DOCUMENT RESUME

ED 057 994 24 RE 003 907

AUTHOR Niedermeyer, Fred C.; Ellis, Patricia Ann
TITLE The Development of a Tutorial Program for Kindergarten Reading Instruction.
INSTITUTION Southwest Regional Educational Lab., Inglewood, Calif.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
REPORT NO SWRL-TR-26
BUREAU NO BR-6-2865
PUB DATE 26 May 70
NOTE 40p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Beginning Reading; Cross Age Teaching; Elementary School Students; Field Studies; *Kindergarten; Program Design; *Program Development; Program Evaluation; *Reading Programs; *Remedial Reading; Research and Development Centers; *Tutorial Programs

ABSTRACT

The Southwest Regional Laboratory for Educational Research and Development developed an exportable tutorial program whereby school personnel can train older students or adult nonprofessionals to tutor kindergarten children in reading. The initial program was tried out in a middle-income suburban district near Los Angeles. Nine kindergarten teachers trained 75 fifth- and sixth-grade tutors. The tutorial program was used in four of eight nearby schools. In these schools, remedial instruction for low-performing students following each unit of the reading program was administered by trained tutors and the teacher; in the other four schools the same remedial instruction was conducted by the teacher only. Pupil performance for both groups was compared, a tutor observation scale was developed to observe behavioral differences between trained and untrained tutors, and responses to a tutor questionnaire were collected. This report presents the rationale used to formulate the tutorial program, describes the formative evaluation procedures used to develop the program, presents data related to the effectiveness of the initial program, and describes the revised tutorial program. Aspects of the development procedures which have general applicability for the preparation of tutorial programs for similar curriculums are also detailed. Tables, figures, and appendixes are included. (AW)

SOUTHWEST REGIONAL LABORATORY FOR EDUCATIONAL RESEARCH & DEVELOPMENT

The Development of a Tutorial Program for Kindergarten Reading Instruction

TM 2[illegible] MAY 1970

Published by Southwest Regional Laboratory for Educational Research and Development, a public agency supported as a regional educational laboratory by funds from the United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred

THE DEVELOPMENT OF A TUTORIAL PROGRAM FOR KINDERGARTEN READING INSTRUCTION

Fred C. Niedermeyer and Patricia Ann Ellis

The Southwest Regional Laboratory for Educational Research and Development (SWRL) has developed an exportable tutorial program whereby school personnel can train older students or adult non-professionals to tutor kindergarten children in reading. The purposes of this report are (1) to present the rationale used to formulate the tutorial program, (2) to describe the formative evaluation procedures used to develop the program, (3) to present data related to the effectiveness of the initial program, and (4) to describe the revised tutorial program. Aspects of the development procedures which have general applicability for the preparation of tutorial programs for similar curriculums are also detailed.

RATIONALE FOR THE TUTORIAL PROGRAM

The SWRL Tutorial Program was formulated according to the following rationale:

- When learning tasks require a great deal of practice, non-professionals (in this case fifth- and sixth-grade students) can be effective tutors.

- Tutors are able to maintain and strengthen learning initially acquired from the classroom teacher by monitoring practice responses of individual pupils and administering verbal praise.

- Materials used by tutors with their pupils should be highly structured and tied directly to specified pupil behaviors.

- An efficient system is required for teacher use in prescribing tutorial instruction and managing logistical requirements.

DERIVATION OF TUTOR TRAINING OBJECTIVES AND PROCEDURES

Following a review of the literature on tutor training and tutorial programs, objectives were written specifying what tutors should do when tutoring.[1] On the basis of information obtained by working with four fifth-grade students and a pool of kindergarten children for about four weeks, these training objectives were then refined in the following manner: first, the four fifth-graders were asked to tutor without any prior instructions or training. A video tape was made of these initial tutoring sessions. The tape was then studied in order to modify the original list of tutorial skills. Different training strategies were then formulated and tried out over a three-week period. Following training and practice, the tutors were videotaped again, and this tape was compared to the original one in order to determine the effectiveness of the training. Briefly, the training objectives that evolved from these procedures specified the following behaviors:

1. Tutor engages pupil in non-instructional, friendly conversation.

2. Tutor verbally confirms correct pupil responses.

3. Tutor praises the pupil.

4. Tutor tells or shows the pupil the correct response when the pupil is incorrect.

5. Tutor, after displaying Behavior 4, then elicits correct response from pupil before going on.

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[1]The developmental studies in tutoring by G. Harrison, R. Melaragno, and G. Newark at System Development Corporation, Santa Monica, were invaluable to the original specification of training objectives. (See "Final Report: A Pilot Study to Apply Evaluation-Revision Procedures in First-Grade Mexican-American Classrooms," SDC, 1968, TM-3930/000/00.)

6. Tutor, following non-response to his initial question or direction, repeats the question using different words.

7. Tutor avoids attempting to elicit correct response by prompting.

8. Tutor avoids negative verbal behavior, e.g., "No, that's wrong."

These behaviors were translated into procedures for the trainees and appear as Figure 1, "Rules for Tutors."

THE INITIAL TUTORIAL PROGRAM

After the training objectives were derived, materials, and procedures for the initial tutorial program were developed for a year-long tryout in conjunction with the Laboratory's First-Year Communication Skills Program (FYCSP), which provides kindergarten reading instruction. Several components of the tutorial program that generalize to similar programs are described in the following three sections.

TUTORIAL MATERIALS

The SWRL reading program contains the four primary objectives of teaching kindergarten children to (1) read approximately 100 words by sight, (2) recognize and say the sound of 11 beginning consonant sounds, (3) recognize and say the sound of 12 vowel-consonant ending phonograms, and (4) sound out and read any new word composed of previously learned beginning consonants and ending phonograms. To structure the practice session on these objectives between the kindergarten pupil and the tutor, materials called Practice Exercises were developed. (See Fig. 2) A Practice Exercise consists of 20 items which call for both pointing and reading responses. At the side of the Practice Exercise is a vertically printed script to be read by the tutor. Practice Exercises were provided for each objective during each unit of the year-long program.

The rationale for the format of Practice Exercises was that (1) the script would prevent tutors from asking for overly difficult or irrelevant responses from the pupils and (2) the fixed number and sequence of items would insure a minimum number of practice responses to the appropriate program content. This format may be usable with other primary grade curriculums where simple stimulus-response associations are to be

Fig. 1. Rules for tutors.

RULES FOR TUTORS

1. WHAT DO I DO BEFORE STARTING THE LESSON WITH MY STUDENT?

   A. Smile and be friendly.

   B. Call the student by his name and make sure he says your name.

   C. Talk with your student about something other than the lesson.

   D. Show the student what he will be doing during the lesson.

2. DURING THE LESSON, WHAT DO I DO WHENEVER MY STUDENT:

   A. DOES THE RIGHT THING?

      Tell him that he is right. Say, "That's right" or "Yes" or "O.K.". Do this right away and do it every time. Be sure he hears you.

   B. DOES THE WRONG THING?

      Tell him the right answer and then ask the question again. Don't shout "That's wrong" at him or make him feel bad about not knowing the answer.

   C. DOES NOT ANSWER?

      Ask the question again but use different words. If he still does not give the right answer, then follow the rule for a wrong answer: Tell him the right answer and ask the question again. Do not spend time giving hints.

3. WHEN AND HOW DO I REWARD WITH WORDS?

   Several times during the lesson, if your student has been getting most of the answers right, tell him that he is doing well. Say it in different ways and really mean it. "You are doing a good job today, Tommy." "Very, VERY good." But remember, do this only when he gets answers right.

Fig. 2. Typical Page from a five-page Practice Exercise used by tutors with kindergarten pupils.

