *Experimental Conditions*

*Baseline.* During baseline, the staff conducted a teaching program according to their usual procedures. Each teaching program was scheduled to be conducted once each weekday.

Observations occurred on a probe basis, averaging two times per participant per week. Each teaching program was in place prior to the investigation as part of each participant's ongoing service plan. Each program involved discrete trials for task-analyzed steps (if there was more than one step to the program).

Pam's program was designed to teach her to hold her hairbrush for 5 s, representing a one-step program. Each session involved three discrete trials. Bea's program involved teaching her to scoop food with a spoon, using an adaptive plate with a scoop guard. The program consisted of two steps (picking up the spoon and scooping food on the spoon), with five trials per session. Tami's program involved teaching her to wipe her face with a napkin and consisted of the steps of taking the napkin to her face and moving the napkin across her mouth after the staff member placed the napkin in her hand. Each session included five trials.

*Enriched teaching program.* Similar to the Green and Reid (1999) program used to decrease indices of unhappiness during prescribed exercises, the enriched teaching program consisted of four components. The first component involved identifying preferred items and activities for each participant. However, in contrast to the Green and Reid program in which items and activities were based on results of systematic preference assessments supplemented with staff opinion, potential preferences were based solely on staff opinion regarding most preferred items and activities as listed in each participant's person-centered plan.

The second component involved conducting preferred activities immediately prior to implementing a teaching program and eliminating any ongoing activities that had been previously identified as nonpreferred in participants' person-centered plans. Conditions were arranged to begin a teaching session exactly as in baseline (i.e., the teacher obtained the necessary teaching materials and approached the participant) but immediately prior to beginning the

first trial, the teacher conducted several preferred activities. For Pam, the preferred activities involved talking to her for 1 to 2 min, turning on soft music, turning on a lighted make-up mirror, and reducing extraneous noise by turning off a television or radio that was on in the immediate area. For Bea, the activities included playing soft music, ensuring that food was on the table when she was first escorted to the table (i.e., in contrast to being escorted to the table and waiting for food to be delivered), eliminating wiping her face prior to the first trial, providing a small drink of liquid, providing a choice of condiments (e.g., salt or no salt on an item) based on approach responses following item sampling, giving her a small taste of each food item, and reducing any extraneous noise from the immediate environment. For Tami, the procedures conducted before the first teaching trial included turning on a light next to a mirror in front of her, softly talking to her, placing cleanser and lotion under her nose to allow her to smell the items, placing a warm wrap around her neck, massaging her arms and hands with lotion for a few seconds, and massaging her face with cleanser for a few seconds. Each set of preferred activities conducted before the first teaching trial typically lasted 2 to 3 min and never exceeded 5 min.

The third component of the enriched teaching program involved two procedures conducted during the actual teaching trials. One procedure involved continuing the environmental arrangements established immediately prior to the trials (e.g., keeping the music on for Pam and Bea, keeping the light on for Tami). The second procedure involved briefly (less than 10 s) discontinuing a teaching trial if resistance was displayed and providing a preferred activity (brushing Pam's hair for several strokes, giving a bit of sweet food to Bea, and massaging Tami's arm with lotion while softly talking to her). Immediately following the preferred activity, the trial was resumed. In this manner, the same number of

teaching trials was conducted and completed as in baseline, but the completion of a given trial may have been briefly interrupted (i.e., the participant did not escape performing the trial but experienced a break before completion).

The final component of the enriched teaching program involved adding a preferred activity immediately following the last teaching trial (in addition to the contingent praise provided as part of the formal teaching process). The preferred activities involved continued brushing (in a styling manner) of her hair and providing a choice of hair barrettes for Pam, sitting and rocking in a rocking chair for Bea, and escorting Tami to a quiet place by herself and giving her skim milk and a sweet snack. These activities lasted 5 to 10 min.

Staff were trained to conduct the enriched teaching procedures through written and vocal instructions, demonstration, and practice in implementing the procedures with feedback. In addition, a rationale was provided regarding the desire to conduct the teaching program in a manner that was less unpleasant for the participant.

