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DEVELOPMENT AND VALIDATION OF A CLASSROOM ASSIGNMENT ROUTINE FOR INCLUSIVE SETTINGS

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Abstract. This study had two purposes: (a) to identify the characteristics of high-quality classroom assignments and how they are best explained, as indicated by teachers, students with learning disabilities (LD), and students without LD; and (b) to determine the effects of training teachers to use an assignment completion routine based on these characteristics. Multiple-probe and comparison-group designs were used in combination to show the effects of learning the routine on the teachers' planning, explanation, and evaluation of assignments. Results indicated that the teachers initially performed few of the behaviors associated with the assignment characteristics and explanation factors, but could effectively be taught to use them in an assignment completion routine with their students.

As underscored by recent research, when students move into secondary grades, performance on homework and class assignments serves as a major factor in determining students' course grades and their ultimate success in mainstream classes (Putnam, Deshler, & Schumaker, 1993). Unfortunately, because of their skill deficiencies and long histories of school failure, students with LD often do not complete or even try to complete assignments given to them in the regular classroom (Delquadri, Greenwood, Whorton, Carta, & Hall, 1986; Deshler, Schumaker, Alley, Warner, & Clark, 1983). Although improving the skill deficiencies of these students may improve completion of classroom assignments, such a tact may not be feasible for the classroom teacher.

An alternate approach to improving the degree to which students with LD become actively engaged in assignment completion is to improve

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the quality of assignments given to students. The literature reveals several factors that should be considered in the design of effective assignments: (a) carefully defined instructional objectives for the task as it relates to the topic of the content to be learned (e.g., Bloom, 1956; Brophy & Alleman, 1991); (b) varied formats (e.g., Brophy & Good, 1986; Schurr, 1989) and types of assignments (e.g., Connors, 1991; Lee & Pruitt, 1979) so as to increase their appeal to students; (c) tasks written at an appropriate level of challenge so students can put forth a reasonable effort (e.g., Brophy & Good, 1986); (d) opportunities for hearing and incorporating student choices (e.g., Lenz & Bulgren, 1995); and (e) instructions that are easy to understand and follow (e.g., Brophy & Alleman, 1991).

In addition, the following elements have been suggested for incorporation into *explanations* of assignments to students: (a) using advance organizers to gain student attention and provide an overview of the assignment (Lenz, Marrs, Schumaker, & Deshler, 1993); (b) soliciting student suggestions on how the assignment can best be accomplished (e.g., Brophy & Alleman, 1991); (c) checking student understanding to ensure comprehension of key elements of the assignment's requirements (e.g., Connors, 1991; Cooper, 1989); (d) offering students an opportunity to begin work on the assignment in class so they can receive assistance, if necessary (Salend & Schliff, 1988); and (e) providing students with informative and corrective feedback on their performance (Brophy & Alleman, 1991).

Although these guidelines for both designing and explaining assignments to classes of academically diverse students possess strong face validity, they have only limited empirical support. Thus, the purpose of this investigation was to study and empirically validate some of the above elements that are related to the design and explanation of quality assignments. Two studies were conducted.

The purpose of the first study was to identify and socially validate the dimensions of high-quality assignments and how they can be effectively presented in mainstream settings, as perceived by secondary content teachers, students with LD, and students who do not have LD. Social validity is defined as the social significance of the goals, the social appropriateness of the procedures, and the social importance of the effects of the research (Wolf, 1978). Thus, in Study 1, social validation was obtained by examining responses from teachers and students on what they believed were important assignment characteristics and explanation factors to be included in a teacher's routine for assignment completion.

The purposes of the second study were to determine whether teachers could be taught to effectively use an assignment completion routine based on these validated factors, and to gather teacher and student satisfaction data with the routine. Thus, in Study 2, social validation was obtained by assessing how teachers and students viewed the goals, procedures, and outcomes associated with the intervention.

STUDY 1
METHODS

Participants

Focus group teachers. Ten teachers were recruited to participate in focus groups. Focus groups are carefully planned discussions that take place in a nonthreatening environment for the purpose of obtaining participant perceptions on a defined area of interest (Krueger, 1988). These 10 teachers will hereafter be referred to as the "Focus Group Teachers." The 10 Focus Group Teachers were recruited from two middle schools in which the principals expressed significant interest in and support for the project. Both schools are located within a suburban school district that employs 737 teachers and has an average pupil-per-teacher ratio of 21 students per class.

The learning disabilities resource teachers at each school served as the contact persons for nominating social studies teachers in their respective buildings based on the following criteria: (a) exhibiting excellent control of their subject matter; (b) practicing effective classroom management skills; and (c) having at least two students with learning disabilities enrolled in their courses. Each teacher was paid a $50.00 participation fee.

The Focus Group Teachers' ages ranged from 28 to 50 years (M = 40.9 years), with years of teaching experience ranging from 1 to 30 (M = 9.1 years). The number of courses they had completed in special education ranged from 1 to 3 (M = 1.3). Nine participants were female, and one was male. Eight of the teachers held Bachelor's degrees in education and two held Master's degrees.

Survey teachers. Seventy-one teachers agreed to complete a survey that was based on

the findings from the focus group meetings (hereafter referred to as "Survey Teachers"). These teachers were volunteers from middle and high schools in two adjoining districts. Thirty-five of these teachers were from middle schools and high schools in the same district as the Focus Group Teachers. The remaining 36 Survey Teachers were from a suburban school district that employs 2,248 teachers. The average pupil-per-teacher ratio in this district is 22 students for elementary classes, 25 students for middle school classes, and 28 students for high school classes. Each teacher received $15.00 for completing the survey.

The Survey Teachers' ages ranged from 25 to 60 years (M = 42.9 years), and their years of teaching experience from 1 to 34 (M = 11.1 years). Sixty-two percent were high school teachers and 38% were middle school teachers. Forty teachers were male and 31 were female. All of the teachers had earned Bachelor's degrees, and 53 held advanced degrees. All of the teachers taught social studies to regular classes in which students with learning disabilities were enrolled.

