

*INCREASING INTERVENTION IMPLEMENTATION IN
GENERAL EDUCATION FOLLOWING CONSULTATION:
A COMPARISON OF TWO
FOLLOW-UP STRATEGIES*

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This study examined two strategies for increasing the accuracy with which general education teachers implemented a peer tutoring intervention for reading comprehension. The intervention was implemented for 5 elementary school students who had been referred for consultation services. Initial implementation of the intervention by the teachers was variable, and the data exhibited a downward trend. When consultants held brief daily meetings with the teachers to discuss the intervention, implementation improved for 2 of 5 participants. Four of the teachers implemented the intervention at levels substantially above baseline during the performance feedback condition, whereas implementation for 1 teacher increased following discussion of an upcoming follow-up meeting with the principal. Student reading comprehension scores improved markedly during the peer tutoring intervention. Three students maintained these gains 4 weeks after the intervention ended. The implications of these findings for the maintenance of accurate treatment implementation in applied settings are discussed.

DESCRIPTORS: treatment integrity, consultation, performance feedback, teachers, education, peer tutoring, reading

Ensuring that treatments are implemented correctly is often more difficult than initial treatment development. One of the barriers to programming implementation is that a greater empirical base exists for devising treatments than for ensuring their use. Behavior analysts need technologies that lead to treatment implementation because behavior-analytic treatments frequently rely on persons in the natural environment to act as

treatment agents. Accurate, sustained treatment implementation by individuals such as residential care staff, teachers, peers, and family members frequently requires considerable programming (Arco & Birnbrauer, 1990; Harchik, Sherman, Sheldon, & Strouse, 1992; Noell & Witt, 1999; Wolery, 1997). The question remains, however: What procedures lead to sustained treatment implementation?

Consultation is one process for developing and implementing treatments that has been examined in a number of studies (Sheridan, Welch, & Orme, 1996). Consultation is a service-delivery model in which a consultant (e.g., behavior analyst) and consultee (e.g., parent, employer, or teacher) work together to resolve referral concerns presented by a client (Bergan & Kratochwill, 1990; Gutkin & Curtis, 1990). Consultation is typically described as an indirect service-delivery model because the consultant provides services primarily to the consultee rather

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than to the client. The consultee in turn is primarily responsible for treatment implementation. The research literature generally supports the efficacy of consultation by specialists as a means of developing treatments that subsequently can be implemented by treatment agents such as teachers, parents, or residential care staff (Harchik *et al.*, 1992; Peck, Killen, & Baumgart, 1989; Sheridan *et al.*, 1996).

Research examining treatment implementation by residential care providers indicates that the degree to which programs are implemented following training is strongly affected by the amount and type of follow-up that is provided (Arco & Birnbrauer, 1990). Few studies in educational contexts have examined variations in follow-up procedures. Follow-up procedures can be described as existing on a continuum from the continuous full-intensity delivery of consultation to long periods with no follow-up contact. Behavioral consultation (BC; Bergan & Kratochwill, 1990) calls for the consultant to schedule one follow-up meeting for some point after the treatment plan has been developed (e.g., 4 weeks, Galloway & Sheridan, 1994). In contrast to much of the BC research, some researchers have maintained consultation procedures at full intensity throughout the study (e.g., Peck *et al.*, 1989).

Several recent studies have examined an alternative approach to consultation follow-up that is intermediate in time demands between maintaining consultation at full intensity and providing extended periods of no formal follow-up (Mortenson & Witt, 1998; Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Witt, Noell, LaFleur, & Mortenson, 1997). In these studies, follow-up consisted of daily or weekly meetings that were structured around the delivery of performance feedback. Each study examined implementation of a reinforcement-based treatment by general education teachers for an in-class

concern. Across all three studies, treatment implementation was initially high, but rapidly decreased. The subsequent introduction of process and outcome feedback from the consulting behavior analyst resulted in substantial increases in implementation of the plan. These studies extended the performance feedback literature by developing a procedure that could be delivered by a consulting behavior analyst to other professionals (e.g., certified teachers) to increase treatment implementation. In contrast to much of the performance feedback literature, the person who delivered the feedback held no administrative authority and did not possess higher status within the organization than the person who received the feedback.

