

## Increasing Treatment Integrity Through Negative Reinforcement: Effects on Teacher and Student Behavior

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*Abstract.* The current study examined the extent to which treatment integrity was increased and maintained for 4 teachers in their regular classroom settings as a result of performance feedback and negative reinforcement. Teachers received daily written feedback about their accuracy in implementing an intervention and were able to avoid meeting with a consultant to practice missed steps by implementing the procedure with 100% integrity. Treatment integrity increased for all 4 teachers and gains were maintained over time. Decreases in off-task behavior were observed for 3 of the 4 student participants. Results suggest that an intervention package of performance feedback and negative reinforcement may be a viable, time-efficient technique for increasing the integrity of plan implementation by teachers in the classroom.

Prereferral intervention is a consultation-based service with the potential to decrease the number of children referred and ultimately placed in special education (e.g., McDougal, Clonan, & Martens, 2000; Rosenfield, 1992). As a result, most states currently mandate some form of prereferral intervention services in their schools (Erchul & Martens, 2002; Zins, Kratochwill, & Elliott, 1993), and children's responsiveness to these interventions has been proposed as an alternative approach to special education classification (Gresham, 2002; Vaughn & Fuchs, 2003).

Because consultation is an indirect service-delivery model, responsibility for implementing interventions developed therein rests primarily with the teacher (Gutkin & Curtis, 1999). In order to be effective, most school-based intervention programs require more direct approaches to instruction (e.g., word list training, passage previewing), more frequent progress monitoring (e.g., curriculum-based

measurement), or more structured forms of reinforcement (e.g., goal setting and charting, point systems) (Erchul & Martens, 2002). This often places teachers who serve as consultees in the position of acquiring new skills and behaviors and using these behaviors consistently over a long enough period of time to evaluate intervention effectiveness (e.g., 4 to 6 weeks) (McDougal et al., 2000)

Consistent and accurate implementation of a school-based intervention in the way it was intended is termed *treatment integrity* and is considered a necessary condition for effective consultation (Gresham, 1989; Mortenson & Witt, 1998; Wickstrom, Jones, LaFleur, & Witt, 1998). Although Bergan and Kratochwill (1990) originally emphasized antecedent verbal instruction by the consultant as a means of promoting treatment integrity, the available data suggest that teachers fail to implement agreed-upon plans in the absence of ongoing consultative support. For example, Wickstrom

et al. examined teachers' treatment integrity during behavioral consultation as a function of two interviewing approaches: (a) collaborative in which teacher input about intervention options was sought and (b) prescriptive in which an intervention was selected by a consultant. Three measures of integrity were collected during the study and included daily scatterplots of student behavior, the presence of intervention materials at the student's desk, and direct observations of intervention use. Results indicated that intervention materials were present in 62% of cases, scatterplots were completed during 54% of the required intervals, and treatment was applied to only 4% of target student behaviors. No significant differences were observed between the two verbal interaction conditions.

In a series of investigations, Noell and his colleagues (Mortenson & Witt, 1998; Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Witt, Noell, LaFleur, & Mortenson, 1997) examined teachers' treatment integrity after initial training and following implementation of a performance feedback package. In each study, the intervention plan was first described to the teacher, materials needed to implement the plan were provided, and the teacher was coached in how to implement the plan in the classroom until 100% integrity was observed. After training, teachers implemented the plan independently while integrity was monitored via use of permanent products. Results showed that the percentage of steps implemented by teachers decreased to between 20% and 40% by the fifth day following initial training. Daily application of a performance feedback package that included meetings with the consultant to review teacher integrity data, discussion of missed steps, and both positive and corrective feedback increased integrity to near perfect levels (Witt et al., 1997). Somewhat lower and more variable levels of treatment integrity were observed when performance feedback was provided weekly (Mortenson & Witt, 1998), suggesting the need to examine progressive changes in performance feedback schedules. Promising results along these lines were reported by Noell et al. (2000) who found that implementation levels maintained when the

schedule of performance feedback was thinned from daily to every other day.