PRACTICE EXERCISE 1a UNIT 6 WORDS				
Row 1. What is this word?	1	feet		
Row 2. Point to the word Nell.	2	Nell	Fell	Nan
Row 3. Read this word.	3	them		
Row 4. What is this word?	4	us		

learned, e.g., concept learning such as "Point to the triangle," or "What color is the flower?"

TUTOR TRAINING

It was not sufficient to simply tell the tutors, in their training to behave as in Figure 1. Before these overt behaviors could become automatic, the tutors needed to practice in such a way that they received immediate feedback each time an attempt was made to display one of the tutorial skills. Thus, a structured role playing procedure was developed for training tutors.

During a training session, tutors (trainees) practice the prescribed skills in the structured role-playing format, one trainee playing the "tutor" and another the "kindergartener." The interaction is structured by a deck of cards (Fig. 3) which tell the "kindergartener" how to respond (correctly, incorrectly, or not at all) to each practice item. Following each response by the "kindergartener," the "tutor" should react as specified in Figure 1. Before going on to the next response item in the Practice Exercise, however, the "kindergartener" reads aloud feedback information printed at the bottom of the card, e.g., "Did the tutor tell you that you were correct?" Both trainees then agree as to whether or not the tutor behaved appropriately.

A typical role-playing interaction might sound like this:

Tutor: Reads aloud script from Practice Exercise: "Point to the word meet."

Kindergartener: Selects a response card and reads the top part silently; "Give the wrong answer." He then points to man instead of meet.

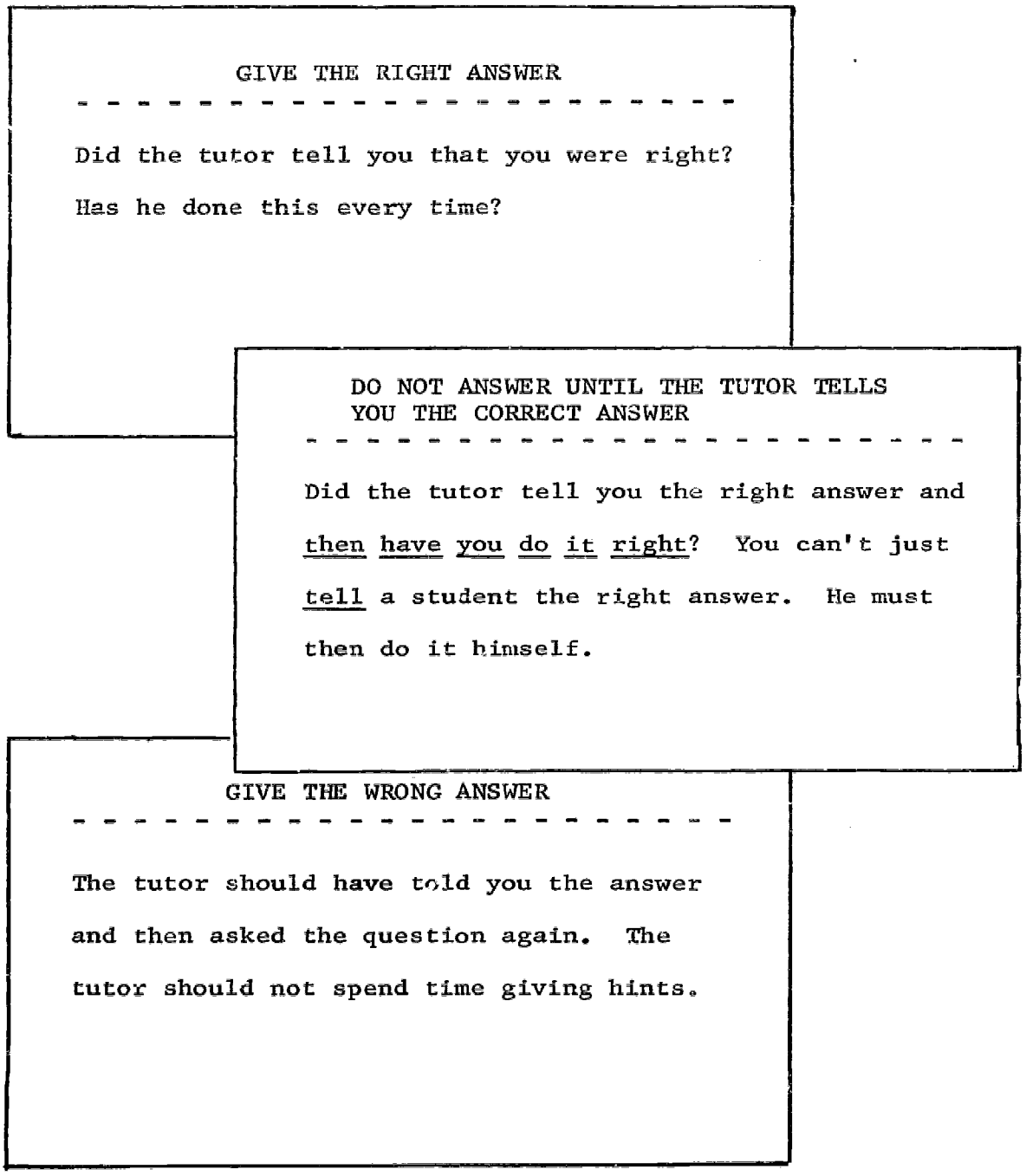
Tutor: Remembering appropriate behavior, he says, "You pointed to man. This word (points) is meet. Now you do it. Point to meet."

Kindergartener: Points correctly to meet.

Tutor: Says, "That's right."

Kindergartener: Reads aloud bottom part of response card. It says, "The tutor should have told you the right answer and then asked the question again. The tutor should not spend time giving hints."

Fig. 3. Typical cards from the response deck used by tutors during structured role-playing, during training.



Both agree that the tutor did behave appropriately. They then go on to the next item, and the "kindergartener" selects another response card from the deck.

CLASSROOM MANAGEMENT PROCEDURES

After the tutors were trained, the teacher prescribed individualized tutorial assistance for low-performing pupils who were identified by means of a criterion test administered about every three weeks, following a unit of instruction. The teacher then assigned tutors and the appropriate Practice Exercises, after checking assignment cards, for each pupil who failed to reach criterion (80%) on the test. The assignment cards were placed under the tutor's name in a file box. When a tutor came to the kindergarten, he merely located the pupil and the Practice Exercise indicated on the assignment card filed behind his name and began the lesson.

YEAR-LONG TRYOUT OF THE INITIAL PROGRAM

The initial tutorial program was tried out at four elementary schools in a middle-income suburban district near Los Angeles. Using a Tutor Training Manual and related materials, nine kindergarten teachers at these schools trained about 75 fifth- and sixth-grade tutors. These students left their classes three times a week to monitor 20-minute practice sessions in the kindergartens.

PUPIL PERFORMANCE DATA

The most important criterion for evaluating the tutorial program is, of course, the reading performance of the tutored kindergarten pupils. Do their reading skills increase noticeably as a result of being tutored by trained fifth- and sixth-graders? To answer this question, post-remediation performances of pupils in classes in which both the teacher and trained tutors provided remedial instruction were compared to classes in which the teacher provided this instruction without the assistance of trained tutors.

The sample

From eight schools in the nearby school district which participated in the 1968-69 tryout of the SWRL reading program, four were randomly selected to use the tutorial program. In these four schools, remedial instruction following each unit of the reading program was administered by the trained tutors and the teacher. Teachers in the

remaining four schools provided remedial instruction using the same diagnostic means (Criterion Exercises) and materials (Practice Exercises), but without the assistance of trained tutors.