The Mortenson and Witt (1998) study found a positive effect for weekly performance feedback that was more modest than the daily feedback provided in the two related studies. Witt *et al.* (1997) provided teachers with all materials needed for the intervention and trained teachers to implement the intervention using a written plan, didactic instruction, discussion, and in-class practice with feedback. Noell *et al.* (1997) replicated the Witt *et al.* study, but only provided teachers with the materials necessary for data collection and limited the amount of initial training to one consultation meeting. No difference in the initial accuracy of implementation or subsequent effectiveness of performance feedback was found across these two studies.

The studies described above found that treatment implementation in the absence of routinely scheduled follow-up meetings was poor. They also demonstrated that treatment implementation could be maintained by follow-up that was less time consuming than the consultation process used to develop the treatment. The studies used a brief structured meeting to deliver performance feedback to teachers. The feedback package included graphic presentation of results, infor-

mation regarding student behavior, information regarding teacher behavior, identification of implementation errors, problem solving for future implementation, and praise for correct implementation. Research in this area has not examined the efficacy of less structured follow-up meetings. As a result, the importance of providing time-consuming performance feedback as a foundation for the follow-up meetings is unknown. If an alternative structure for follow-up meetings that reduces the consultant's preparation time is effective, it would increase the availability of time for the consultant to work with other referrals.

Brief, daily meetings that respond to teachers' concerns may help to maintain treatment implementation for several reasons. First, brief daily follow-up meetings can provide teachers with an opportunity to work with the consultant to develop solutions to new or unanticipated implementation problems. Second, meetings could serve as a prompt for teachers to implement the treatment later in the day. Finally, if teachers accurately report their implementation during the meeting, the consultant may be able to reinforce implementation through praise. This potential function of daily follow-up meetings is particularly important because treatment agents such as teachers are continuously confronted by a range of competing contingencies for alternative behaviors (Witt & Martens, 1988). The present study evaluated this consultation model using a peer tutoring intervention that further reduced the demands on the teacher.

METHOD

Participants

Participants in this study were 5 certified elementary school teachers and 5 regular education students. Each of the teachers had referred the targeted student for consultation and intervention services due to poor read-

ing performance. During an initial interview with a consultant who worked in the school, all participating teachers described academic deficits as the student's primary concern and described the problem as being severe enough to warrant individualized intervention. Consultants were doctoral students in school psychology who consulted in the school regarding a range of behavioral and academic concerns.

Ms. West had 22 years of teaching experience and had completed a master's degree in education. She referred Gail, who was a 9-year-old African American girl enrolled in the fourth grade. Gail had been retained in the fourth grade the previous year. Ms. Garcia was a 10th-year teacher who referred Aaron, an 8-year-old Caucasian boy enrolled in the third grade. Ms. Brouhard was a 9th-year teacher who referred Rick, an 8-year-old African American boy enrolled in the third grade. Ms. Traugh was a 7th-year teacher who referred Grace, a 10-year-old old Caucasian girl enrolled in the third grade. Grace had repeated both kindergarten and the first grade. Ms. Clay was a 1st-year teacher who referred Samantha, a 7-year-old African American girl enrolled in the second grade. None of the participants was taking medication at the inception of this study. However, Grace began taking 10 mg of methylphenidate twice per day on School Day 14 and Session 18.

Each of the teachers identified a classmate who could work with the target student as a peer tutor. The tutors exhibited at least average reading performance, were absent 1 day per month or less, and were the same gender as the target student.

Setting and Materials

Baseline, tutor training, and follow-up sessions were conducted in the school cafeteria. All peer tutoring sessions were conducted in the participating teachers' classrooms. During baseline, peer tutoring, and

follow-up sessions, students read passages from a reading comprehension workbook at their grade level (Resnick & Hyatt, 1993a, 1993b). Passages in the second-grade workbook were from 93 to 317 words in length ($M = 177$) and were followed by 5 to 9 ($M = 7$) multiple-choice comprehension questions regarding facts and inferences from the passage. Passages in the third-grade workbook were from 344 to 1,083 words in length ($M = 546$) and were followed by 6 to 14 ($M = 11.3$) questions. The second-grade workbook contained 16 passages and the third-grade workbook contained 11 passages. The passages contained in each workbook were presented to the student sequentially and then were repeated across sessions. As a result, passages repeated for students in the second-grade materials every 16 sessions and for students in the third-grade materials every 11 sessions.