Although performance feedback can be an effective means of promoting treatment integrity, Noell et al. (2000) reported variable implementation for two teachers and zero implementation for one teacher under the performance feedback condition. Implementation levels of 100% were recovered in the latter case after the teacher was reminded that a meeting with the child's parents and the principal was to be held at the conclusion of the project to review intervention outcomes. The authors hypothesized that discussion of the upcoming meeting may have increased treatment integrity because the teacher wished to avoid a negative evaluation from the principal (i.e., a negative reinforcement contingency).

Several authors have suggested that teacher behavior (i.e., plan implementation), like student behavior, is subject to contingencies of reinforcement (Lentz & Daly, 1996; Martens & Witt, 1988; Tharp & Wetzel, 1969). Although consultants often make use of social-positive reinforcement by praising teachers for their efforts (e.g., Gillat & Sulzer-Azaroff, 1994; Noell et al., 1997), findings by Noell et al. (2000) suggest intriguing possibilities for the application of *negative reinforcement* contingencies to teacher behavior.

In their survey of school psychologists' preservice training and in-service use of consultation skills, Constenbader, Swartz, and Petrix (1992) found that lack of time was the most frequently cited barrier to providing consultation services in the schools. Similarly, Witt, Martens, and Elliott (1984) found that, when judging the acceptability of school-based interventions, teachers preferred techniques that required less time to implement. Findings such as these suggest that *time* is an important commodity for teachers (Elliott, 1988), and that they may be motivated to engage in behaviors that save time. Ward, Johnson, and Konukman (1998) examined this issue with four preservice teachers in a physical education practicum course. Specifically, these authors required teachers to rehearse any teaching behaviors that were implemented incorrectly 10 times before leaving for the day, thus establishing a nega-

tive reinforcement contingency for correct implementation. Using a multiple-baseline design across sets of teaching behaviors, results indicated that all teachers reached 100% correct implementation under the directed rehearsal condition.

The goal of the present study was to examine the effects of a similar directed rehearsal procedure in conjunction with performance feedback on the integrity with which teachers implemented a school-based intervention. As in Ward et al. (1998), teachers in our study were given information about the accuracy of plan implementation (i.e., performance feedback), which was used as a basis to arrange a negative reinforcement contingency. Specifically, teachers were able to avoid meeting with a consultant to practice missed steps of the intervention (i.e., directed rehearsal) by implementing the procedure with 100% integrity. We were also interested in determining if high levels of treatment integrity would maintain when the schedule of performance feedback and directed rehearsal was progressively thinned from daily to once every 2 weeks, thus extending the findings by Noell et al. (2000). A secondary aim of the study was to reduce student off-task behavior by implementing a reinforcement-based intervention.

## Method

### Participants and Setting

Four elementary school teachers (consultees) employed in a rural school district in central New York were recruited by the first author with help of the school psychologist. Each consultee sought assistance in order to address the problem behavior of a single student. These 4 students served as participants. Consultees were informed that the study was investigating different ways of helping teachers implement school-based interventions, and that trained observers would visit the classroom daily at a specified time to collect data on both consultee and student behavior. Before the start of the study, informed consent was obtained for each consultee and parental consent and student assent were obtained for each student.

The first author, a doctoral-level graduate student trained in school consultation and applied behavior analysis, served as the consultant. Teacher interviews, training, plan implementation, and performance feedback occurred in the consultees' classrooms. Additional information about each dyad is provided below.

**Dyad A.** Consultee A, a Caucasian female teacher of 2 years, taught sixth grade science in a regular education inclusive setting. She obtained her Bachelor of Science degree in elementary education and was certified in K-12 elementary education in general science and biology. Student A, a 12-year-old Caucasian female, was enrolled in the sixth grade. She was assigned a 1:1 aide for the duration of the school day subsequent to a diagnosis of Attention-Deficit/Hyperactivity Disorder. She received instruction from Consultee A only for science class and at the start of the day in homeroom.