Focus group students. The 27 students who participated in focus groups were recruited from the same school district as the 10 Focus Group Teachers, but they were enrolled in a different middle school. All 27 students were enrolled in grades six, seven, and eight. Thirteen of the 27 students had learning disabilities (hereafter referred to as the "LD Focus Group Students"). They had formally been classified as having learning disabilities according to district and state guidelines, and were receiving special education services in a resource program for at least one hour per day. They were all enrolled in regular social studies classes.

The remaining 14 students (hereafter referred to as the "NLD Focus Group Students") had no learning disabilities and had never received special education services. They were chosen by their social studies teachers as representative of "normal" achievers based on the criterion that they had maintained a "B" or "B+" average in content classes for the past two years.

Survey students. Another 173 students were recruited to complete a survey that was based on the findings of the student focus groups. Of these, 71 were LD students from grades six, seven, and eight. (They will hereafter be referred to as the "LD Survey Students.") These students were formally classified as having learning disabilities according to state and district guidelines and were enrolled in special education classes for an average of two hours per day. The remaining 102 students without learning disabilities were recruited from classes of the Survey Teachers in grades six, seven, and eight. (They will hereafter be referred to as the "NLD Survey Students.") All the Survey Students were enrolled in schools in the same district as the Focus Group Students. They and their parents signed informed consent forms.

Settings

Focus group meetings with teachers were held in a participating teacher's classroom where chairs were arranged in a circle. Focus group meetings with students were held in a small conference room off the school library. The students and two researchers sat around a table. The Survey Teachers completed the questionnaires at their leisure in their respective school buildings. NLD Survey Students completed the survey in their social studies classrooms. Finally, LD Survey Students either completed the survey in their social studies classrooms or in the resource room, depending on when schedules permitted.

Focus Group Questions

Student questions. Six questions were prepared prior to the student focus group meetings. Questions 1, 2, and 3 consisted of two parts that related to the design of study assignments, daily work assignments, and project assignments, respectively. The first part of each of these three questions asked students to view a favorite assignment (study, daily work, or project assignment) that they had brought to the meeting. First, they were told to write each dimension they liked about the assignment on a separate notecard. Next, they were asked to think about what they did from the time they started the assignment until they handed it in to the teacher. They were then told on a separate notecard to write each activity they enjoyed doing while completing the assignment.

Questions 4, 5, and 6 related to assignment explanation factors. For each of these three questions, the group moderator held up an example of a particular type of assignment (study, daily work, or project assignment), verbally described its content to the students, and passed it around for everyone to review. The researcher

then asked students to think about what the teacher might say and do to help them complete such an assignment to a high level of quality. Students were told to write as many answers as they could think of on separate notecards.

Teacher questions. Six questions were designed for the teacher focus groups, similar to the six questions created for the student focus groups. Specifically, the questions related to a study assignment, a daily work assignment, and a project-type assignment that the teachers were instructed to bring to the meeting. Teachers were told to base their selection on assignments they considered to be the "best" in terms of motivating students to do high-quality work. The teacher questions were reviewed and approved by the same expert consultants who had reviewed the student questions.

Measurement Systems and Procedures

Focus group measures. Two systems were used to record responses during the group meetings. Participants wrote statements representing their responses to a particular question on 3" x 5" notecards. Other verbal responses were transcribed by a notetaker.

During each focus group meeting, questions were posed one at a time by a researcher who served as moderator. After each question had been posed, participants wrote their responses on separate notecards. Each participant could write as many responses (i.e., complete as many cards) as he or she chose. The notecards were collected by the moderator, and the response on each card was discussed by the group. As they discussed the cards, the focus group members organized them into categories by topic. After all the cards had been discussed and categorized, each category was given a label by the group. For example, the responses, "Tell us how long it should be," "Tell us how neat it should be," "Tell us what is expected," and "Tell us how to do it," might receive the category label "Give clear instructions." The group moderator wrote a category label on a card and posted it next to the appropriate cluster of responses. A notetaker transcribed the responses related to each category.

Survey group measures. Two instruments, a Teacher Survey and a Student Survey, assessed whether the assignment characteristics and explanation factors thought to be important by focus group members would also be acceptable to a larger group of students and teachers who had not participated in the previous discussions.

Part 1 of the survey included a name for and a definition of each of the 12 assignment characteristics that had been derived from the focus group data (i.e., characteristics of the assignment itself). Examples were provided under each definition. Both teachers and students were asked to rate each characteristic according to its importance by circling one of the numbers (1-7) on the Likert-type scale under each of the items.

Part 2 included a name for and a definition of each of the nine explanation factors (i.e., factors to be included by teachers when they explain an assignment to their students) derived from the focus group data. Examples were provided under each definition.

Participants were asked to rate each explanation factor according to its importance for increasing student motivation to perform high-quality work. Mean ratings for each assignment characteristic and explanation factor were calculated for each group of students and for the teachers.

Five experts (three widely known for their active involvement in research issues; two with extensive experience teaching students with LD) matched all the characteristics and explanation factors with the appropriate definition and provided feedback on the wording of the definitions. Items were checked against the literature to determine whether all assignment characteristics and explanation factors were represented that might influence planning and presentation of assignments. All were represented; thus, no content modifications were necessary.

In addition to rating each assignment characteristic and explanation factor, both students and teachers were asked to vote for their six top choices from the list of 12 assignment characteristics and for their top five choices from the list of nine explanation factors. Group ranks were derived by totaling the number of votes for each item by each group of survey participants.