Gail failed to complete the passage or any comprehension questions correctly over several baseline sessions using fourth-grade materials. Consequently, her materials were changed from fourth grade to third grade to reduce her apparent frustration and to more closely match her instructional level.

Response Definitions, Data Collection, and Scorer Agreement

The primary target behavior was the accuracy of teacher implementation of the peer tutoring plan. The intervention was designed such that completion of each activity produced a permanent product. The products were scored for four possible outcomes: (a) A session was provided to the student; (b) the correct activity, either tutoring session or reward activity, was provided for the session; (c) the student's work was graded accurately based on the answer key that was provided to the teacher; and (d) a coupon was provided if the student met his or her performance goal. (More detailed procedures for the scoring of permanent products are

available from the first author upon request.) In addition to teacher data, the students' responses to the comprehension questions for each passage were scored and the percentage correct for each session was calculated.

A second scorer independently scored the permanent products and student-completed work for 28% of all sessions equally distributed across all participants. Scorer agreement for teacher behavior was calculated as the number of items of agreement divided by items of agreement plus items of disagreement, multiplied by 100%. Scorer agreement for student scores was calculated as the smaller score divided by the larger score multiplied by 100%. Scorer agreement was 100% across all occasions, participants, and measures.

Experimental Design and Conditions

A multiple baseline design across participants was employed to evaluate the impact of the consultation procedures on teacher implementation of the peer tutoring program and to evaluate the impact of the peer tutoring program on reading comprehension.

Reading baseline. Baseline data for students' reading comprehension scores were obtained during small-group work. Participating students met as a group in the school cafeteria with one or two of the project consultants. The students were given a 15-min session in which to read the assigned passage and complete the comprehension questions. Students worked independently and could choose to read silently or aloud.

Peer tutoring. Project consultants trained all student dyads to use the peer tutoring procedures using modeling, guided practice, and independent practice with feedback using a checklist (copies of the checklist are available from the first author). All student dyads independently completed the peer tutoring routine accurately prior to beginning tutoring sessions. Each target student met

with his or her peer tutor at a time selected by the classroom teacher. Each session began with the student setting a timer for 15 min and removing that day's assignment from the tutoring box. The target student then read the passage aloud to the tutor. The tutor was responsible for reading along with the tutee and assisting with any words the tutee omitted or read incorrectly. The tutor initially pointed out the error and gave the tutee the opportunity to correct the error (e.g., sound out the word or read the sentence again including the omitted word). If the student did not read the word independently, the tutor read the word for the tutee. The tutee then completed the comprehension questions independently with the tutor reading along. If the tutee missed a question, the tutor was responsible for pointing out the error and encouraging the tutee to look for the correct answer in the passage. The tutee was allowed to correct his or her answer based on this feedback, but the tutor was not allowed to provide the answer to the tutee.

Each target student's teacher graded the comprehension questions after the peer tutoring session. A target percentage correct goal was selected by each student's teacher and consultant based on baseline performance and minimum scores required to receive a passing grade. Each student's goal represented an improvement in performance over his or her baseline mean and was a passing grade. If the student exceeded this comprehension goal, he or she was given a coupon. Three coupons could be exchanged for a 15-min reward activity for the tutor and tutee.

Teacher training. Prior to implementation of the in-class training, the intervention was discussed with the teacher, all of the necessary materials were provided, and the teacher verbally committed to implement the intervention. The materials provided to the teacher included a typed copy of teacher responsibilities for implementation of the peer

tutoring plan, a description of student responsibilities, the reading assignments, scoring keys for the comprehension questions, coupons, a daily checklist that the students used to structure the tutoring session, and a handheld electronic game that could be used as one of the rewards student dyads could earn. On the 1st day of implementation, a consultant attended class and helped the teacher obtain 100% integrity. If the teacher did not implement any element of the intervention, the consultant immediately reminded the teacher of the treatment step and asked the teacher to complete that intervention step. The purpose of this phase was to ensure that the teacher had the skills necessary to implement each intervention step.

Implementation baseline. During this phase, the teacher was asked to use the materials provided to implement the intervention independently. The consultant had no contact with the teacher during this phase.