**Dyad B.** Consultee B, a Chinese-American female, was a second grade regular education teacher of 18.5 years. She had a Bachelor of Science degree and a Master of Science in Education. Consultee B had permanent certification in K-6 grade. Student B was a 9-year-old Caucasian male diagnosed with Attention-Deficit/Hyperactivity Disorder. Through the IEP process, he was given a 1:1 aide for the duration of the school day.

**Dyad C.** Consultee C, a Caucasian female teacher of 17.5 years, obtained a Bachelor of Science degree in elementary education and a Master of Science degree in special education. She taught Grades 4 through 6 in a 15:1:1 classroom. Student C, an 11-year-old Native American male, was in a fifth grade special education classroom due to a diagnosis of Learning Disability.

**Dyad D.** Consultee D, a Caucasian female, was a kindergarten teacher in a regular education classroom and had been employed as a teacher for 30 years. She previously obtained a Bachelor of Science degree and more than 30 additional credit hours in elementary education. Student D was a 6-year-old Caucasian male diagnosed with At-

**Table 1**  
**Example of a 12-Step Intervention Plan**

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1.	Show reward options *
2.	Prompt student to make a choice of two rewards *
3.	Display both rewards
4.	Explain contingency “Remember to (e.g., sit quietly) so you can get your rewards”
5.	Provide a verbal praise statement after 2 minutes
6.	Provide a verbal praise statement within another 2 minutes
7.	After two praise statements, report point total to the student *
8.	Inform student that he earned his first reward *
9.	Provide a verbal praise statement after 2 minutes
10.	Provide a verbal praise statement within another 2 minutes
11.	After two praise statements, report point total to student *
12.	Inform student that he earned his second reward

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*Note.* Steps noted with a star (\*) were omitted for Consultee D following negotiation of the intervention.

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tention Deficit Hyperactivity Disorder. An assistant was present in the classroom and often provided support to Student D, but was not a required component of the IEP.

### **Functional Assessment and Dependent Measures**

Student target behavior and its potential maintaining variables were identified via modified Problem Identification and Analysis Interviews (Erchul & Martens, 2002), administration of the Motivation Assessment Scale (Durand & Crimmins, 1988), and systematic observation of behavioral antecedents and consequences (Axelrod, 1987; Martens & Ardoin, 2002). Based on these data, a reinforcement-based intervention plan that met with consultee approval was developed to address each student’s problem behavior. Intervention plans required the consultee to provide social positive reinforcement on a variable interval 2-minute schedule for 10 minutes. Prior to the start of the study, students were instructed that they would receive 1 point every time the consultee praised their behavior (e.g., “Good job paying attention”). At the end of the 10-

minute period, students exchanged points for a tangible reward. Consultees B and D implemented a 12-step intervention plan, whereas Consultees A and C implemented an 11-step plan. A sample 12-step intervention plan is presented in Table 1.

**Treatment integrity.** The primary dependent measure was the integrity with which teachers implemented the agreed-upon plan. Treatment integrity was assessed through daily direct observation of the consultee by trained undergraduate and graduate observers and was calculated by dividing the number of treatment steps implemented as written within the observation period by the total number of treatment steps, multiplied by 100%.

**Treatment effectiveness.** Data were recorded for off-task behavior for Students B and D, for off-task verbal behavior for Student A, and for off-task motor behavior for Student C. Off-task motor behavior was defined as any motor activities that are not permitted and/or are not related to an assigned academic task. Off-task verbal behavior was defined as any audible verbalizations that are not permitted

and/or are not related to an assigned academic task. Off-task behavior included both off-task motor and verbal behavior. A partial interval 20-second recording technique was used across all phases of the 10-minute observation periods. The percentage of intervals that students exhibited off-task behavior was calculated by dividing the number of intervals during which off-task behavior occurred by the total number of intervals, multiplied by 100%.

### **Experimental Design and Procedures**

A multiple-baseline design across consultation dyads was used to evaluate the effects of performance feedback and negative reinforcement on consultees' treatment integrity and student off-task behavior. The study included five phases: (a) Pre-Training Baseline, (b) Training, (c) Implementation Baseline, (d) Performance Feedback/Negative Reinforcement, and (e) Dynamic Fading.