#### *Program Integrity Measures*

Due to the relatively large number of procedures involved in the program for each participant, an experimenter observed at least 86% of sessions for each participant to obtain procedural integrity measures (Cooper, Heron, & Heward, 1987, chap. 10). A checklist was prepared based on the descriptions of the enriched teaching procedures, and the experimenter recorded whether each procedure was correctly carried out. For Pam and Tami, the procedural integrity measures were high, averaging at least 90% implemented correctly across sessions. Procedural integrity was somewhat lower for Bea, averaging 70%. The lower average for Bea's staff was due primarily to 2 substitute staff, who carried out the program on one and two sessions, respectively. These teachers omitted steps from all components but also correctly implemented other steps.

#### *Program Acceptability and Social Validity Measures*

Following the study, staff were asked to complete a five-item acceptability questionnaire and turn it in anonymously to a mailbox. The questionnaire was provided to Pam's and Tami's teachers as well as to the 4 staff who functioned as teachers during both experimental conditions for Bea. All six questionnaires were completed and delivered to the mail box. The first four questions consisted of a seven-point Likert scale. The first two questions pertained to how much the participant liked or disliked the teaching program the way it used to be carried out and the way it was currently carried out, respectively (7 = *liked a whole lot*; 1 = *disliked a whole lot*). Question 3 asked how much the current program increased or decreased the degree to which the participant enjoyed the program relative to the previous way the program was carried out (7 = *increased a whole lot*; 1 = *decreased a whole lot*), and Question 4 asked if the current program was easier or harder to carry out relative to the way the program was formerly carried out (7 = *a whole lot easier*; 1 = *a whole lot harder*). Question 5 asked if the staff member would rather conduct the program the way it was formerly carried out or the way it was currently carried out.

#### *Experimental Design*

The experimental design consisted of a multiple probe across 2 participants and a subsequent quasiexperimental AB design with 1 participant.

## RESULTS

Resistance and indices of unhappiness decreased for all 3 participants during the enriched teaching program relative to baseline. Figure 1 presents the percentage of observation intervals in which resistance and indices of unhappiness occurred during teaching. Resistance behavior decreased from a baseline average of 36% (range, 0% to 100%) for Pam