Follow-up meetings. When treatment integrity data were low and stable or trending downward, follow-up meetings were held. Each teacher's consultant talked with the teacher each morning about the student and the intervention. The consultant was not provided with any student or teacher outcome data by the research team. The consultant simply asked the teacher how the intervention was going and if she had any questions. The purpose of this phase was to test the efficacy of daily consultant follow-up contacts in the absence of outcome data. These meetings typically did not last more than 5 min. Most meetings consisted of the consultant asking about the intervention and the teacher reporting no concerns or questions.

Performance feedback. The consultant met with the teacher each morning before school for 3 to 5 min to present student academic performance data (outcome data) and teacher intervention implementation data (process

data). The data were presented on a simple computer-prepared graph showing both the student's percentage correct on daily assignments and the percentage of treatment steps implemented by the teacher. The consultant also identified the specific treatment steps the teacher had missed or completed incorrectly the preceding day and discussed with the teacher how to improve implementation that day. The schedule of performance feedback was thinned to every other day once a teacher had implemented the treatment with 100% integrity on 4 consecutive days.

Follow-up meeting discussed. An additional element was added to performance feedback for Ms. West due to a decreasing trend in her treatment implementation. During the performance feedback meeting prior to Day 17, the consultant reminded the teacher of a conference that was scheduled to occur at the end of the project with the student's parents and the principal. The consultant pointed out the difficulty in evaluating the effectiveness of peer tutoring for Gail if it was not implemented. The teacher was offered the option of terminating the intervention, calling the concluding conference, and pursuing an alternative intervention.

Follow-up. Follow-up sessions were conducted approximately 4 weeks after the conclusion of the study. Students did not attend school during the bulk of this period due to school holidays. Follow-up probes were implemented in the same manner as baseline sessions.

Integrity of Experimental Procedures

Integrity checks were performed on the experimental procedures for in-class teacher training and for the performance feedback sessions. For both procedures, a checklist (available from the first author) was used and an independent observer scored whether or not the consultant performed each step in the procedure. Integrity of performance feedback delivery was assessed for 50% of

occasions for Ms. Clay and Ms. Traugh, 57% of occasions for Ms. Brouchard, 40% of occasions for Ms. Garcia, and 38% of occasions for Ms. West. All consultants completed 100% of the items on the integrity checklists.

RESULTS

Teacher Implementation of the Intervention

Figure 1 shows that all teachers completed all treatment steps on the training day. Ms. West implemented a mean of 10% of treatment steps during implementation baseline. Ms. Garcia, Ms. Brouchard, and Ms. Traugh partially implemented the intervention initially, but ended implementation baseline with 2 to 3 days during which they did not provide any part of the intervention. Ms. Clay implemented the intervention accurately during 5 of 9 implementation baseline days. A phase change was introduced for her when a downward trend appeared in the implementation data.

Ms. West, Ms. Garcia, and Ms. Brouchard did not implement the intervention when follow-up meetings were provided. Ms. West resumed implementing the intervention when performance feedback was delivered, but improvement was temporary. Implementation remained high and stable following discussion of the follow-up meeting that was scheduled to occur at the end of the intervention. Ms. Garcia's mean implementation level over the first 4 performance feedback days was low ($M = 44\%$) and variable. Ms. Garcia's implementation data stabilized on Day 17, with a mean of 97% implementation over the final 9 days of the study. Ms. Garcia's implementation remained at high levels when performance feedback was delivered every other day. Ms. Brouchard implemented the intervention during all eligible school days during performance feedback, with a mean treatment integrity of 93%.