**Pre-Training Baseline.** Percentage of intervals during which student off-task behavior occurred was calculated for 10-minute observation periods using 20 sec partial interval recording. Teachers were not trained in the intervention plan at this time and were expected to instruct and respond to any off-task behavior as they would typically.

**Training.** Initial training in the various steps of the intervention plan occurred in the consultees' respective classrooms and comprised didactic instruction, modeling, coaching, and immediate corrective feedback. Initial training continued until consultees implemented the plan with 100% integrity on two consecutive occasions with consultant assistance. Consultees were provided all necessary materials for plan implementation in this and subsequent phases.

**Implementation Baseline.** Following initial training, consultees were required to implement the plan without assistance or feedback from the consultant during the remainder of this phase. Trained observers collected data on the integrity of plan implementation by the consultee and on students' target behaviors.

**Performance Feedback/Negative Reinforcement.** Once treatment integrity decreased and stabilized following initial training, consultees were provided with daily written feedback and time-series line graphs of their performance and that of their respective students. This information was left in the consultees' school mailbox following each observation. If a consultee did not obtain 100% integrity on that day's observation, a meeting with the consultant was held the following day prior to the next scheduled observation. During this meeting, any missed or incorrect step of the intervention was reviewed and practiced three times (i.e. directed rehearsal). If, however, a consultee obtained 100% integrity, the meeting with the consultant was not held. At the start of this phase, the consultant explicitly described the negative reinforcement contingency to each consultee. A performance criterion of 3 consecutive days with 100% integrity was required before moving to the next phase.

**Dynamic Fading.** All procedures from the previous condition were in place; however, consultees received performance feedback and negative reinforcement on a thinning schedule dependent on their performance. First, performance feedback and negative reinforcement occurred every other observation session. If integrity maintained at 100% for three consecutive observations, the schedule was thinned to once per week and, subsequently, once every 2 weeks. Consultees who failed to maintain 100% integrity for three consecutive observations were returned to the previous schedule value until criterion was again met.

### **Interobserver Agreement and Treatment Acceptability**

A second observer collected data on teacher treatment integrity during 42.3% of sessions and on student target behavior during 42.4% of sessions across all phases of the study in order to assess interobserver agreement of behavior occurrence and nonoccurrence. Interobserver agreement was calculated as the number of instances of agreement divided by agreements plus disagreements, multiplied by

100%. For teacher integrity, interobserver agreement averaged 96.9% across phases (range 75-100%). For student target behavior, interobserver agreement averaged 89.8% across phases (range 83-100%). In addition, meetings with consultees were tape-recorded and a second scorer collected data on consultant procedural fidelity during 66.7% of meetings in the Performance Feedback/Negative Reinforcement and Dynamic Fading phases in order to confirm that the directed rehearsal procedure was implemented accurately. Interscorer agreement was calculated as the number of instances of agreement divided by agreements plus disagreements, multiplied by 100%. Interscorer agreement averaged 97.1% (range 82.3-100%).

Consultees were asked to complete the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) to assess their judgments about the intervention used with their students. The IRP-15 contains 15 items rated on a 6-point Likert-scale (1 = *strongly disagree* to 6 = *strongly agree*). In addition to item-level analyses, a total score can be obtained by summing the scores for each item (range = 15-90) as a global index of intervention acceptability. A total score of 53.00, which corresponds to an average item score of 3.53, is considered the cutoff for an acceptable intervention. Consultees also completed a modified IRP (18 items) created for the purposes of this study in order to evaluate their judgments about the specific intervention procedures (i.e., performance feedback and negative reinforcement) that were utilized.