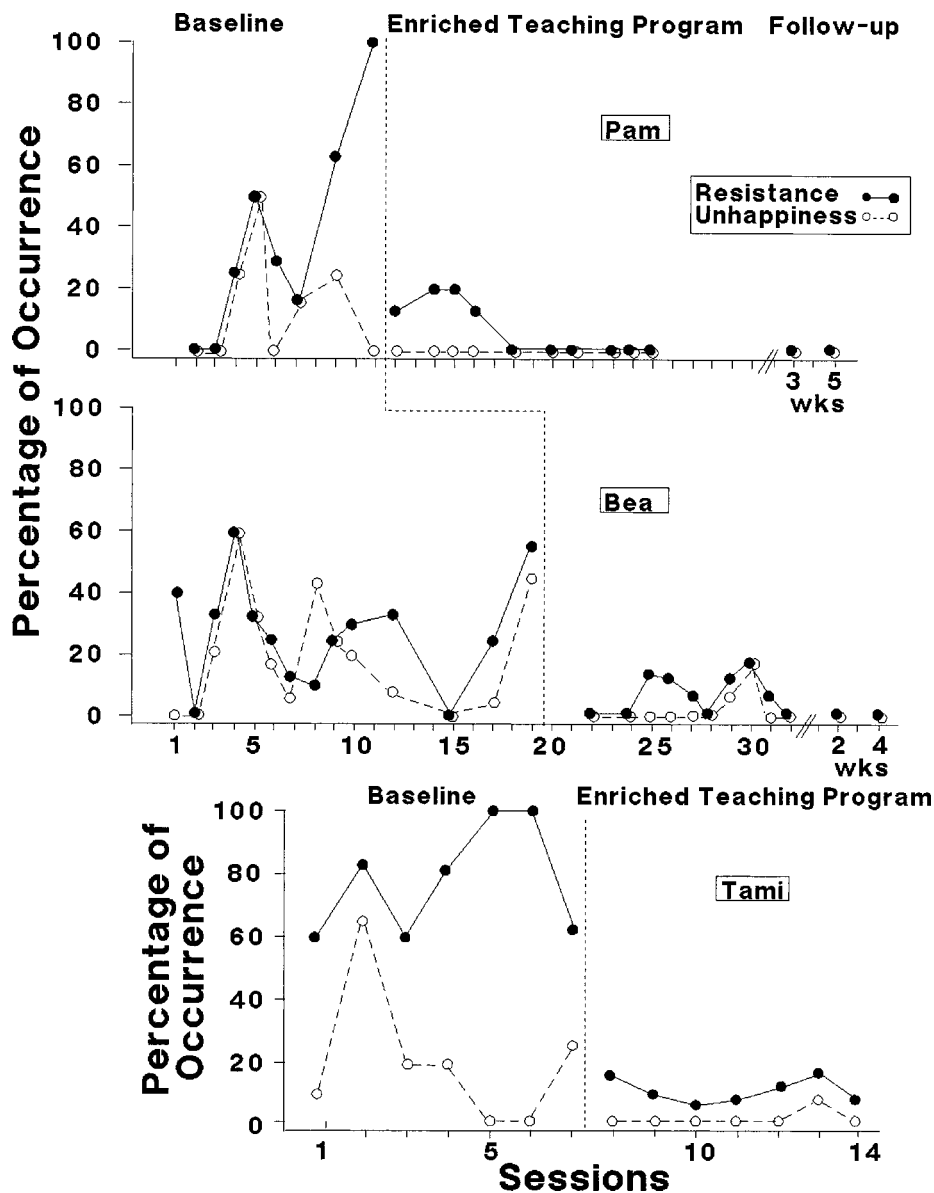


Figure 1. Percentage of observation intervals with resistance and indices of unhappiness for each participant during each teaching session for both experimental conditions.

to an average of 6% during the enriched teaching program (range, 0% to 20%), and indices of unhappiness decreased from 15% (range, 0% to 50%) to 0%.

Bea's resistance and indices of unhappiness decreased from respective averages of 27% (range, 0% to 60%) and 20% (range, 0% to 60%) during baseline to respective averages of 7% (range, 0% to 18%)

and 3% (range, 0% to 18%) during the program. Follow-up observations while staff continued to carry out the enriched teaching program after formal completion of the investigation across periods of 2 to 5 weeks indicated that the decreased levels of resistance behavior and unhappiness indices were maintained for both Pam and Bea. There were also decreases in

resistance and indices of unhappiness for Tami during the enriched teaching program, with respective averages of 11% (range, 6% to 17%) and 1% (range, 0% to 8%) relative to baseline averages of 78% (range, 60% to 100%) and 19% (range, 0% to 67%).

Further examination of Figure 1 reveals that although the percentage of intervals with indices of unhappiness was most frequently zero during the enriched teaching sessions for each participant, there were not as many sessions with zero percentages of resistance. Because there usually were more observation intervals during the program condition than the baseline condition due to the increased length of the teaching sessions (e.g., when brief breaks were conducted following resistance), it was possible that although the percentage of observation intervals with resistance decreased during the enriched teaching, the absolute number of intervals with resistance may have remained the same relative to baseline (i.e., in determining the percentage of intervals with resistance, the denominators were larger during the program condition). However, examination of the absolute number of intervals with resistance did not indicate this. Although the average number of observation intervals per teaching session during baseline was 9 (range of 4 to 24 across sessions and participants) compared to 12 (range, 5 to 28) during the enriched teaching, the total number of intervals with resistance still decreased during the latter condition. The average number of observation intervals with resistance per teaching session for Pam decreased from 2 (range, 0 to 5) during baseline to 0.5 (range, 0 to 2) during the enriched teaching condition, with no intervals with resistance during the last six sessions and follow-up. Similar decreases occurred for Bea and Tami, with respective baseline averages of 5 (range, 0 to 12) and 4 (range, 3 to 5) and averages during enriched teaching of 1.2 (range, 0 to 4) and 1.3 (range, 1 to 2). During follow-up for Bea, there were no intervals with resistance.

Results of observations conducted immediately before and after the teaching sessions (i.e., naturally occurring nondemand situations) suggested that the teaching occasioned indices of unhappiness relative to the naturally occurring environmental situations of the participants. Specifically, there were no observations of indices of unhappiness prior to or after teaching sessions (even when indices of unhappiness were frequent during baseline teaching sessions) throughout the study for Pam or Tami. Indices of unhappiness were also very infrequent for Bea during these periods, averaging less than 4% of observation intervals throughout the study.