Procedures

Student focus group procedures. Six focus groups of three to five students each were formed: LD sixth graders, NLD sixth graders, LD seventh graders, NLD seventh graders, LD eighth graders, and NLD eighth graders. Two meetings, lasting for 1-1/2 hours each, were conducted for the respective groups. Two re-

Table 1
Assignment Characteristics as Rated by Teachers (N=71), Students with Learning Disabilities (N=71), and Non-LD Students (N=102)

	Teachers			LD Students			NLD Students		
Assignment Characteristic	***M***	***SD***	**GR**	***M***	***SD***	**GR**	***M***	***SD***	**GR**
Clear, Well-Organized Directions	6.69	0.55	1	6.65	0.72	1	6.66	0.70	2
Understood Purpose	6.11	0.87	2	6.34	0.99	9	5.93	1.32	8
Product Evaluation Criteria	6.21	0.98	3	5.80	1.48	11	5.81	1.27	10*
Optimal Challenge	5.94	0.79	4*	5.66	1.64	8	6.04	1.13	6
Personal Relevance Factors	5.85	0.94	4*	4.87	1.59	10	4.79	1.49	12
Assignment Completion Feedback	6.30	0.93	6*	6.10	1.12	12	6.20	1.03	10*
Format Variety	5.59	1.37	6*	5.73	1.37	7	5.77	1.19	7
Available Resource Lists	5.90	1.04	8	5.97	1.37	5	6.01	1.19	9
Creative Expression Opportunities	5.59	1.20	9	5.68	1.16	4	5.83	1.08	4*
Interpersonal/Social Interactions	5.65	1.17	10	5.47	1.37	3	5.55	1.31	3
Completion Time Considerations	5.62	1.06	11	6.17	1.33	6	6.50	0.85	4*
Student Choices	4.90	1.39	12	6.17	1.01	2	6.17	1.10	1

Note. *M* = Mean rating; *SD* = Standard deviation; GR = Group rank according to respondent votes; LD = students with learning disabilities; NLD = non-learning disabled students.
*These characteristics were tied with regard to group ranking.

searchers were present, one serving as moderator, the other as notetaker.

The standard protocol for the two meetings included the following: welcome and introduction; overview of what students would be talking about and doing; ground rules for group discussion; demonstration of how to write responses onto notecards; presentation of the questions and written responses by participants; discussion and clustering of written responses into categories; creation of a label for each category; and expression of appreciation to all participants.

Teacher focus group procedures. Two focus groups consisting of five middle school social studies teachers each met for three hours. The standard protocol used with the student focus groups was also used with the teacher focus groups.

Survey procedures. A research assistant delivered and collected completed surveys from teachers. All students completed the survey during one-half hour of a class period.

RESULTS

Focus Group Results

The researchers examined the categories of focus group responses by LD students, NLD students, and teachers. The written responses were coded into 12 categories. That is, 12 characteristics that fit each of the three assignment types were thought to be important by participants. Thus, according to students and teachers, a good assignment includes: (a) clear, well-organized directions so students will know how to do the work; (b) an understood purpose so students will understand how completing the work will benefit their learning; (c) a set of product evaluation criteria so students will know how their finished work will be judged; (d) optimal challenge so students will not become bored or frustrated; (e) personal relevance factors that relate assignment completion to the social, learning, behavioral, and cultural characteristics of students' lives; (f) assignment completion feedback so students will know what they did correctly and what they need to do to improve their work; (g) format variety that differs from the traditional worksheet format; (h) available resource lists necessary for doing the work; (i) creative expression opportunities so students can use their imagination in some way; (j) interpersonal or social actions that include opportunities to work with others; (k) completion time considerations that include giving students time to work in class; (l)

and student choices that allow for options within the dimensions of the assignment itself and how it is to be completed.

The researchers followed the same procedures to identify nine categories of explanation factors. Thus, according to students and teachers, effective assignment explanations by the teacher include behaviors or statements by the teacher to (a) give clear directions, written and verbal; (b) state the purpose of the assignment and completion benefits to the student; (c) provide models or examples of how the finished product should present itself; (d) consider time factors that include how long it will take students to do the work, and also give time to work in class; (e) state quality work criteria so students know how their final product will be judged; (f) provide choices so students have options for how to complete the work; (g) encourage creative expression so students have a chance to use their imagination; and (h) name available resources and their locations.

Survey Results

Tables 1 and 2 contain the results of the Teacher Survey and the Student Survey administered to a separate group of teachers and students other than the focus group participants. The purpose of the surveys was to learn whether a larger group of students and teachers similar in characteristics to the focus group participants would rate the12 assignment characteristics and nine explanation factors as important. Table 1 lists the assignment characteristics and Table 2 shows the explanation factors. Next to each characteristic or explanation factor are the mean ratings, standard deviations, and group ranks (based on the votes) of teachers, LD Survey Students, and NLD Survey Students. Mean scores of 5.5 or above were considered to represent a highly valued assignment characteristic.

The results shown in Table 1 indicate that only three scores fell below the mean of 5.5. Specifically, the LD and the NLD students rated "Personal Relevance" as 4.87 and 4.79, respectively. (By comparison, the mean rating for teachers on this dimension was 5.85.) The third mean rating that fell below 5.5 was "Student Choice." Teachers rated this category as 4.90, whereas the average ratings for both groups of students were 6.17. All other mean scores ranged from 5.55 to 6.69.