## Results

### Treatment Integrity

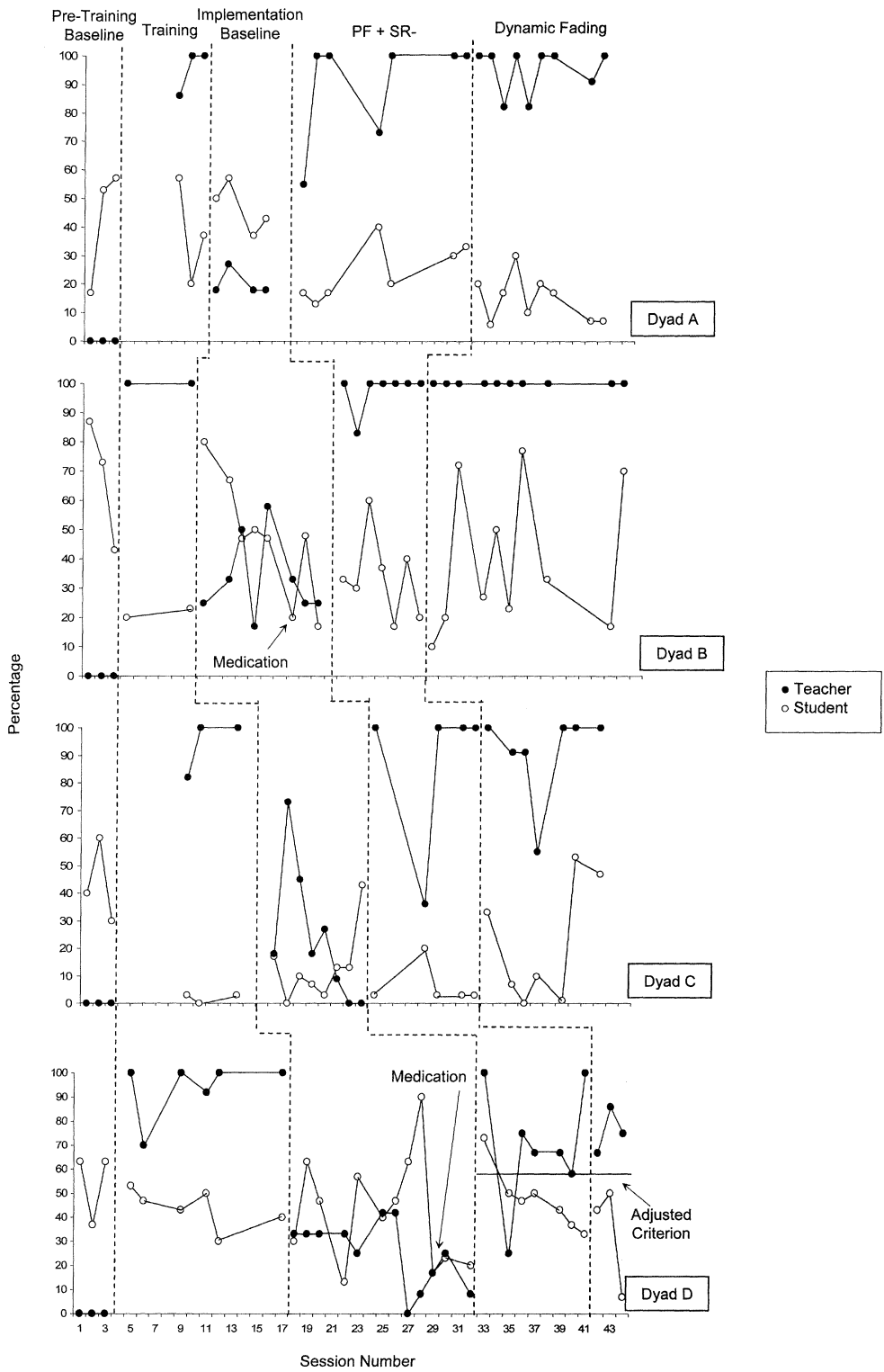
Figure 1 shows the percentage of treatment steps implemented by consultees and percentage of intervals of off-task behavior for each dyad across all phases of the study. During the Pre-Training Baseline phase consultees taught their classes as they normally would (i.e., typical instruction and typical responses to off-task behavior), resulting in zero percentages of intervention implementation. Consultees were instructed in how to use the

intervention and provided with consultant assistance in the Training phase. Consultees A, B, and C met the training criterion (implementation at 100% integrity for two consecutive sessions) in three or fewer sessions, whereas Consultee D required six sessions to reach criterion. Once each teacher met the training criterion, the consultant discontinued her assistance. The data in Figure 1 show an immediate drop in intervention implementation by all 4 consultees from 100% to between 20% and 30% following the removal of consultant assistance. Subsequently, Consultees B, C, and D showed variable use of the intervention through the Implementation Baseline phase. By the end of this phase, implementation levels had decreased to 18% for Consultee A, 25% for Consultee B, 0% for Consultee C, and 8% for Consultee D.