#### *Participant Responses to Teaching Sessions*

During baseline, the average prompt level for each participant to complete her respective task-analyzed steps was between hand-over-hand full physical guidance (Level 1) and partial physical guidance at the wrist (Level 2), with specific prompt level averages of 1.3, 1.9, and 1.3 for Pam, Bea, and Tami, respectively. Average prompt levels during the enriched teaching program reflected no negative impact of the program on the participants' responsiveness. During the program, Pam and Bea required an average prompt level between partial physical guidance at the wrist (Level 2) and partial guidance at the elbow (Level 3), with respective averages of 2.3 and 2.1. During follow-up, Pam showed more independence, in that she completed some steps in response to a verbal prompt (Level 4), with an overall level of 3.4, whereas Bea showed the same level of responsiveness as during the program condition. Tami continued to require an average prompt level during the enriched teaching program of between full physical guidance and partial guidance at the wrist (average of 1.2).

#### *Staff Teaching Proficiency*

During baseline, staff proficiency in carrying out the teaching programs averaged 71% for Pam's staff teacher, 64% for Bea's staff teachers,



and 76% for Tami's staff teacher. There was no indication of a negative impact of the enriched teaching program on teaching proficiency. Proficiency improved on average for Pam's (91%) and Tami's (93%) teachers, and remained similar to the baseline average for Bea's teachers (67%). Because the improvement in teaching proficiency may have represented a confounding effect of the enriched teaching program, a more refined analysis of changes in teaching proficiency was conducted. The analysis revealed that increases were inconsistent from session to session and there was considerable overlap in percentage of teaching skills implemented correctly between the enriched teaching condition and baseline with each participant. In addition, improvements in teaching proficiency by Pam's and Bea's teachers did not occur immediately once the enriched teaching program was implemented (i.e., within the first three sessions), whereas there were immediate decreases after implementation of enriched teaching in unhappiness indices for Pam and Bea (Figure 1) as well as immediate decreases in resistance for Bea. Hence, these changes in indices of unhappiness and resistance occurred before any changes in staff teaching proficiency.

#### *Acceptability Measures*

Results of the acceptability survey indicated that the staff teachers believed the original teaching program (baseline) was disliked by each participant (Question 1). Pam's and Tami's teachers reported that their participants disliked the program a whole lot (1 on the Likert scale), and the average for Bea's staff teachers was 2.3 (between *disliked a little* and *disliked some*; range, 1 to 3). In contrast, Pam's and Tami's teachers both reported that their participants liked the enriched program some (6), and the average for Bea's teachers was 5 (*liked a little bit*; range, 3 to 7). All teachers also reported that the new program increased participant enjoyment either some (6) or a whole lot (7). Regarding the ease with which the two programs were carried out, Pam's teacher

reported the new program was neither easier nor harder than the former program (4), Tami's reported that the new program was a whole lot easier (7), and the average for Bea's teachers was 5.5 (between *a little easier* and *somewhat easier*; range, 4 to 7). Finally, all teachers reported that they would rather carry out the new teaching program than the former program.

## DISCUSSION

Results indicated that resistance and indices of unhappiness during teaching sessions decreased for the 3 participants with profound multiple disabilities each time the enriched teaching program was implemented. Staff questionnaire responses provided a degree of social validation for the results. All teachers reported that the participants disliked the program carried out during baseline, whereas Pam's and Tami's teachers and 3 of Bea's 4 teachers reported that their participants liked the program during the enriched teaching. All teachers likewise reported that the new program increased participant enjoyment during teaching, and all reported that they preferred the enriched teaching condition. As indicated earlier, staff perceptions of enhanced enjoyment among participants during teaching sessions may beneficially affect staff compliance in carrying out designated teaching procedures. Finally, results indicated that there were no negative effects of the enriched teaching program on participant responsiveness (participants increased their relative independence slightly or maintained their existing level of independence during the enriched teaching condition) or staff teaching proficiency.

The enriched teaching program was designed as a package of procedures to enhance its probability of success (Bailey & Burch, 2002, chap. 3) and potentially its likelihood of being effective when applied by different staff with a given participant (Progar et al., 2001). The intent was to provide a straightforward approach for working with people with profound

multiple disabilities who appear to dislike various teaching programs: Select the most preferred activities provided in existing person-centered plans, provide samples of those activities before, during, and after a teaching session and remove nonpreferred activities, and follow each instance of resistance with a brief break and a preferred activity before completing the ongoing teaching step. Although the packaged program was effective, a number of questions and directions for future research exist due to the different procedural components.