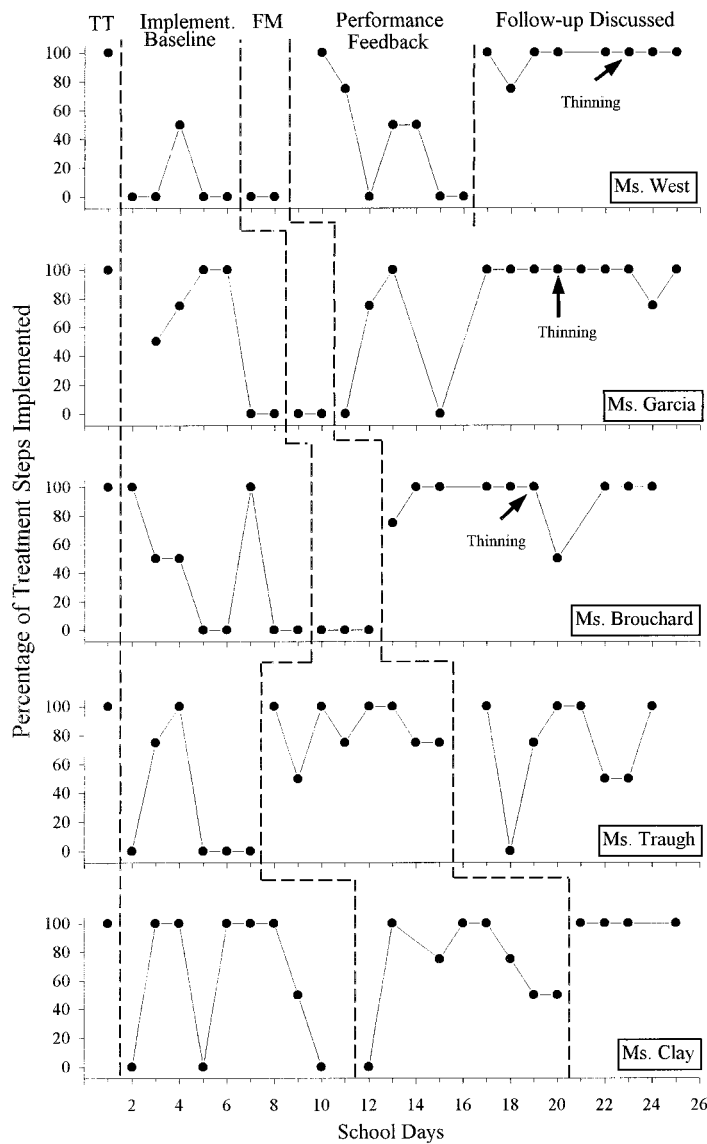


Figure 1. The percentage of treatment steps that teachers implemented each day across all phases of the study. Missing data points occurred for school days on which either the teacher or the target student was absent. TT is teacher training. FM is follow-up meeting.

Ms. Traugh implemented the intervention on all school days once follow-up meetings were provided, with a mean of 84% of treatment steps implemented accurately. Performance feedback was provided to Ms. Traugh to determine whether implementation would increase and stabilize with this intervention. Ms. Traugh's implementation data were somewhat less stable during perfor-

mance feedback ($M = 72%$) than during the follow-up meeting phase. Ms. Clay's treatment integrity data were variable when follow-up meetings were conducted ($M = 69%$), and they exhibited a downward trend at the end of the phase. Ms. Clay completed all possible treatment steps during performance feedback.

Table 1 presents the number of times each

Table 1
Teacher Treatment Implementation Errors

Teacher	Teacher implementation errors				
	Omitted session	Graded incorrectly	Did not grade	Withheld earned coupon	Tutoring session instead of reward
West	9	0	3	5	0
Garcia	6	1	1	3	0
Brouchard	7	1	2	2	1
Traugh	5	1	4	6	0
Clay	4	2	1	1	2

teacher made each implementation error. For all of the teachers except Ms. Traugh, the most common implementation error was not providing a peer tutoring session. Withholding the coupon when the student had earned it was the most common implementation error for Ms. Traugh, Ms. West, and Ms. Garcia on days on which the intervention was implemented. Implementation errors that occurred typically reduced the students' access to the reward activity. Summing across teachers, the combined errors for withholding coupons and providing a tutoring session when a reward session was due exceeded grading errors. Also, no teacher mistakenly provided a coupon when a student had not earned it or provided a reward session before the student had earned it.

Student Performance

Samantha completed 45% of comprehension questions correctly during baseline and 86% during peer tutoring (Figure 2). At follow-up, her performance dropped to baseline levels ($M = 42\%$ correct). During baseline, Aaron completed 24% of questions correctly, but during peer tutoring he completed 75% of questions correctly. His mean percentage correct at follow-up was 85%; however, his follow-up data exhibited a downward trend. Rick's baseline performance was variable ($M = 26\%$). His performance during peer tutoring was high ($M = 91\%$ correct) and stable. Rick's performance at follow-up was above mean baseline

levels ($M = 43\%$), but was substantially below levels exhibited during peer tutoring. Gail's data exhibited a downward trend during baseline ($M = 59\%$) and stable performance during peer tutoring ($M = 81\%$) as well as at follow-up ($M = 94\%$). Grace answered few questions correctly during baseline ($M = 25\%$). During peer tutoring, she completed 82% of questions correctly, and at follow-up, she completed 90% of questions correctly.