Once consultees' implementation stabilized, the Performance Feedback/Negative Reinforcement phase (PF + SR-) was introduced. Regardless of implementation accuracy, consultees received daily written feedback and graphs of their progress. Negative reinforcement, however, was contingent on accurate implementation of the intervention. With the exception of Consultee D, all teachers quickly met performance criteria and were accurately implementing the classroom intervention within several sessions. Consultee A averaged 89.7% accuracy during this phase, and Consultees B and C averaged 97.6% and 87.2% accuracy, respectively.

Consultee D's implementation of intervention steps was less accurate than the other 3 teachers, averaging 70.3% during the PF + SR- phase. After Consultee D's second session in the PF + SR- phase, she indicated to the consultant that she was unwilling to continue performing the intervention plan as previously discussed. The consultant renegotiated the plan with the consultee, and they agreed on an amended intervention plan that included only seven or 60% of the original intervention steps. Interestingly, once the plan was renegotiated, Consultee D's treatment integrity exceeded the 60% criterion in *all* subsequent sessions.

When the performance feedback and negative reinforcement schedule was thinned in the Dynamic Fading phase, Consultees B



**Figure 1. Percentage of Treatment Steps Implemented by Teacher and Percentage of Intervals of Off-Task Behavior by Student.**

and D continued to perform at 100% accuracy (note Consultee D's performance was considered accurate when she implemented 60% of the steps). In the Dynamic Fading phase, Consultee A averaged 95% accurate implementation and Consultee C averaged 91%.

### Treatment Effectiveness

Although the primary focus of the intervention was treatment integrity, we also examined student behavior as a dependent variable. In the Pre-Training Baseline phase, students' percent intervals of off-task behavior were relatively high (with the exception of Student A's first session). On average, Students A and C displayed off-task behavior in approximately 40% of intervals. Students B and D, on average, engaged in off-task behavior in more than half of the pretraining intervals (67% and 54%, respectively). Although students' off-task behavior showed some systematic decreases with introduction of the intervention, off-task behaviors showed high levels of variability throughout the study. Off-task behavior decreased for Student C to a mean of 13.25% and showed a decreasing trend for Student B ( $M = 47\%$ ) during Implementation Baseline, but similar decreases were not observed for Students A and D ( $M = 46.75\%$  and  $42.5\%$ , respectively). Off-task behavior decreased further for Students A and C and was lower than baseline levels for 3 of the 4 students during Performance Feedback/Negative Reinforcement with means of 24.3% for Student A, 33.9% for Student B, 6.4% for Student C, and 47.6% for Student D. These decreases were maintained for Student A ( $M = 14.9\%$ ) but not for Students B ( $M = 39.9\%$ ), C ( $M = 21.6\%$ ), or D ( $M = 33.3\%$ ) during Dynamic Fading.

### Correlational Analyses

The relationship between consultee integrity and student off-task behavior was calculated in order to determine the extent to which increased accuracy of implementation was associated with intervention effectiveness. The two variables were significantly correlated for Dyad A,  $r(28) = -.41, p < .05$ , and for Dyad C,  $r(24) = -.59, p < .01$ . Statistically signifi-

cant correlations were not found for Dyads B and D,  $r(29) = -.10$  and  $r(24) = -.37$ , respectively.