With regard to rankings, LD and NLD Survey Students mostly agreed in their ranking of highly valued assignment characteristics. In general, the teachers' and students' rankings differed. All three groups agreed that "Clear, Well-Organized Directions" should be highly ranked ("1" or "2") and that "Format Variety" should be medium ranked ("6" or "7"). Otherwise, there was very little agreement between student and teacher

Table 2
Assignment Explanation Factors as Rated by Teachers (N=71), Students with Learning Disabilities (N=71), and Non-LD Students (N=102)

	Teachers			LD Students			NLD Students		
Explanation Factors	***M***	***SD***	**GR**	***M***	***SD***	**GR**	***M***	***SD***	**GR**
Give Clear Directions	6.58	.79	1	6.41	1.01	1	6.31	1.15	1
State Purpose/Completion Benefits	6.32	.84	2	5.73	1.29	7*	5.61	1.08	6
Provide Models/Examples	6.34	.84	3	5.85	1.28	5	5.57	1.38	5
Consider Time Factors	6.51	.89	4	6.18	1.29	3	6.11	1.27	3
State Quality Work Criteria	6.04	1.02	5	5.78	1.49	9	5.85	1.20	9
Provide Social Interaction Direction	5.78	1.15	6	5.90	1.20	7*	5.40	1.29	8
Provide Student Choice	5.73	1.18	7	6.11	1.15	2	6.18	.93	2
Encourage Creative Expression	5.75	1.04	8	5.70	1.38	6	5.83	1.18	7
Name Available Resources	5.93	1.02	9	5.89	1.10	4	5.68	1.48	4

Note. *M* = Mean rating; *SD* = Standard deviation; GR = Group rank according to respondent votes; LD = students with learning disabilities; NLD = non-learning disabled students.
*These explanation factors were tied with regard to group ranking.

rankings. The most notable example of disagreement was that teachers ranked "Student Choices" last while the two groups of students ranked it first and second.

The results in Table 2 show that every explanation factor received a rating above 5.5 by each group except "Provide Social Interaction Direction," which received a mean rating of 5.40 by the NLD students. With regard to rankings, teachers and both groups of students agreed that "Give Clear Directions" is the most important element for teachers to include when explaining assignments. Close agreement occurred on the ranking of four other factors: "Provide Models/Examples," "Consider Time Factors," "Provide Social Interaction Direction," and "Encourage Creative Expression."

Discrepancies occurred with regard to the way teachers and students viewed the other four factors: "State Purpose/Completion Benefits," "State Quality Work Criteria," "Provide Student Choice," and "Name Available Resources." Again, students ranked the item related to student choice high (in second place) whereas teachers ranked it low (in seventh place).

In summary, this phase of the investigation (Study 1) was conducted to identify assignment characteristics and explanation factors perceived by students and teachers to be important for inclusion in teacher planning and explanation of assignments in inclusive settings.

STUDY 2

The purposes of Study 2 were (a) to determine if an assignment completion routine based upon factors identified in Study 1 could be taught to and effectively implemented by teachers, and (b) to determine teacher and student satisfaction with the assignment routine.

METHODS

Participants

Teachers. The 12 teachers who participated in Study 2 were self-selected from a volunteer pool of 18 social studies teachers (grades six, seven, and eight). Six teachers (hereafter referred to as the "Experimental Teachers") volunteered to implement the assignment routine, while another six teachers (the "Comparison Teachers") agreed to be observed using their traditional methods for planning and presenting classroom assignments. All teachers were from the same school district as the Focus Group Teachers. Each was paid $150.00 to participate.

The average age of the Experimental Teachers and the Comparison Teachers was 42.7 and 35.3 years, respectively. Teaching experience ranged from 1 to 17 years for the Experimental Teachers and from 2 to 25 years for the Comparison Teachers. Average number of courses completed in special education was 1.5 for Experimental Teachers and 2.4 for Comparison Teachers. Both groups consisted of five females and one male. All six Experimental Teachers had completed Master's degrees, while five out of the six Comparison Teachers held Master's degrees.

Students. A total of 262 students volunteered to give satisfaction feedback on the assignment routine used by their teachers. Of these students (hereafter referred to as the "Experimental Students"), 145 were recruited from the Experimental Teachers' classes. The remaining 117 students (hereafter referred to as the "Comparison Students") were recruited from the six Comparison Teachers' classrooms in which the assignment routine was not implemented. The Experimental Students included 14 students with learning disabilities; the Comparison Students included 11 students with learning disabilities.

Dependent Measures and Procedures

Three dependent measures were created to gauge the degree to which teachers were using the assignment characteristics and explanation factors from Study 1. A planning phase measure was created to determine how many of the 12 assignment characteristics were included in the teachers' preparation of a particular assignment. An explanation phase measure was designed to determine how many of the nine explanation factors were included in the teachers' verbal presentation of assignments. Finally, an evaluation phase measure was created to determine the teachers' behaviors associated with effective assignment completion feedback that generally takes place after planning and explaining a particular assignment, and is connected to teachers' grading procedures and discussions with students on finished work.

Planning phase measure. Teacher behavior during the Planning Phase was assessed by a Planning Checklist, a list of the 12 assignment characteristics that had been validated in Study 1. A blank space to the left of each item on the list was provided for a scorer to write the num-

ber of points earned by a teacher for including a given characteristic in an assignment. A percentage score was calculated by dividing the total points earned by the total possible points and multiplying by 100.

To score a given assignment, a researcher met with the teacher, referred to an assignment that the teacher had been observed to explain in class, asked the teacher to show any notes he or she had made while planning the assignment, and finally interviewed the teacher about the assignment. After the teacher had looked over the assignment for a few seconds, the interviewer proceeded to ask each question on a standard interview protocol. For example, the teacher was asked, "What was your overall instructional objective of the unit?" and "Why did you choose this assignment?," to determine if the assignment clearly related to important student learning outcomes (the validated characteristic of "Understood Purpose"). The remaining questions in the interview related to the other validated assignment characteristics.

The researcher reviewed any notes the teacher had made and recorded the teacher's responses. The checklist was then completed by the researcher according to written scoring criteria specifically designed for this purpose. Scoring criteria consisted of a definition of each characteristic to be included in the assignment with acceptable and unacceptable examples listed under each definition. Scorers awarded the appropriate number of points if there was evidence that the characteristic had been included. Zero points were assigned if the characteristic was not present on the assignment.

Explanation phase measure. The Explanation Checklist measured the number of validated explanation factors, along with a number of teacher behaviors, teachers were to include as they presented assignments to their students during class. The 29 checklist items were worth varying points (1 to 5). A researcher observed the teacher explain an assignment to students in class, and points were awarded according to written criteria similar to those designed for the Planning Checklist.