Measuring remedial learning gains

Approximately three weeks after the teacher administered the Criterion Exercise for a particular unit, a retest of the Criterion Exercise was administered to four kindergarten students in the classroom. These four children were randomly sampled from those students whose initial score on the 20-item Criterion Exercise was less than 16 (80%). Following each of the first four units of the reading program, retesting took place in four randomly-selected teacher-plus-tutor remediation classes and four randomly-selected teacher-only remediation classes. However, in some classes it was impossible to retest four remedial pupils following a unit because all or most of the pupils had scored above the 80% level on the initial Criterion Exercise.

Results

Table 1 contrasts the teacher-only and teacher-plus-tutor groups over the first four units on both administrations of the Criterion Exercises (prior to and following remediation). Only the scores of students who averaged less than 80% on the initial Criterion Exercise are included, since only those students needed remediation. Students who scored from 16 through 20 on the initial Criterion Exercise were not in need of remediation, and their scores do not appear in the table.

From Table 1, it can be seen that the mean initial score on the Criterion Exercise for the 39 samplings of remedial pupils from the teacher-only group was almost identical to the mean initial score for the 57 samplings of remedial pupils from the teacher-plus-tutor group (12.00 to 11.91). However, the mean scores on the Criterion Exercise retest following remediation were 12.44 and 14.12 with the teacher-plus-tutor group achieving the higher score.

Table 2 contrasts the same teacher-only and teacher-plus-tutor groups over all ten units of the program. In this table, the mean initial score on the Criterion Exercise was also almost identical for the two groups, 12.45 for 88 sampling teacher-only students, and 12.26 for 103 sampling teacher-plus-tutor students. The mean score on the

TABLE 1

Gain Scores Following Teacher-Only Remediation and Teacher-Plus-Tutor Remediation over Four Program Units

	$\bar{X}$ Initial Score	$\bar{X}$ Retest Score	Gain
Teacher-Only Remediation (n=39)	12.00	12.44	+0.44
Teacher-Plus-Tutor Remediation (n=57)	11.91	14.12	+2.21

TABLE 2

Gain Scores Following Teacher-Only Remediation and Teacher-Plus-Tutor Remediation over 10 Program Units

	$\bar{X}$ Initial Score	$\bar{X}$ Retest Score	Gain
Teacher-Only Remediation (n=88)	12.45	13.69	+1.24
Teacher-Plus-Tutor Remediation (n=103)	12.26	13.87	+1.61

Criterion Exercise retests following remediation still favored the teacher-plus-tutor group, but was much smaller than at the end of four units (Table 1).

A second measure of remedial learning gains

A second measure of pupil performance was the constucted response scores on the Mid-Term Test and the End-of-Year Test given to a random sample of eight students from each of the 20 classes using the SWRL First-Year Communication Skills Program. From the students sampled for each test, average Criterion Exercise scores were calculated. Any student whose average Criterion Exercise score was 16 or less (80%) was considered to be in need of remediation following each Criterion Exercise.

Tables 3 and 4 show the mean percentage scores of the teacher-plus-tutor students and the teacher-only students on each program objective measured by the two tests. The tests were individually administered and consisted of constructed-response items where the student was asked to read aloud rather than simply select a given stimulus from three alternatives.

From Tables 3 and 4 it may be seen that remedial pupils in teacher-plus-tutor classes outperformed pupils in teacher-only remediation classes on all program objectives (although as with the Criterion Exercise data, Tables 1 and 2, the differences were greatest during the first semester of the year).

The low scores on sounding out new words (Objective 4) reflect the difficulty of this task for the slower learning pupils.

TUTOR OBSERVATION DATA

As has been previously stated, the most important criterion for evaluating the efficacy of the tutorial program is the reading performance of the tutored kindergarten pupils. As has been seen however, these data were less than optimal. In the context of summative evaluation, then, the pupil performance data revealed that the program was not working as well as it could. These data, however, were not very useful in determining why the program was deficient, nor were they of much help in determining what to do to improve the program. Information of another type was needed; information that had relevance in the context of formative evaluation.

It was felt that one possible inadequacy in the tutorial program could have been in the tutor-pupil interaction. If reliable indices of what tutors actually do with their learners (as opposed to what they

TABLE 3

Mean Constructed Response Percentage Scores of Teacher-Plus-Tutor Remediation Students and Teacher-Only Remediation Students on Mid-Term Test

Objective	Teacher-Plus-Tutor Remediation (n=19)	Teacher-Only Remediation (n=18)	Difference
1. Word Reading	66	42	+24
2. Initial Sounds	65	53	+12
3. Ending Sounds	40	20	+20
4. Sounding out new words	26	22	+ 4
TOTAL	49	34	+15

NOTE: Remedial students in Tables 3 and 4 are those who averaged 80% or less on the first four Criterion Exercises. Mean score on first four Criterion Exercises for both groups was 70%.

TABLE 4

Mean Constructed Response Percentage Scores of Teacher-Plus-Tutor Remediation Students and Teacher-Only Remediation Students on End-of-Year Test

Objective	Teacher-Plus-Tutor Remediation (n=15)	Teacher-Only Remediation (n=15)	Difference
1. Word Reading	48	30	+18
2. Initial Sounds	60	58	+ 2
3. Ending Sounds	48	40	+ 8
4. Sounding out new words	10	6	+ 4
TOTAL	41	33	+ 8

were trained to do ould be obtained, then such information would be invaluable for modifying the training program to make the tutors more effective.

To obtain such information, a tutor observation scale was developed to provide information pertinent to the following questions:

A. To what extent are the trained tutors actually performing in accordance with the training objectives?

B. Should any of the present tutor training objectives be modified?

C. Are there any skills not contained in the training program which should be?

D. Are any of the skills presently included in the training program in the repertoire of fifth-grade students prior to training?

E. Do untrained fifth-grade students in a tutorial situation possess undesirable behaviors that should be extinguished during a training program?

To obtain answers to the last two questions, the tutor observation scale was used with untrained tutors as well as with trained tutors.

Tutor sample and the observations

At a school using both the kindergarten reading program and the tutorial program, trained fifth-grade tutors were randomly selected for observation by two observers during a tutoring session. These students had been tutoring for about four weeks. They were told that the observers were interested in "watching the kindergarten children to find out how they learn to read."

At a nearby school, which was using the SWRL reading program but not the tutorial program, fifth-grade students were randomly selected from pupils who, according to the teachers, would be acceptable as tutor trainees. As in the other school, the kindergarten pupils to be tutored were selected on the basis of their performance in the reading program. Prior to the sessions, each untrained tutor was shown the materials (Practice Exercises) he was to use. He was told to read the script to the child and "help him learn the words and sounds in the Exercise." He was also given the opportunity to ask questions. As with the trained tutors, untrained tutors were told that the observers were primarily interested in the kindergarten pupils.

Two observers were present at each of the tutoring sessions, and each observer independently recorded the tutorial interaction and instructional behaviors of 12 tutors (six trained, six untrained) on the Tutor Observation Scale.

Results

Table 5 shows the degree to which each of the six trained tutors and six untrained tutors displayed seven behaviors derived from the objectives of the training program. Totals and means (percentage where appropriate) were computed for each of the two groups of tutors. A rank order correlation of agreement (Spearman's Rho) between the two observers across the 12 tutors is listed for each behavior. All are significant beyond the .01 level. A Mann-Whitney U Test was used to test for a difference between trained and untrained tutors on each item. The values of U were significant beyond the .05 level for the first five behaviors in Table 1. Non-significant U's were calculated for Behaviors 6 and 7.

When displaying Behavior 1, the tutor talks with his pupils about things other than the lesson. (In the training program tutors were given several "conversation starters" which they could use, e.g., "Do you have any pets at home?") The trained tutors exhibited this behavior a total of 27 times compared to only once among the untrained tutors.