### Percentage of Nonoverlapping Data Points

To further examine the effects of the performance feedback/negative reinforcement package on teacher integrity, percentage of nonoverlapping data points (PND) between Implementation Baseline and subsequent intervention phases was also calculated for each dyad (Mastropieri & Scruggs, 1985–1986). PND was computed by dividing the number of intervention data points that exceeded the highest Implementation Baseline data point by the total number of points in the intervention phases, including the Dynamic Fading condition, multiplied by 100%. PND was computed to be 100% for Teachers A and B. Teachers C and D obtained 83.3% and 90% PND, respectively.

An examination of PND for the student participants was achieved by dividing the number of intervention data points that were below the lowest Pre-Intervention Baseline data point by the total number of points in all intervention phases, multiplied by 100%. PND was calculated to be 82.6% for Student C. Students A, B, and D obtained 21.7%, 59.3%, and 28.6% PND, respectively.

### Treatment Acceptability

Consultees' responses on the IRP-15 were evaluated to gain understanding of teachers' views of the acceptability, appropriateness, and ease of implementation of the intervention. Total acceptability scores ranged from 69 to 77 ( $M = 72.5$ ), indicating general intervention acceptability. The mean item rating across all teachers was 4.8 (out of 6), with 100% of teachers slightly agreeing to strongly agreeing with each item (ratings of 4, 5, or 6). Consultee responses on the modified IRP provided information specific to the use of performance feedback and negative reinforcement. Teachers indicated a general acceptability of performance feedback and negative reinforcement with total acceptability scores ranging from 67 to 90



( $M = 82.7$ ). For example, 100% of consultees agreed that daily written feedback was a fair way to handle inaccurate plan implementation. Furthermore, 100% of consultees agreed (slightly to strongly) that practicing missed intervention steps would prove effective in changing the accuracy with which teachers implement intervention plans.

### Discussion

These results replicate previous findings suggesting that a performance feedback package can be an effective means by which to enhance consultee treatment integrity (Mortenson & Witt, 1998; Noell et al., 1997; Witt, Noell, LaFleur, & Mortenson, 1997). This study extends this line of research by demonstrating that daily meetings may not be necessary to maintain accurate plan implementation over time. Instead, consultee treatment integrity can be increased by allowing avoidance of daily meetings with a consultant that includes directed rehearsal after receiving written performance feedback. Furthermore, these results extend the findings by Noell et al. (2000) by showing that high levels of treatment integrity can be maintained through progressive thinning of the performance feedback/negative reinforcement schedule.

Use of the performance feedback/negative reinforcement procedure has numerous advantages. First, daily written feedback streamlines the feedback process and provides consultees with information regarding their performance in a manner that is understandable, yet time efficient. In addition, asking consultees to practice missed steps of the plan (directed rehearsal) when treatment integrity decreases from 100% allows for continued practice in needed areas. The data suggest that these procedures are an effective and efficient means by which to support teachers within the classroom setting, with results maintaining over time. Further, the correlational data suggested that, in some instances, increased treatment integrity was associated with reductions in student off-task behavior. Finally, consultees rated the performance feedback/negative reinforcement package to be an acceptable intervention

suggesting its use would be well received by teachers in school settings.

Several limitations should be noted and can be addressed in future research. First, consultees may have responded differently as a result of being observed and monitored. Consultee D expressed discomfort with the consultant acting in this role. Additionally, Consultee C informed the consultant that she felt the focus of the research was on teacher's performance, rather than the student's behavior, and stated that she was uncomfortable with this aspect of the study. As a result, reactivity to being monitored may have contributed to increases in treatment integrity beyond the negative reinforcement contingency that was in effect. However, consultees were observed for every session throughout all phases of the study. Given that reductions in integrity were observed during Implementation Baseline and variability occurred in some instances during the Performance Feedback/Negative Reinforcement condition, reactivity to being observed is unlikely to account for the increases in integrity.