Evaluation phase measure. The Evaluation Checklist was used to measure specific teacher behaviors associated with (a) the types of feedback comments that were written on the students' papers as they were graded; (b) the types of verbal feedback given to students after an assignment was returned; (c) how students were encouraged to correct their work and evaluate their own performance; and (d) how student satisfaction with the completed assignment was determined. Each checklist behavior was assigned a value of 10 points if observed and zero points if not observed, with 100 total points available. A percentage score was calculated for each instance in which a teacher returned an assignment to a class.

Teacher scores on the checklist were based on teacher reports, direct observations of what the teachers said and did after the assignment was returned to students, and evaluations of the teachers' written comments on graded student products. Teachers were asked three questions about a particular assignment to elicit a report: (a) What did you write on the students' papers as you graded the assignment? (written feedback); (b) What did you say to students after you graded and returned the assignment? (verbal feedback); and (c) Were students given an opportunity to evaluate their own performance and satisfaction with the assignment? After the teacher had been observed in class and interviewed using the three questions, and after the students' papers had been reviewed, the observer scored the teacher's performance on the checklist according to written criteria similar to those described above.

Interscorer Reliability

Interscorer reliability was determined by having two independent scorers simultaneously score each assignment the teachers had planned, verbally explained to students during class, graded, and returned to students. The percentage of agreement was calculated by dividing the number of agreements by the number of items on the checklist and multiplying by 100. (Planning Phase percentage of agreement = 97%; Presentation Phase percentage of agreement = 98%; and Evaluation Phase percentage of agreement = 97%.)

Social Validity Measures

Four questionnaires were developed to gather social validity information, two each for teachers and students. The first two questionnaires (the Teacher Satisfaction Questionnaire and the Student Satisfaction Questionnaire) were used to measure all participating teachers' and students' satisfaction with assignments and how they were presented, completed, and evaluated. Each ques-

tionnaire included 13 questions followed by a 7-point Likert-type scale ranging from "Completely Dissatisfied" ("1") to "Completely Satisfied" ("7").

Some of the questions on the teachers' questionnaire pertained to their satisfaction with their current methods of planning, presenting, and evaluating assignments. Other questions pertained to the degree of student involvement evidenced throughout each phase of the assignment completion process.

Similarly, some questions on the students' questionnaire pertained to the students' satisfaction with their teachers' methods of planning, presenting, and evaluating assignments. Other questions pertained to the amount of personal involvement students felt during each phase of the assignment completion process.

The other two questionnaires (the Teacher Feedback Questionnaire and the Student Feedback Questionnaire) were administered to Experimental Teachers and Experimental Students after all data had been collected. Using an open-ended format, three of the questions asked teachers how they felt they had changed their planning, explanation, and evaluation methods as a result of having used the routine. A fourth question asked teachers to evaluate each phase of the routine in relation to student outcomes. A final question asked for their opinions and suggestions on how the routine might be improved.

Questions on the Student Feedback Questionnaire pertained to such topics as whether the students' idea of a "quality assignment" had changed and how; what was liked and not liked about planning assignments with the teacher; whether the teacher's way of explaining assignments had changed and how; whether student participation in assignment explanations had been helpful and how; whether their teacher's method of grading their work had changed and how; whether procedures they had learned for checking their own work had been helpful and how; and if their ideas on how to complete "quality work" had changed during the study. The final two questions pertained to the student instructional materials (Quality Assignment Planner and bookmark) and how these might be improved.

Procedures

Before-training procedures. Before training, observers visited each of the 12 participating teachers' classrooms and observed the teachers explain at least three assignments to their classes. Next, interviews were conducted with the teachers about each assignment that had been collected during the before-training visits to gather information about the characteristics of the assignments. Further, at least three observations and interviews were conducted in each class to determine (a) what type of written feedback teachers provided on graded assignments, and (b) the nature of any discussion that occurred between teacher and students when the assignment was returned. All sessions were audiotaped and a select number of classroom visits were videotaped for reliability purposes. Observers completed the appropriate checklist after each session. At least three graded assignments were collected from each of five students in each class for each of the assignments their teachers had been observed returning. Additionally, the Teacher Satisfaction Questionnaire and the Student Satisfaction Questionnaire were completed by Experimental Teachers and their participating students, respectively.

Teacher-training procedures. During a training session conducted after school, Experimental Teachers were presented with methods and materials they would need to implement each phase of the assignment routine. This training included a description and rationale for the steps to be followed, demonstration of the steps by the trainer, practice of the steps by the teachers, and instructions on how to introduce the routine to students in their respective classes. In addition, a final item on the agenda was to inform teachers of their options for planning assignments with their students.

The Quality Assignment Completion Routine

The Quality Assignment Completion Routine was based on the 12 assignment characteristics and nine explanation factors that had been socially validated by teachers and students as a result of Study 1. In addition, it included teacher behaviors known to be effective in teaching classes of academically diverse learners. The routine consisted of three main parts: the Planning Phase, the Explanation Phase, and the Evaluation Phase. For each phase, one or more subroutines were developed for both teachers and students.

The planning phase. This phase was based on the assignment characteristics identified and

validated by teachers and students in Study 1. The subroutine associated with this phase, "PLAN," has four steps. First, teachers *P*repare a meaningful assignment based on a well-defined instructional objective. Second, they *L*ink their planning decisions to possible student motivational outcomes. Third, teachers *A*rrange clear directions to be explained to students. Finally, they *N*ote the time and details for discussing assignment completion results with students

Teachers could follow these steps in private, or they could include students in the planning of assignments through two options: They could either involve the total class in planning assignments, or they could form Assignment Expert Teams (comprised of four to eight students, including students with LD, low-achieving students, high-achieving students, above-average achieving students, and average-achieving students).

The explanation phase. The purpose of this phase of the routine is for teachers to explain assignments based on the validated explanation factors. Two subroutines ("REACT" for students and "ASSIGN" for teachers) were developed.