DISCUSSION

This study replicates and extends previous performance-feedback research targeting treatment implementation in general education. Similar to previous studies, teachers implemented the intervention at low levels prior to follow-up by the consultant (Mortenson & Witt, 1998; Noell *et al.*, 1997; Witt *et al.*, 1997). Teachers implemented the intervention on 50% of school days, with a mean integrity across days of 41% during implementation baseline. This finding replicates earlier research and extends this finding from a 13-step reinforcement-based treatment to a comparatively simple peer-mediated instructional treatment requiring four teacher-completed steps. The baseline implementation data indicate the need for some form of programmed follow-up to maintain accurate intervention use following consultation.

Although results varied across teachers, all

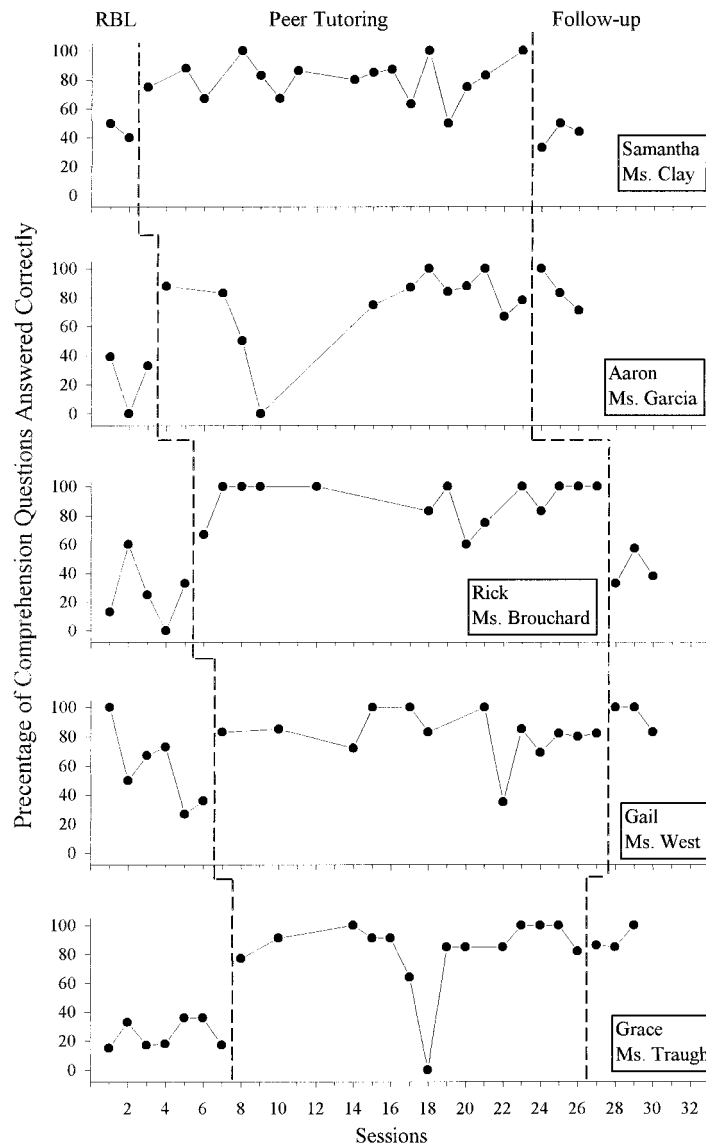


Figure 2. The percentage of the comprehension questions that each target student completed correctly. Missing data points occurred for eligible school days when the intervention was scheduled to be implemented but was not. RBL is reading baseline.

teachers implemented the intervention substantially above baseline levels in one or more follow-up phases. Teachers implemented the intervention on 93% of school days, with a mean treatment integrity of 87% during the final phase. The improved implementation in one or more follow-up phases is a particularly important finding when one considers that the consultant ex-

ercised no formal administrative authority and the teachers were free to accept or reject the consultants' recommendations. This type of nonhierarchical administrative relationship corresponds to the typical conditions under which consultation is delivered in schools (Gutkin & Curtis, 1990). The absence of administrative authority over treatment agents is also consistent with common

service-delivery settings for behavior analysts (e.g., outpatient child behavior therapy).