When displaying Behavior 2, the tutor verbally confirms correct responses by his pupil. The trained tutors confirmed 98% of the time compared to 49% of the untrained tutors. The observers noted, however, that while the trained tutors varied the prescribed confirmation phrases ("That's right," "Very good," "Yes"), the untrained tutors relied mostly on "Uh-huh" supplemented by an occasional "O.K."

The scores on Behavior 3 indicate that each trained tutor administered verbal praise an average of three times per session. During training these tutors had practiced using phrases such as "Very, very good--keep it up," or "That's great! You're doing fine today." The untrained tutors offered no praise at all.

From the scores of the trained tutors on Behavior 4, it can be seen that when the pupils gave wrong responses, the tutors then told (or showed) them the correct response 85% of the time. The untrained tutors did this only 6% of the time (1 out of 17). Rather than tell the pupil the correct answer, untrained tutors would either repeat the question or try to elicit the correct response by prompting (see Behavior 7).

TABLE 5

Instructional Behaviors of Six Trained and Six Untrained Fifth-Grade Tutors Working with Kindergarten Pupils

Tutor Behaviors	Trained Tutors								Untrained Tutors								Correlation of Observer Agreement (Spearman's Rho)
	1	2	3	4	5	6	T	$\bar{X}$ or %	1	2	3	4	5	6	T	$\bar{X}$ or %	
1. Tutor engages pupil in non-instructional, friendly conversation.	1	1	1	7	7	10	27	4.5	1	0	0	0	0	0	1	0.2	.81
2. Tutor verbally confirms correct pupil responses.	12/13	17/17	8/8	13/13	17/17	11/12	78/80	98%	10/14	9/18	7/7	9/11	3/15	3/19	41/84	49%	.93
3. Tutor praises the pupil.	0	2	0	4	4	8	18	3.0	0	0	0	0	0	0	0	0.0	1.00
4. Tutor tells or shows pupil the correct response when pupil is incorrect.	2/2	1/2	6/7	3/4	3/3	7/8	22/26	85%	0/2	0/2	0/3	0/3	1/7	0/0	1/17	6%	.90
5. Tutor, after displaying Behavior 4, then elicits correct pupil response before going on.	2/2	0/1	4/6	2/3	2/3	6/7	16/22	75%	0/0	0/0	0/0	0/0	1/1	0/0	1/1	100%	.98
6. Tutor, following non-response to his initial question or direction, repeats in different words.	0/2	0/1	1/5	2/4	0/0	0/0	3/12	25%	1/4	0/0	3/9	0/5	0/0	0/0	4/18	22%	.98
7. Tutor avoids attempting to elicit correct response by prompting.	1	2	0	0	0	0	3	0.5	8	0	6	11	0	0	25	4.2	.85

Behavior 5 states that, following instances of Behavior 4, the tutor should have his pupil make the response correctly before going on. For example, following an incorrect pointing response, the trained tutor might say, "You pointed to man. This word is mad. Now you do it. Point to mad." The trained tutors did this 16 out of 22 times (75%).

If the pupil fails to respond, Behavior 6 states that the tutor should repeat the question or direction using different words. This objective was formulated on the notion that, if a child did not respond, he probably did not understand what was wanted. Trained tutors exhibited Behavior 6 only three out of 12 possible times (25%). Instead, they would treat non-responses as incorrect responses and simply tell the pupil the correct answer. Untrained tutors repeated the question following non-responses four out of 18 times (22%). Usually in this situation the untrained tutor would sit silently in hopes that the pupil would finally respond.

In developmental work with tutors during the previous summer, it was noted that they had a tendency to prompt when the pupil was wrong or did not respond. It was felt, however, that the quality of their prompts was not high, i.e., their prompts usually failed to elicit the correct response. Thus, in the training program that evolved, tutors were told not to give hints, but instead to display Behaviors 4, 5, and 6. The results obtained with the Tutor Observation Scale seem to confirm the appropriateness of the no-prompt rule. The scores for Behavior 7 show that trained tutors prompted a total of only three times, whereas three of the untrained tutors prompted a total of 25 times. However, only seven of the 25 prompts by untrained tutors led directly to a correct response--a success rate of only 28%.

TEACHER AND ADMINISTRATOR QUESTIONNAIRE DATA

Several questionnaires regarding the tutorial program were sent out to the four schools at the completion of the initial year-long tryout. These questionnaires were given to the school principals, the kindergarten teachers (who, in all cases, were also the tutor trainers), and the intermediate-grade teachers who had tutors chosen from their classrooms.

In general teachers and administrators were positive about the tutorial program. They also offered useful criticisms and comments. The kindergarten teachers provided useful descriptive information concerning the implementation of the program, e.g., where tutoring took place, how often, etc. From the intermediate grade teachers, several anecdotal statements were obtained concerning the benefits of the

tutorial experience to the older pupils. A summary of questionnaire data from the school personnel is contained in Appendix A.

TUTOR QUESTIONNAIRE

One final source of information was provided by the tutors themselves after the tutoring sessions were under way. An anonymous questionnaire (see Appendix B) coded by number was completed by the tutors. The principals who administered the questionnaires wrote down the initials (or names) of the tutors, matching up numbers and names. At the end of the year the same procedure was followed, making it possible to follow individual tutor's changes in attitudes toward the tutorial program.

As can be seen in Table 6, the mean scores (which were adjusted so that the higher the scale, the "better" the attitude) differed very little from the beginning of the year to the end. Most of the tutors ended the year with the same high regard for tutoring that they started with.

DETERMINING REVISIONS OF THE INITIAL PROGRAM

Figure 4 contains two histograms which suggested that the tutorial program, though fairly effective in its initial form, could be much improved. Frequencies of various gain scores from the initial Criterion Exercise to the retest were graphed from the teacher-only pupils, and for the teacher-plus-tutor pupils. It can be noted that the distribution for the teacher-plus-tutor pupils was bimodal. Many pupils made substantial gains (four to six items) while many others showed little change (-1 to +2 items). To account for this distribution, it was suggested that perhaps many pupils (those showing little test-retest change) were simply not being tutored with the prescribed Practice Exercises. The possibility that all the required tutoring did not take place was also raised since it was felt that teachers were perhaps failing to frequently update the Tutor Assignment Cards and the file box.

To check this assumption, several modifications were introduced late in the tryout in two of the teacher-plus-tutor classes at one of the four schools. Tutors were directed to log each tutoring session with a Tutor Record Card (Fig. 5) by circling all incorrect pupil responses and checking all correct responses.

Following three weeks of tutoring on a unit using the Record Cards, the two teachers were asked if sufficient time had passed to complete all tutoring sessions. The responses were positive and all pupils were then given a retest on the Criterion Exercise for the unit.