The following five "REACT" Steps, which were taught to the students by each teacher, represent a routine for students to actively involve themselves during assignment explanations: Record the assignment as the teacher gives verbal directions; Examine the requirements and choices offered by the teacher; Ask questions to better understand the directions; Create a written goal for improving or matching performance on a similar assignment that may have been completed in the past; Target a time to begin, finish, and evaluate the assignment for quality before turning it in to the teacher.

The following six "ASSIGN" Steps for teachers represent specific actions and statements to be used when explaining assignments to students: Activate the assignment completion process by concluding the lesson and alerting students to use their "REACT" steps for the new assignment; State clear directions that were created during the Planning Phase; Stop (i.e., pause 15 to 30 seconds) for students to use their "REACT" steps; Investigate student understanding by asking students specific questions about the assignment information; Guarantee work time in class for beginning the assignment and offer help as needed; Note the due date, expectations for students to do quality work, and assistance for anyone who needs it outside of class.

The evaluation phase. The purpose of this phase is to enable students and teachers to evaluate their satisfaction both with the assignment itself and with the effort that was expended throughout the assignment completion process. Two subroutines ("PACE 1,2..." for students and teachers, and "VOTE" for teachers) were developed for this phase.

The following "PACE 1,2..." Steps were taught to students as a routine way for them to evaluate their completed assignments for quality before turning them in to be graded by the teacher. The letters in "PACE" stand for "Prompt," "Arranged neatly," "Complete," and "Edited for clarity." For the purpose of this study, these criteria were considered the minimum requirements for an assignment to be judged as a quality product.

The numbers (1,2...) that follow the "PACE" letters represent specific criteria, identified by the teacher or the teacher and the class together, deemed important to be included on a particular assignment if it is to be judged as meeting the criteria for high-quality work. Thus, although the "PACE" requirements were standard criteria for evaluating every assignment, the "1,2..." criteria were specific to a given assignment and differed across assignments. For example, on a written book report, the "1" could stand for including an introduction, the "2" for including a paragraph on the characters, the "3" for including a paragraph on the setting, and so forth. Similarly, on an oral book report, the "1" could stand for using a clear voice, the "2" for standing up straight, the "3" for talking about the main conflict in the book, and so forth.

Students were to write "PACE 1,2..." on the back of each completed assignment and to draw two sets of small lines under each letter and number. On the first line next to each item, students were to place a checkmark if they believed they had met the requirement for high-quality work. The rationale for teaching students this routine is based on implications from the literature that in order for students to improve their work, they must become involved in the process of evaluating their own work for quality (Glasser, 1990).

The following "VOTE" Steps for teachers were developed to be used after students had

completed and checked their own assignments using the "PACE 1,2..." subroutine. "Validate student scores by comparing teacher and student ratings; Organize and give verbal feedback based on the "PACE 1,2..." ratings; Tell correction date for students to resubmit their work with corrections; Examine personal reactions to the task by conducting interactive discussions aimed at identifying the group's overall satisfaction with the assignment itself, student effort during completion, and specific learning outcomes as a result of having completed the work.

Instructional Materials

Two sets of instructional materials were designed specifically for this study: one for teachers and one for students. Teacher materials included: (a) a Teacher's Manual that included guidelines for implementation; (b) an Assignment Web based on Bloom's Taxonomy of Educational Objectives that served as a planning tool for teachers to create assignments related to each of the thinking domains (knowledge, comprehension, application, synthesis, extension, and creation); (c) Quality Assignment Planning Sheets, designed for teachers to use as they planned assignments by implementing the "PLAN" Steps; (d) an overhead transparency master, entitled "Quality Assignment Planning," to assist teachers in planning and displaying assignment information important for students to record; (e) two classroom posters to serve as cue cards for students, one containing the student "REACT" Steps, the other containing the "PACE 1,2..." Steps; and (f) two 4' x 6' cue cards for teachers, one listing the "ASSIGN" Steps, and the other listing the "VOTE" Steps.

The student materials included: (a) a Quality Assignment Planner in the form of a three-section notebook that contained directions on how to use the "REACT" Steps and the "PACE 1,2..." Steps and a set of pages for recording and evaluating their assignments; and (b) a cue card in the form of a bookmark that listed the five "REACT" Steps on one side and the "PACE 1,2..." Steps on the opposite side.

After-training procedures. At least two sets of data were collected related to how well each Experimental Teacher was implementing the steps in the Planning, Presentation, and Evaluation Phases of the routine. Percentage scores were shared with each Experimental Teacher, and verbal feedback was provided on each performance. At least two sets of data were also collected related to how the Comparison Teachers were performing. All sessions were audiotaped and a select number of classroom visits were videotaped.

Experimental Design

The effects of teacher training on the Experimental Teachers' planning, explanation, and evaluation of classroom assignments were determined using a multiple-probe design (Horner & Baer, 1978), a variation of the multiple-baseline design (Baer, Wolf, & Risley, 1968). This two-legged design across teachers was completed and replicated three times to determine whether the Experimental Teachers implemented more components of the routine after training than during the baseline period. The dependent variables were quality of assignments, assignment explanations, and assignment evaluations as indicated by the percentage of points earned by the teachers on the corresponding checklists.

A comparison group design was also employed to determine the effects of the teacher training on the teachers' behavior. Within this design, the Experimental and Comparison Teachers' performances were compared before and after the Experimental Teachers received training. The dependent variables were the same as for the multiple-probe design.

A variation of the comparison group design was used to compare the satisfaction of Experimental Teachers and Experimental Students before and after the routine was taught, and the satisfaction of Comparison Teachers and Comparison Students at the end of the study.

RESULTS

Experimental Teacher Results

All the Experimental Teachers' scores during the baseline period were below the 85% criterion arbitrarily set for mastery. The range of scores was as follows: planning behaviors ranged between 25% - 80% (M = 50.5%), explanation behaviors ranged between 16% - 60% (M = 32.8%), and evaluation behaviors ranged between 0 - 30% (M = 8.2%).