Follow-up meetings and performance feedback produced mixed results across teachers. Follow-up meetings were ineffective for 3 teachers, were followed by modest improvements in implementation for Ms. Clay, and increased implementation for Ms. Traugh. The treatment integrity data for 4 teachers improved above follow-up meeting levels with the introduction of performance feedback, and 1 teacher's implementation deteriorated slightly but remained above baseline levels. Performance feedback was not consistently effective for Ms. West until she was reminded of the meeting with the principal and the student's parents scheduled for the end of the intervention. Ms. West's data suggest that making accountability to administrators and parents more salient may enhance the efficacy of performance feedback for some teachers. This finding is consistent with research examining the application of performance feedback in institutional and organizational settings (Balcazar, Hopkins, & Suarez, 1986).

Ms. Garcia's performance feedback data are difficult to interpret with confidence. Her implementation initially improved and then deteriorated for 1 day during a period in which she was absent 2 of 3 days. Her implementation stabilized at 100% at the point at which her attendance became consistent and at the point at which the follow-up meeting was discussed with Ms. West. It is possible that Ms. West and Ms. Garcia discussed the meeting and that the factors which contributed to her absence on Days 14 and 16 interfered with implementation on Day 15.

The mixed results across teachers suggest that the type and intensity of follow-up necessary to maintain treatment implementation will vary across treatment providers. For some teachers a simple prompt may be sufficient. Two factors suggest that follow-up

may have functioned primarily as a prompt for Ms. Traugh. First, there was a near-total absence of problem-solving discussions during follow-up meetings across all teachers. This suggests that problem solving of implementation issues during follow-up was of minimal importance for the participants in this study. Second, Ms. Traugh improved implementation similarly during both follow-up meetings and performance feedback. The procedures were similar in that the meetings were potential prompts for treatment implementation. They differed in that performance feedback included programmed social contingencies within the meeting based on treatment implementation and follow-up meetings did not. Although it is possible that both procedures provided similar moderately effective reinforcement contingencies, this seems unlikely given the very different content of the meetings.

In contrast to Ms. Traugh's data, the remaining 4 teachers improved implementation the most or exclusively when performance feedback was provided alone or in conjunction with discussion of follow-up meetings. During performance feedback, the content of the meeting was contingent on teacher behavior. The content of the meeting may have increased treatment implementation through positive reinforcement, negative reinforcement, or a combination of the two. Teachers may have increased treatment implementation as a function of contingent praise (i.e., positive reinforcement), or they may have implemented the treatment to avoid having errors pointed out to them (i.e., negative reinforcement). Negative reinforcement seems especially likely for Ms. West, given her response to the discussion of the follow-up meeting.

Although teachers varied in their response to the follow-up procedures, they exhibited some interesting consistencies in the implementation errors that occurred. More experienced teachers omitted the tutoring session

more often and were less responsive to follow-up meetings than less experienced teachers. This finding suggests that an extended learning history with current general education practices may make teachers more resistant to implementing individualized interventions. This is consistent with descriptive research indicating that interventions may not be consistently implemented in schools (Happe, 1982; Noell, Gansle, & Allison, 1999). More experienced teachers may have learned that few reinforcing contingencies exist for implementing interventions (Lentz & Daly, 1996; Witt, 1990).

It is also interesting to note that the implementation errors that were committed consistently resulted in students receiving fewer rewards than they had earned. This occurred even though consultants discussed the importance of reinforcing improved student performance with the teachers prior to starting treatment and during performance feedback. This consistent error across teachers suggests two possibilities. First, teachers may have perceived rewards as less important than providing tutoring sessions, which may have been perceived as the primary treatment. Second, reward contingencies may have been less acceptable to the teachers than the instructional component of the treatment. Either of these factors may have reduced teacher interest in implementing the reward contingencies.