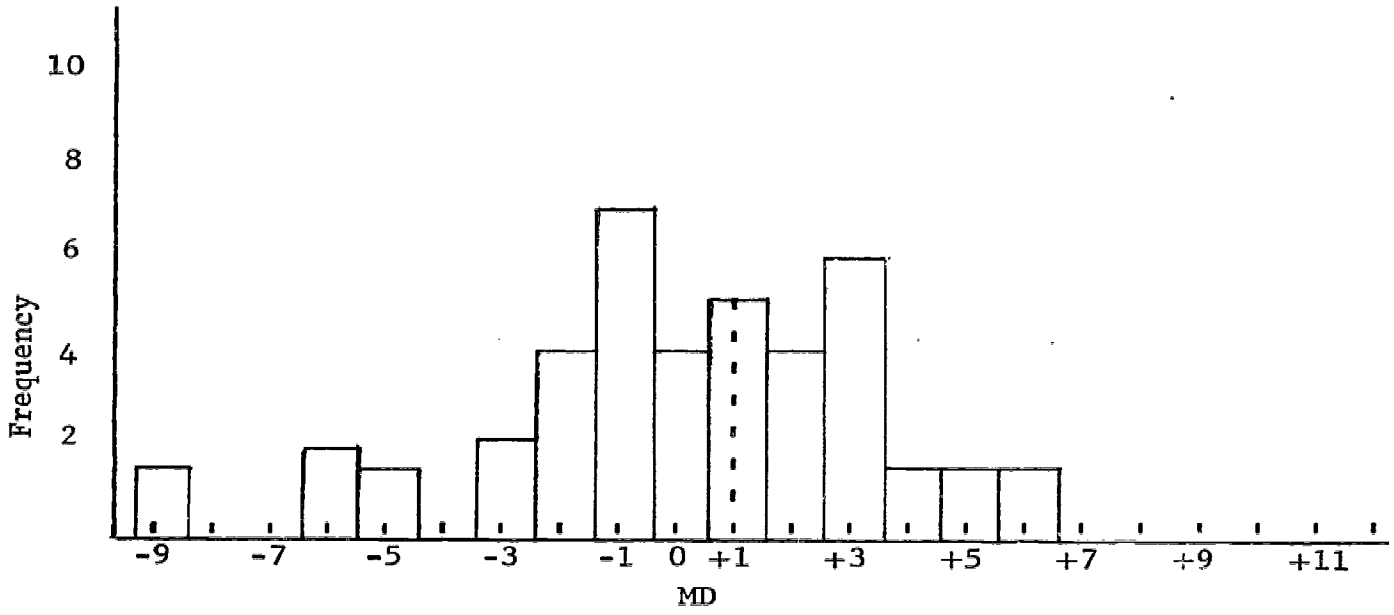
TABLE 6

Tutor Attitude Questionnaire

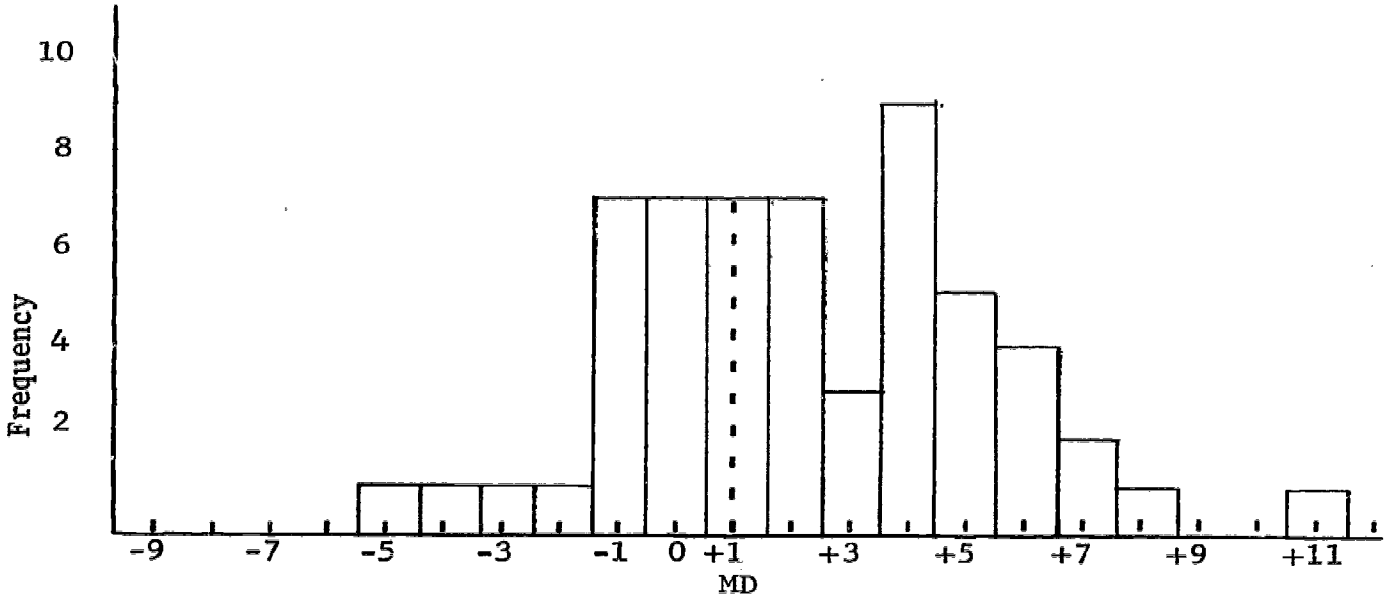
Item	Pre-test Mean (N=51)	Post-test Mean (N=44)
1	4.627	4.750
2	2.922	2.909
3	4.553	4.318
4	4.039	3.955
5	4.510	4.591
6	4.137	3.864
7	3.882	3.864
8	4.333	4.341
9	4.020	4.136
10	4.843	4.818

NOTE: Items 1-10 are listed on the Tutor Questionnaire (Appendix B). Scores were adjusted so that the higher the mean, the "better" the attitude.

Fig. 4. Test-retest gain-score frequencies for pupils under Teacher-Only Remediation and Teacher-Plus-Tutor Remediation.



Test-Retest Gain Score
Teacher-Only Remediation



Test-Retest Gain Score
Teacher-Plus-Tutor Remediation

Fig. 5. Card used by tutors to log each tutoring session.

TUTOR RECORD CARD

TUTOR: _____

STUDENT: _____

PRACTICE EXERCISE: ____ UNIT: __

DATE: _____

MARKING KEY:

✓ = right ○ = not right

TRIAL ONE

Page: 1	2	3	4	5
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4

TRIAL TWO

Page: 1	2	3	4	5
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4

Table 7 contains results of the initial Criterion Exercise test, the retest following tutoring, and test-retest gain for each pupil who scored less than 80% on the initial test. Table 7 also contains, for each remedial student, the percentage of prescribed Practice Exercises for which Tutor Record Cards were actually turned in by the tutors.

It may be seen that the completion rate of assigned Practice Exercises by tutors is very low. For only one pupil were Record Cards turned in for all the prescribed Practice Exercises, and no Record Cards at all were turned in for five students. The rank order correlation between gain scores and the percentage of completed Practice Exercises was significant ($P = .543$, $P < .05$). Not surprisingly, those who received remedial tutoring learned more than those who did not. The problem, then, seemed to be one of instructional control. How could the program be modified to insure that prescribed Practice Exercises actually were used with remedial students by tutors? Several changes designed to solve this problem were formulated for inclusion in the following year's revised tutorial program.

In the revised Tutorial Program, Tutor Record Cards, as earlier described, were used by all tutors. This allowed for closer SWRL assessment of pupil performance during tutoring and provided an accurate record of how much tutoring actually took place.

The file box system of assigning tutors was replaced by a wall chart listing the names of all kindergarten pupils. The teacher simply checked the prescribed Practice Exercises and assigned tutors to kindergarteners by moving (see Fig. 6) name plates of each available tutor. After completing each assigned Practice Exercise, tutors simply marked the scores on the wall chart. This allowed the teacher to see at a glance how many of the prescribed Practice Exercises had been used by tutors. Previously, the teacher had to shuffle through all of the Tutor Assignment Cards in the file box.

To insure that all required tutoring was completed, teachers in the revised program were asked to return the tutor assignment sheet and the completed Record Cards at the end of each unit.

The results of the constructed response tests as displayed in Tables 3 and 4 suggested that tutors were not effective with respect to the word attack (blending) outcome (Outcome 4). Several changes were developed to correct this deficiency. The specifications for the Practice Exercises dealing with blending were changed so that pupils received practice more appropriate to the objective. Also, the observational data on the tutors suggested that they were inadequately trained to work with this outcome. Materials designed to overcome this deficiency were included in the revised training package.