Second, consultees may have discussed the study at other times during the school day and subsequently influenced the performance of other teachers. Further, generalizability of the findings may suffer because the interventions were only implemented for 10 minutes per day. We cannot state with certainty how treatment integrity would be affected if consultees were asked to implement the interventions for longer periods of time. Because teachers are often asked to use behavioral support plans for longer periods of time, rather than 10 minutes as in this study, these findings cannot be generalized under these circumstances. However, student behavior change was a secondary goal of this study with changes in teacher treatment integrity the primary aim. Third, it is known that reinforcement impacts behavior most when it is applied immediately following the desired response. In this study, negative reinforcement was available the following day and this delay may have influenced the data. Fourth, Consultee D remained in baseline for an extended period of time and commented that she wished she had known that

she was implementing the intervention incorrectly earlier than when she was informed. A possible explanation may be that continued incorrect practice influenced her treatment integrity during the Performance Feedback/Negative Reinforcement phase, thereby resulting in the negotiation of treatment steps. Finally, in this study teachers accessed reinforcement in the form of avoiding a meeting with the consultant. At first glance, this may seem contradictory to a typical consultative relationship in which the school psychologist is expected to provide ongoing support to the teacher/consultee. It is important to note, however, that in the present study teachers were able to avoid a meeting that focused on *directed rehearsal* or practice of missed steps. Directed rehearsal represents only one of a number of potential topics (e.g., problem identification, problem analysis, plan evaluation) that are addressed during the course of consultation. Moreover, allowing teachers who meet criterion to avoid subsequent directed rehearsal meetings may be one way of demonstrating that consultants understand the premium placed on teachers' time. This explanation seems plausible given that all 4 teachers judged the procedure to be generally acceptable by expressing agreement (slightly to strongly) that practicing missed intervention steps would prove effective in changing the accuracy with which teachers implement intervention plans. Therefore, initial self-report evidence does not suggest that teachers would be less likely to seek consultative services in general following the use of a performance feedback/negative reinforcement package.

A secondary aim of the study was to reduce student off-task behavior by implementing a reinforcement-based intervention. Several explanations may account for the variability exhibited in student behavior and low percentages of nonoverlapping data points for 3 of the 4 student participants, thereby providing new directions to explore in future investigations. First, Students B and D began psychotropic medication during the study at Sessions 17 and 29, respectively. For both students, this occurred three sessions prior to the introduction of the Performance Feedback/Nega-

tive Reinforcement phase. Despite increases in consultee treatment integrity during this phase, these increases did not vary consistently with reductions in student behavior and may be due to the administration of medication for Students B and D. This may have further impacted the statistical significance of the correlation between treatment integrity and student off-task behavior. In addition, typical classroom and school-wide disruptions (e.g., field trips, assemblies, and teacher absences) interfered with daily implementation of the intervention. As a result, inconsistent plan implementation may have prevented decreases in participants' off-task behavior. An additional explanation may be that the intervention was not sufficiently matched to the function of off-task behavior. Further, the student consultant did not initially assess academic skills. Thus, inappropriate behavior may have been related to a skill deficit rather than a performance deficit in some instances. Finally, greater reductions in student off-task behavior might have been observed if work completion rather than on-task behavior had been reinforced (Hoge & Andrews, 1987).

Despite these limitations, moderate effects were found given that the study was conducted in the natural classroom setting. Consultee treatment integrity remained high in the absence of consistent behavior change for 2 of the 4 students. This finding lends further support for the performance feedback/negative reinforcement package. However, another explanation to account for these findings may be that perceived effectiveness of the proposed intervention influenced treatment integrity in the appropriate direction. Additionally, the study focused on manipulating the contingencies provided by the consultant in combination with performance feedback. Future investigations could explore the effects of these consequences separately; however, a different research design may be necessary given that it would be impossible to administer the current negative reinforcement contingency in the absence of performance feedback. Researchers might also want to investigate whether manipulation of antecedent conditions (e.g., sharing results of brief experimental analyses prior to

training) affect consultee treatment integrity during the consultative process.

In summary, the results of the present study suggest that consultee behavior (i.e., plan implementation) is subject to contingencies of reinforcement. Further, application of a negative reinforcement contingency, in combination with performance feedback, can be an effective way to increase treatment integrity with gains maintained over time as the schedule of feedback/reinforcement is progressively thinned.

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