After training, all the teachers eventually performed each subroutine at or above the mastery level of 85%. Specifically, their scores were as follows: planning behaviors ranged between 67% -100% (M = 96.1%), presentation behaviors ranged between 63% - 100% (M = 89.3%),

and evaluation behaviors ranged between 80% - 100% (M = 93.8%).

The increase in teachers' scores corresponded to the onset of training for all six teachers, although attainment of mastery varied from teacher to teacher. For the two teachers who did not reach mastery immediately after the training session, the most common problems happened during the Explanation Phase. Explanation behaviors that were frequently omitted were related to the steps that were to occur at the end of the presentation. Specifically, teachers neglected to schedule time for students to begin work in class, to remind students of the due date, and to state expectations for students to perform well on the assignments. Once feedback was given, teachers made efforts to improve their performance. However, the class period often ended before they had a chance to perform the final two steps of the routine.

Experimental Versus Comparison Teacher Results

The Experimental and Comparison Teachers' group scores were determined as follows. First, mean planning and explanation scores were calculated for three randomly selected assignments that were given by each of the teachers in each group before training (pre-intervention) and for three assignments that were given after training (post-intervention). Second, mean evaluation scores were calculated for the final assignment each group of teachers presented during the baseline period and for the last assignment they presented at the end of the study. The results are shown in Figure 1.

As depicted in Figure 1, Experimental Teachers made substantial gains whereas the Comparison Teachers did not. Analyses of variance were conducted to determine the differences in performance between the Experimental Teachers

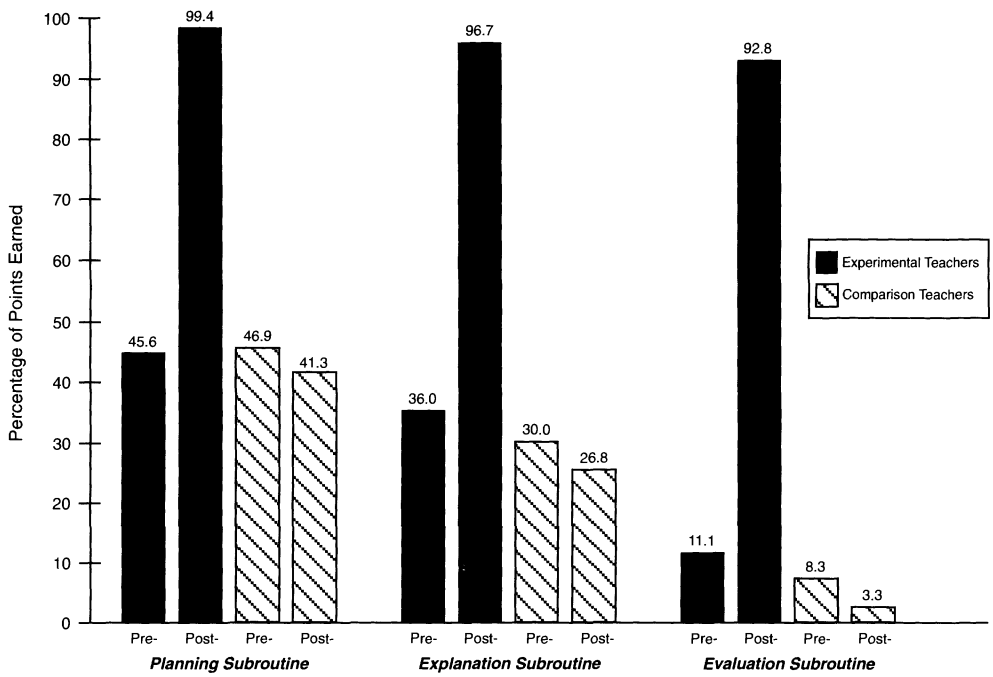

Figure 1. Mean percentage of teacher performances across three subroutines of the Quality Assignment Completion Routine.

and Comparison Teachers both before and after the intervention on each of the three phases of the routine. No significant differences were noted between Experimental and Comparison Teachers during the baseline period. At the end of the study, however, the Experimental Teachers included significantly more of the planning ($F(1,6) = 355.70$, $p = .000$), explanation ($F(1,9) = 342.20$, $p = .000$), and evaluation behaviors ($F(1,6) = 948.33$, $p = .000$) than did the Comparison Teachers.

Social Validity Results

Teacher results. A Satisfaction Questionnaire was administered to each Experimental Teacher before training and to all teachers at the end of the study. The results indicate that Experimental Teachers' satisfaction ratings increased from before to after training on all questionnaire items. Their mean satisfaction ratings before training ranged from 3.0 to 5.5 (on a 7-point scale) across the questionnaire items, with most mean ratings falling in the 4- to 5-point range. At the end of the study, their mean ratings ranged between 4.3 and 6.7, with 10 of the 13 mean ratings above the 6.0 (satisfied) level. Analyses of variance were performed to compare (a) the Experimental Teachers' baseline satisfaction ratings with those of the Comparison Teachers at the end of the study, and (b) both the Experimental Teachers' and the Comparison Teachers' ratings at the end of the study.

The results indicate that there was no significant difference between the Experimental Teachers' ratings during baseline and the Comparison Teachers' ratings at the end of the study ($F(1,10)=.04$, $p = .85$). However, there was a significant difference between the ratings of the two groups at the end of the study ($F(1,10) = 16.6$, $p = .002$), with the Experimental Teachers being significantly more satisfied with the assignment completion process in their classrooms than the Comparison Teachers.