A primary question for future research pertains to determining if all components of the program are necessary for the program's effectiveness. Identifying critical and noncritical components would enhance the ease with which the enriched teaching program could be implemented, provided the robustness of the program is not compromised in terms of being effectively carried out by routine support staff. In the present study, although all but 1 teacher reported that the enriched teaching program was easier to carry out relative to the traditional teaching program (1 teacher reported no difference), the new program consistently required 10 to 15 min longer to implement. Identifying noncritical program procedures may reduce the time required to implement the enriched teaching process.

One aspect of the program that warrants particular attention in a component analysis is the break contingency for occurrence of resistance. A primary rationale for the break contingency was that because the teaching procedures typically required at least some physical prompting through manual guidance, the guidance may have been discomforting for the participants in light of their physical involvement (e.g., spasticity, contractures). The brief break may have lessened possible discomfort. However, as discussed by Green and Reid (1999), such a contingency can impose a risk of negatively reinforcing resistance. Even though there did not appear to be such an effect with

resistance during teaching, the risk of negative reinforcement exists. It may have been that immediately following the break with a return to the teaching trial, such that the participant did not avoid completing the trial, prevented reinforcement of resistance (Green & Reid). Alternatively, it may have been that the preferred activities provided before and possibly during the teaching sessions functioned in an antecedent manner to lessen the aversive properties of teaching and, correspondingly, participant motivation to resist or escape (Long *et al.*, in press). Nevertheless, if a component analysis revealed that the break contingency could be removed from the overall program without reducing its effectiveness, then the risk of possibly reinforcing resistance would be eliminated.

Another issue with the enriched teaching program that warrants attention pertains to relying on preferred activities identified in person-centered plans in contrast to systematic preference assessments. Although there is some empirical support for the accuracy of preferences identified through staff opinion that forms the basis of the plans if the preferences are reported as favorites or very strong preferences, there is also a risk involved in relying solely on staff opinion in terms of the accuracy of what is reported to be preferred (Reid, Everson, & Green, 1999). Such risk can be heightened when more than the most preferred one or two activities are drawn from the plans, as was the case in this study. The original plan was to enhance the enriched teaching program with systematically identified preferences if the first applications were ineffective, but such steps were not necessary. Nonetheless, particular caution should be exercised along with careful evaluation when selecting preferred activities based solely on staff opinion in person-centered plans. Also, a direction for future research is to evaluate means of making systematic preference assessments a more standard part of routine service provision (cf. Lohrmann-O'Rourke,

Browder, & Brown, 2000). If more human service agencies routinely required systematic preference assessments, then more objective information on preferences would be readily available for use in teaching and other program procedures.

Analysis of teaching proficiency suggested that the enriched teaching program did not detrimentally affect such proficiency. Rather, the analysis indicated some improvement in teaching proficiency. Subsequent analyses suggested that when improvements occurred, the improvements did not confound the effects of the program. However, it should also be noted that teaching proficiency during baseline and on average for Bea's teachers during the program was somewhat below what is considered criterion proficiency (80% correctly implemented teaching procedures) (Parsons & Reid, 1999). Further analysis of staff proficiency levels and possible impact on resistance and unhappiness indices should be conducted. For example, in light of the minimal or inconsistent response to teaching that is characteristic of people with profound multiple disabilities (Ivancic & Bailey, 1996; Logan et al., 1998), it may be that if teaching is provided at a 100% proficiency criterion or other very high level of accuracy, resistance and unhappiness indices may not be as prevalent. Alternatively, teaching proficiency may only be relevant for participant skill development and maintenance and not for resistance or negative affect.

Although additional research on the enriched teaching program is needed, overall the results of this investigation appear to support previous research on means of reducing perceived unpleasantness of certain activities that are routine in the lives of people who have profound multiple disabilities (Green & Reid, 1999). Continued investigation of specific ways to enhance quality of life among this population could represent an important and socially significant contribution of behavioral research.

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## STUDY QUESTIONS

1. What are three strategies for reducing problem behavior during instructional sessions? Which strategy did the authors suggest as preferable, and why?
2. How was *resistance* defined, and what apparent function did it serve?
3. How was client performance measured?
4. What were the main components of the enriched teaching program?
5. Which feature of the enriched program may have inadvertently introduced an undesirable contingency?
6. Briefly summarize the results of the enriched teaching program on client participation.

7. What data suggested that the quality of instruction was not compromised during the enriched teaching program?
  
8. What behavioral processes could have accounted for observed reductions in resistance during the program?

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