One rather simple, yet important revision was to suggest to school personnel that new tutors be trained at the semester break. Revitalizing

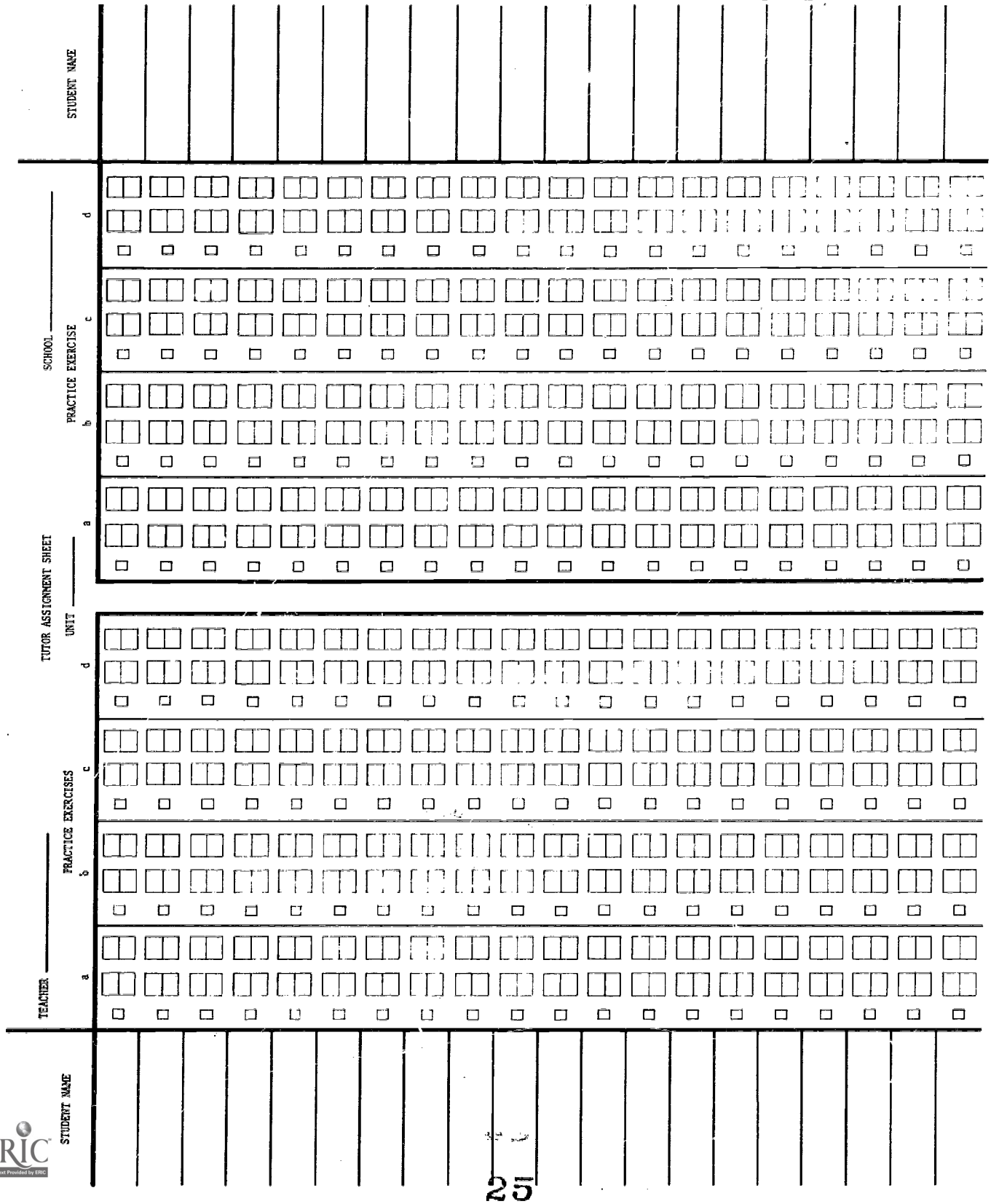
TABLE 7

Test-Retest Gains and Percentage of Prescribed Practice Exercises Actually Completed by Remedial Pupils

Subject	1. Initial Criterion Exercise Score	2. Retest Following Remediation	3. Gain Score	4. Completed Practice Exercises/ Assigned Practice Exercises	5. Percent of Assigned Practice Exercises Completed
1	15	16	+1	2/3	67
2	13	16	+3	2/4	50
3	3	7	+4	0/8	0
4	11	16	+5	4/6	67
5	15	20	+5	4/4	100
6	11	17	+6	4/5	80
7	9	7	-2	0/7	0
8	12	12	0	2/5	40
9	12	20	+6	3/6	50
10	9	9	0	2/6	33
11	14	18	+4	0/5	0
12	12	2	-10	2/5	40
13	15	12	-3	0/3	0
14	13	16	+3	3/5	60
15	15	15	0	0/0	0
16	13	15	+2	3/4	75

Rank Order Correlation (Spearman's Rho) between columns 3 and 5 = .543
($P < .05$, $N = 16$)

Fig. 6. Tutor assignment sheet form for the revised program.



the program at mid-year may help to prevent the poor second-semester performance found during the initial year-long tryout.

Another modification was that tutors employ contingency management techniques in conjunction with the Tutor Record Cards. Tutors required that a child work through the Practice Exercise two times (Trial 1 and Trial 2) during a single 15 minute session. If a student did well, or better, on Trial 2 as Trial 1, then he received a picture to color or some other reinforcing post-session activity.

THE REVISED TUTORIAL PROGRAM

The present tutorial program includes the aforementioned revisions and has been developed to a point that it can be now considered exportable. The components of the revised package are divided into two sections: components explaining the program to the school personnel who will be using it, and components concerned with the training of the tutors.

EXPLANATORY AND PROCEDURAL COMPONENTS

The initial orientation to the Tutorial System is provided through a slide-tape presentation, "The SWRL Tutorial Program." The purpose of this overview is to familiarize supervisors, administrators, teachers, and tutor trainers with the rationale and general structure of the tutorial system, and to identify their roles of establishing and maintaining the system (supervisor-administrator), training the tutors (trainer), managing the system in the classroom (teacher or aide), and operation of the system (the tutors themselves).

Three manuals are provided which explain in detail the working of the program: the Program Coordinator's Manual, the Tutor Trainer's Manual, and the Teacher's Manual.

The Program Coordinator's Manual provides explicit procedures for the person responsible for establishing and maintaining the tutorial system within the school or school district. The responsibilities of the program coordinator include:

- The selection and procurement of tutors
- Selection of tutor trainers
- Scheduling training sessions
- Scheduling tutoring sessions
- Assigning training and tutoring space

- Assisting trainers and teachers in understanding and carrying out their functions within the system
- Monitoring the system during the year through the collection and analysis of data

The Teacher's Manual provides the classroom teacher with the procedures for operating the tutorial system within her own kindergarten class. The specified procedures include:

- Obtaining information necessary to diagnose weaknesses and prescribe remediation
- Assigning tutors and monitoring their progress
- Managing rewards contingent on Practice Exercise performance with the tutors

Teachers also receive the materials necessary for maintaining the tutorial program components such as the Practice Exercises, Tutor Assignment Sheets, Tutor Record Cards, and coloring pictures (reinforcers).

The Tutor Trainer's Manual states the specific details involved in performing the major duties of the tutor-trainer. These include:

- Checking on training materials and preparing for the training sessions
- Conducting the three or four 45-minute training sessions
- Monitoring the behaviors of the tutors after training
- Conducting follow-up training sessions for the tutors to discuss problems

TUTOR TRAINING COMPONENTS

The second part of the Tutorial Program, the Tutor Training Package, requires three or four 50-minute training sessions. The objectives upon which the revised tutor training is based are contained in Appendix C.