The multiple-component nature of performance feedback and the potential for idiosyncratic responding to feedback suggest several areas for future research. First, future research should examine practical means of reinforcing treatment implementation. This research should also address the reality that not all treatment agents will obtain reinforcement by the same contingency. Second, component analyses can be devised that attempt to isolate the minimum components necessary to change behavior. Identification of critical components may also suggest al-

ternative procedures that accomplish the same outcomes as performance feedback more simply. Structuring the follow-up contacts around review of data collected by the teacher or reviewing permanent products at the time of the meeting may prove to be effective alternatives to the performance feedback package examined here.

Research is also needed that examines methods for systematically adjusting performance feedback to meet the needs of individual treatment providers. The development of procedures for fading feedback components and thinning the schedule of feedback delivery could increase the practicality of performance feedback and would make the procedure more specific to individual needs. Future research can also address potential order effects, which are a limitation of this study. Treatments were implemented in an invariant sequence, and as a result, the impact of potential sequence effects is unknown.

All of the students completed a greater percentage of the comprehension questions correctly when they worked with their tutor than when they worked alone. Three of the 5 students maintained these gains several weeks after the intervention was terminated. This finding was particularly encouraging because the students did not attend school for most of this period due to school holidays. All of the students made gains during the peer tutoring phase, and 3 of them maintained these gains despite imperfect implementation of the intervention by their teachers. These data are consistent with previous findings indicating that peer tutoring as well as other treatments can produce beneficial results even with violations of treatment integrity (Greenwood, Terry, Arreaga-Mayer, & Finney, 1992; Holcombe, Wolery, & Snyder, 1994).

Several limitations of the analysis of student behavior should be noted and can be addressed in future research. First, some pas-

sages were presented twice over the 6 weeks of the intervention, which may have resulted in passage-specific learning that was not the focus of the analysis. Second, the integrity with which the students implemented the tutoring procedure was not monitored because of concerns regarding teacher reactivity to these types of observations. Assessing and potentially intervening upon student treatment integrity may strengthen future studies. Third, improvements in comprehension scores during peer tutoring are at least partially attributable to correctness feedback from the tutor. Tutors were trained to tell the tutee when an answer was incorrect and to prompt him or her to look for the correct answer in the text. Tutees were allowed to change their answers based on this feedback. Fourth, students were permitted to read passages aloud or silently during baseline and follow-up, but were required to read aloud during tutoring sessions. Finally, the absence of maintenance of treatment gains for 2 students is another limitation of the study. Samantha's and Rick's poor performance on maintenance probes could be the result of their tutors providing excessive assistance so that these students did not develop independent reading skills. It is also possible that their poor maintenance is partially attributable to an absence of reading practice over the school holidays. Implementing periodic maintenance probes in which tutees worked independently during the peer tutoring phase would strengthen future research. This would provide opportunities to identify students who were not generalizing skills to independent performance and make modifications of the program to enhance maintenance.

In summary, implementation of the recommended treatment was initially poor, but improved in one or more follow-up conditions for each teacher. The efficacy of follow-up procedures varied across teachers. Follow-up meetings were beneficial for 2 of 5 par-

ticipating teachers. When performance feedback was provided, 3 of the teachers implemented the treatment more accurately than they had during the implementation baseline or follow-up meeting phase. One teacher's implementation did not improve until follow-up with the principal and student's parents was discussed. These data illustrate the importance of monitoring and following up on treatment implementation following consultation. The results also indicate the need for additional research to clarify how to reinforce treatment implementation, the active components of performance feedback, and methods for adjusting the procedure to meet individual needs.

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STUDY QUESTIONS

1. Briefly describe the continuum of intensity with which follow-up is provided by behavioral consultants. What are some potential benefits of brief daily consultation meetings?
2. What were the independent and dependent variables in the study, and how was experimental control demonstrated?
3. Describe the baseline and peer tutoring conditions.
4. What three types of follow-up meetings were conducted with teachers?
5. Summarize the results obtained with the different follow-up strategies on teachers' implementation of the peer tutoring intervention. Also, what were the two most common implementation errors (see Table 1)?

6. What were the effects of peer tutoring on student performance?
7. Describe some alternative methods for delivering performance feedback that may have been more efficient than that used in the current study.
8. The authors suggested that student performance improved at least in part as a result of feedback from the peer tutors. What additional data would be helpful in evaluating the effects of this feature of the intervention?

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