Student results. The results of the Student Satisfaction Questionnaire indicate that Experimental Students, as a group, were more satisfied after their teachers were trained than before they were trained, as indicated by their scores on 12 of the 13 questionnaire items. (However, they were not more satisfied with their own efforts to improve, based on teacher feedback.) Before their teachers were trained, their mean satisfaction ratings ranged between 3.7 and 5.0 (on a 7-point scale), with 11 of the mean ratings between 4.0 and 5.0. After their teachers were trained, mean ratings ranged between 4.5 and 5.5, with 11 of them in the 5.0 to 5.5 range. The satisfaction of the Experimental Students with LD indicates that their satisfaction with assignments also increased. Before their teachers were trained, their mean satisfaction ratings ranged between 3.5 and 5.2, with 11 of the mean ratings between 4.0 and 5.3. After their teachers were trained, mean ratings ranged between 5.2 and 6.2. Their mean satisfaction rating increased for each item on the questionnaire, with the biggest increase (a 2.3 point increase) occurring for the item related to being given choices on assignments.

A multivariate analysis of variance was performed on the satisfaction data collected for the whole group of students. The results indicate that the Experimental Students were significantly more satisfied at the end of the study than during the baseline period with the assignment completion process in their classrooms ($F(1,171) = 33.43$, $p = 000$).

Analyses of variance were performed to compare (a) the Experimental Students' baseline satisfaction ratings with the Comparison Students' ratings at the end of the study, and (b) the Experimental Students' and Comparison Students' ratings at the end of the study. The results indicate that there was no significant difference between the Experimental Students' ratings during baseline and the Comparison Students' ratings at the end of the study ($F(1,171)=2.64$, $p = .11$). However, there was a significant difference between the two groups' ratings at the end of the study ($F(2, 84) = 2144.12$, $p = .000$).

The 49 students who were designated as Assignment Expert Team members were asked to complete the Student Feedback Questionnaire. Their responses were categorized so that they could be summarized here. Twelve of the 37 comments related to the Planning Phase indicated that the students' effort to complete assignments had improved. Other categories of comments indicated that their teachers were giving clearer directions and that the students had a more precise understanding of quality work. In addition, the students commented that they liked being involved more and that their teachers varied the assignments more. Also, the 49 comments that related to experiences as members of

the Assignment Expert Teams indicated that as a result of having been part of the team, the students had more choices and control and had a clearer understanding of assignments, and that planning with the teacher had been enjoyable. Twelve comments on how the Planning Phase might be improved indicated that the planning sheet needed to be simplified and that students should be involved more.

The comments related to the Explanation Phase indicated that the teachers were taking more time to give explicit directions, allowing students to get started in class, and checking for understanding by asking more questions related to assignment explanations. Students commented favorably on the "REACT" Steps, stating that the steps helped them improve their rate of assignment completion, their organization, their quality of performance, and their understanding of assignments. Student recommendations for this phase indicated that teachers should have given clearer directions on how to use the "REACT" Steps. One student also suggested that students would benefit from memorizing the "REACT" Steps to be used in other situations.

Comments related to the Evaluation Phase indicated that the teachers were devoting more attention to quality work, clearly specifying requirements for how to do the assignment and offering students opportunities to redo work. Comments on the "PACE" Steps indicated that students felt the steps were helpful for self-checking their work, helpful for understanding assignment requirements, and resulted in improved grades. Students also remarked that they believed teachers should increase student understanding and use of the "PACE" Steps.

DISCUSSION

There are four important findings from this study. First, Study 1 yielded a list of factors validated by both classroom teachers and students. A high degree of overlap was found in the specification of the actual factors and the rating of those factors by teachers and students with and without learning disabilities.

Second, Study 2 demonstrated that regular classroom teachers evidence a relatively low frequency of behaviors associated with quality assignments (e.g., clear and well-organized directions, appropriate feedback after assignment completion, creative expression opportunities built into assignments, etc.). Third, classroom teachers could quickly learn (after only a three-hour training session and as few as two practice sessions with feedback) a set of behaviors that markedly altered the manner in which they designed, explained, and evaluated assignments. Fourth, teachers reported a high level of satisfaction with this new approach to the assignment process. Although students reported a lower level of satisfaction with the new approach to assignment design and explanation, their satisfaction levels increased significantly from baseline to post-intervention.

Collectively, this research sheds important light on an array of issues surrounding the inclusion of students with LD in regular classroom settings. First, successfully meeting the needs of students with LD in the mainstream may be contingent upon the degree to which suggested modifications for instruction are perceived by regular teachers as being reasonable and palatable (Schumaker, Deshler, & McKnight, 1991). Because the assignment procedure tested in this investigation was relatively easy to learn, required limited time to master, and received high satisfaction ratings by the teachers, it appears to meet the "palatability" standard outlined by Schumaker et al. (1991). The high satisfaction ratings suggest that the routine has promise for being embraced even in light of the growing demands for content coverage by classroom teachers.

Second, the subroutines used in this investigation (e.g., "PLAN," "REACT," "ASSIGN," etc.) were constructed to meet the unique needs commonly faced by the LD population. For example, the subroutines include steps that encourage teachers to monitor whether the directions are sufficiently clear and whether the rationales given for completing the assignment are sufficiently powerful to motivate students.

The instructional subroutines used in this investigation represent a multifaceted approach to impacting student behavior. Careful analysis of the various subroutines reveals that they include elements that facilitate understanding and recording critical information, motivate student performance, communicate clear expectations and performance parameters, encourage student involvement throughout the process, and promote alternative ways for students to demonstrate their competence. Given the complex dynamics associated with a regular classroom setting (i.e.,

broad variability among teacher, student, and content factors), any instructional procedures designed to address the challenges of academic diversity must be sufficiently comprehensive to accommodate that variance.

Finally, the findings of this research effort should be considered by those who work with teachers preparing to teach in mainstream classroom settings. The data suggest that as regular classroom teachers are increasingly expected to accommodate students with LD in their classes, these teachers need preparation in how to identify and address the unique learning needs of these students. Inasmuch as class and homework assignments are used as one of the primary practice tools for student learning, training teachers how to improve the effectiveness of their assignments is a logical component to include within a teacher preparation curriculum. The subroutines described in this study are especially attractive because of the relatively small amount of time required to become proficient in using them.

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FOOTNOTE

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