The following paragraphs describe the components of the Tutor Training Program. Included are programmed workbooks, audio-tapes, and structured role playing. Table 8 describes the purpose of each

TABLE 8

First-Year Communication Skills Program--Tutor Training Components

Component Description	Time/ Sequence	Media	Support Requirements	Purpose
1. General Orientation	20 min.	Verbal	Chart: "Questions Tutors Can Answer."	Inform tutor of his classroom role and provide advance organizers to learning tutorial skills.
2. General Tutor Behaviors	30 min.	Tape/Workbook (Workbook can be self-instructional)	Tape Recorder, Tape, Workbook	Provide written practice related to general tutor behaviors.
3. Word Attack Content	20 min.	Tape	Tape Recorder, Tape, Special Practice Exercise	Introduce sounds used in FYCSP. Provide practice in sounding out words. Orient tutor on how to use Practice Exercises. Review General Tutor Behaviors.
4. Structured Practice General Tutor Behaviors	30 min.	Structured role playing	Response-feedback cards and Practice Exercise	Provide direct practice on general tutor behaviors.
5. Tutoring with Storybooks	20 min.	Tape	Tape Recorder, Tape, Storybook	Familiarize tutors with storybook procedures.
6. Daily Tutoring Procedures	30 min.	Tape/Workbook (Workbook can be self-instructional)	Tape Recorder, Tape, Workbook	Familiarize tutor with general structure and sequence of daily tutoring in FYCSP. Familiarize tutors with classroom routine for picking up pupils, for finding and putting away materials.

component in the package, and briefly informs the user of the time involved, media and support requirements.

General orientation. The tutor trainer is provided with a large chart listing "Questions Tutors Can Answer." The questions on the chart are:

1. How do I get to know my student?
2. During the lesson, what do I do whenever my student gives the right answer?
3. When and how do I praise my student?
4. During the lesson, what do I do whenever my student gives the wrong answer or does not answer?

The trainer discusses these questions with the tutors, and indicates that by the end of the three or four training sessions, the tutors should know the answers.

General tutor behaviors. The tutors work through a programmed workbook, "Practice for Tutors," which gives sample tutoring situations and introduces the general tutor behaviors previously described. An audio tape of the booklet is included so that the trainer may assist slower readers by having them work through the book by listening and answering the questions. The format of the workbook is arranged so that information is given, a question is asked (to which the tutor responds on an accompanying sheet), and confirmation of the correct response is given by looking at the answer under a flap of paper on the right side of the booklet.

Word attack content and practice exercises. This component introduces tutors to the format of a Practice Exercise and provides information on all of the FYCSP sounds they encounter when tutoring. The audio tape contains excerpts from actual tutoring experiences. As the tutors listen to the tape, they follow along on a special Practice Exercise.

Structured practice, general tutor behaviors. The structured role playing is as described earlier in this report. The tutors use the role playing cards and one of the Practice Exercises from the reading program.

Tutoring with storybooks. This audio tape presentation gives directions on the procedures to follow when tutoring with a storybook.

During the playing of the tape, the trainee listens-in on a simulated tutoring situation, and follows along with one of the program storybooks.

Daily tutoring procedures. Another programmed workbook, "Steps For Tutors To Follow," gives the tutors practice in working with samples of the materials they use each day. These include the Tutor Assignment Sheet, Tutor Record Card, and Fun Time Activity Board. Information is also given on such classroom routines as finding pupils, establishing post-session rewards, and putting away materials. As with the previous workbook, an audio tape is provided.

TUTORIAL CYCLE FOR EACH UNIT OF INSTRUCTION

Once all tutor training has taken place, the tutors are introduced to the kindergarten teacher. When using the tutors, the teacher incorporates a procedural cycle that is described in Figure 7.

From the procedural cycle for the tutorial program it can be seen that the mastery level score on a Criterion Exercise is 18. This was determined from a scatter-plot of the relation between pupil scores on the Criterion Exercises during the 1968-1969 tryout and constructed response scores on the End-of-Year Achievement Test. It was found that unless a child's average Criterion Exercise score was at least 18, there was almost no chance that he would perform at the 80% level on a constructed response achievement test covering several units. The Criterion of a three-point test-retest gain (which also earns a badge) was derived from an analysis of Criterion Exercise test-retest scores. It was found that those children who received all assigned Practice Exercises from the tutors could usually exhibit this gain.

The badges and other reinforcers referred to in Figure 7 were tried out and found effective during 1968-1969 in both the Tutorial Program and the SWRL Parent-Assisted Learning Program (PAL).

SUMMARY

This report has documented the development of the SWRL Tutorial Program. At the same time, an attempt was made to suggest generality in the developmental procedures. In summary, the following points seem to be relevant to the development of tutorial systems for objectives-based instructional programs:

- Tutorial programs are useful at the primary grade level where much of the curriculum is composed of stimulus-response learning tasks that require practice and repetition.

- Materials used by the tutors with their pupils are scripted and correspond to specific program objectives.
- Tutors are trained in specific tutorial skills such as how to handle wrong answers and non-responses.
- Structured role playing is an efficient, effective training procedure for tutors.
- If intermediate grade students are used as tutors, they serve only for one semester rather than an entire year.
- The tutorial system is constructed so that the teacher can easily monitor the program and see that all prescribed tutoring is completed.
- The program must contain procedures that make the teacher accountable for monitoring the program correctly.
- The tutorial program is exportable so that district personnel can implement it with a minimum of time and supervisory responsibility.
- A trial-revision sequence of development is employed, with changes made in accordance with pupil performance data and formative information from the tutors and the teachers.

Fig. 7. Tutorial cycle for each unit of instruction.

A. First Instructional Treatment: The teacher provides initial group instruction for the unit (approximately two to three weeks).

B. Initial Criterion Check: The teacher (or an aide) administers the Criterion Test for the unit:

- All pupils scoring 18 (90%) or more receive a "Good Work" badge.
- Pupils scoring less than five on any of the four Outcomes are assigned appropriate Practice Exercises with tutors on the Tutor Assignment Sheet.

C. Second Instructional Treatment: Individualized tutoring by trained tutors (one to three weeks as teacher goes on to next unit):

- Tutor uses only one Practice Exercise per session--requires two trials.
- Tutor records pupils responses on Tutor Record Card.
- After Trial 1, tutor establishes a contingency for improved or mastery performance on Trial 2: If pupil improves on Trial 2 (but fails to attain mastery level of 90%), he participates in post-session reinforcing activity with the tutor (read SWRL storybook, color pictures, play on swings, etc.)
- Before leaving each day, tutor records on the Tutor Assignment Sheet the pupil's score for both trials.
- Each day the tutor uses the Practice Exercises assigned for a different Outcome. Since the tutor works from left to right across Tutor Assignment Sheet, the student receives practice in a different Outcome every day.

D. Final Criterion Check: When all assigned tutoring is completed or the class is ready for the next Criterion Exercise, the teacher (or aide) readministers the Criterion Exercise to all pupils who initially scored less than 18.

- Those who attain a score of 18 or more receive their "Good Work" badge.
- Those making a test-retest gain of at least three items also receive a badge.
- Those who do not earn badges are simply told that they "get another chance next time."

APPENDIX A

Summary of Questionnaire Responses by Principals, Kindergarten Teachers, and Intermediate Grade Teachers

PRINCIPAL QUESTIONNAIRE

The results of the Principal Questionnaire indicated that the principals felt the tutorial program was successful. Three of them indicated they would use the program again, if it were made available. One principal indicated that the program "has worked well" and that the strong points of the tutorial program are found in "the relationships between tutors and students" and "ego-building of tutors." Another principal said the program was "very beneficial to tutors" and "an excellent activity for developing confidence."

When asked what potential problems might arise in schools using the tutorial program, the principals pointed out the need for "comprehensive directions and supervision" and that the program "must have parental approval, because some parents may have objections to their children missing class time [for tutoring]."

KINDERGARTEN TEACHER QUESTIONNAIRE

Five of the eight kindergarten teachers replied to the questionnaire. All agreed that they would use the tutorial program again, were they given the opportunity to do so. They also were unanimous in agreeing to train another group of tutors. One change suggested by the teachers was a mid-year change of tutors. This modification has been incorporated into the revised tutorial program.

Although all teachers felt that there was no difference whether the same sex tutored the same sex or whether there was "mixed" tutoring (girls tutoring boys and vice versa), two of the five reported that girls were more successful as tutors. The other three felt that sex made no difference in the success factor.

Changes in the tutors noted by the teachers were:

"became more relaxed with kindergarteners"

"developed much confidence"

"became more mature and independent"

"developed sense of pride in kindergarteners' accomplishments"

"became less formal"

One teacher reported that the tutors became "more lax in tutorial responsibilities."

Changes noted by the teachers in the kindergarten children were:

"more understanding of reading"

"overcame shyness"

"tutors became special friends"

"tutors provided incentive to succeed"

Four of the five teachers felt strongly that the tutors helped the students attain the objectives of the reading program. The other teacher said that the tutors helped "somewhat" in this aspect.

Other teacher comments reported that "tutors gained self-confidence and sense of importance," but that "they need a teacher to work with them."

As to the classroom management of the program, the kindergarten teachers reported tutors coming about three days a week. The time spent by the tutors in the kindergarten classroom ranged from 15 to 30 minutes each day. The location of tutoring sessions differed in each school--in the kindergarten classroom, out of doors, and in the teachers workroom. While some children were being tutored, the rest of the class engaged in activities such as art work (listed most frequently), non-SWRL reading, rest time, recess, social studies, music, activity time, work time. One teacher conducted the SWRL Program while tutors were at work even though this had been discouraged at the beginning of the tryout.

INTERMEDIATE-GRADE TEACHER QUESTIONNAIRE

Six intermediate grade teachers replied to the questionnaire and all six said they would consent to have tutors selected from their classrooms again. Also, all six said that having several students leave to tutor during the day did not create difficulties in planning and scheduling activities. Most of the intermediate-grade teachers reported that they followed the regular classroom routine while the tutors were gone from the room.

Of the four tutors who were dropped from the tutoring program (out of 60), two were due to moving, one was the child's decision, and one was due to the parent's request.

The intermediate-grade teachers also classified each tutor according to general academic achievement, intelligence, citizenship, and social behavior. The distributions of these classifications are shown in Figure 8.

A second part of the check-list asked the intermediate-grade teacher to indicate how she perceived participation in the tutorial program had affected the student's behavior in variour areas. These results are summarized in Figure 9.

Finally, the intermediate-grade teachers were asked to describe instances in which their students made reference to the tutorial program either verbally or in writing. Their comments were as follows:

"constantly refers to tutoring experiences"

"frequently refers to problems of kindergarten children"

"frequently talks about tutoring" (two times)

"frequently talks about tutoring because of difficulty in making up lost work"

"asked each day if he was to go tutoring" (two times)

"very pleased to be a tutor"

"feels it too boring"

"has gained in self-confidence"

"seems to have gained self-confidence"

"has become more verbal"

"more relaxed and verbal"

"proud of tutoring" (two times)

"notable improvement-attribute some to responsibility of tutorial program"

Fig. 8. Teacher classifications of intermediate-grade tutors.

General Academic Achievement:		
8 above grade level	18 at grade level	4 below grade level
Intelligence:		
14 above average	14 average	2 below average
Citizenship:		
12 outstanding	14 average	4 poor
Social behavior:		
5 quite outgoing	18 normally friendly	6 shy (1 doesn't make friends)

Fig. 9. Teacher estimates of behavior change of pupils in the tutorial program.

	Improved	No Change	Worsened
Attendance	2	27	1
Class participation and initiative	11	19	0
Attitude toward reading	17	13	0
Reading achievement	16	14	0
Peer relationships	10	20	0
Citizenship	5	24	0
Other:			
Maturity	5	1	0

> "I believe something happened to him that will affect him as time goes on. He took great pleasure in the child's achievement. Frequently told me of reaction of child toward his own growth which I believe has influenced Paul."

It appears that the intermediate-grade teacher found the tutorial experience generally helpful to their students.

APPENDIX B

Tutor Questionnaire

WHAT THE NUMBERS MEAN:	VERY TRUE 1	KIND OF TRUE 2	I DON'T KNOW 3	WRONG 4	VERY WRONG 5
1. I would tutor kindergarten children again next year if I had the chance.	1	2	3	4	5
2. When I was out of the room tutoring, I missed some fun things in my regular class.	1	2	3	4	5
3. It is easy to find things to talk about with the kindergarten children.	1	2	3	4	5
4. During tutoring, the kindergarten children pay attention well.	1	2	3	4	5
5. Tutoring may be all right for some people but not for me.	1	2	3	4	5
6. Many of my classmates wish they could be tutors too.	1	2	3	4	5
7. It was hard to make up the work I missed in my regular class.	1	2	3	4	5
8. The kindergarten children were interested in the yellow and gold SWRL Storybooks.	1	2	3	4	5
9. The Practice Exercises were too hard for the kindergarten children.	1	2	3	4	5
10. It is fun to tutor.	1	2	3	4	5

APPENDIX C

Objectives for the Revised Tutor Training

A. General Behaviors

1. During the tutorial interaction the tutor will act in a natural, friendly manner.
   Observable indices of such behaviors are:

   a. Tutor smiles frequently--especially at the beginning of a session.

   b. Tutor calls student by his first name.

   c. Tutor talks with student about something other than the lesson, e.g., "Do you have any pets at home, Johnny?"

2. The tutor will allow the student to hold instructional materials and turn the pages.

3. Whenever the student gives a correct response to a verbal stimulus, the tutor will immediately give a verbal confirmation, e.g., "That's right," "Fine," "O.K." He will do this every time.

4. Several times during a session, the tutor will do more than provide simple confirmation following a correct response. He will praise the student in sincere and varied ways, e.g., "You're doing a great job today. Keep it up."

5. Whenever the student gives an incorrect response to a verbal stimulus or fails to answer, the tutor will tell the student the correct answer and then require him to respond correctly before going on, e.g., "Look at this word, Johnny. It is with. What is this word?" The tutor will not attempt to elicit the correct response by prompting.

6. The tutor will avoid punitive verbal behavior with the student, e.g., he will not say something like, "No, that's not it. Can't you remember? We just had that word a minute ago."

7. At the end of the session, the tutor will make a positive comment on the student's performance, e.g., "You did very well today Susie. Good work."

B. Product Referenced Behaviors--Practice Exercises

1. Tutor will sit at pupil's left and read aloud printed stimuli for each of the twenty response-items in the exercise.

2. Tutor will read and pronounce correctly all program sounds and blends.

3. Tutor will keep a record of the session and the pupil's responses on a Tutor Record Card.

4. After completion on trial through the Practice Exercise, the tutor will establish a post-session "fun" activity for the pupil, contingent upon improved or mastery level performance through a second trial.

5. At end of session, tutor will record the child's score on both trials on the Tutor Assignment Sheet.

6. Each day tutor will select Practice Exercises indicated on Tutor Assignment Sheet.

C. Product Referenced Behaviors--Storybooks (Frequently assigned as the "Fun Activity.")

1. Tutor will first talk through the story plot with the pupil using the illustrations.

2. Tutor will then have the pupil read the storybook.

3. Tutor will follow the General Tutor Behaviors, e.g., when the pupil does not know a word, the tutor will tell him the word and then have the pupil start the sentence over.