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ABSTRACT

Cross-age and peer-tutoring projects are innovative approaches which both harness untapped school resources and provide opportunities for children to help one another. In order to implement effective tutoring programs, there is a need to delineate precise tutoring behaviors employed, as well as the requisite behaviors of supervisors. A multiple baseline design was used to document the establishment of supervising behaviors (corrective feedback, restating questions, contingent praise) in a class of eighth graders. The eighth graders then successfully used prompts to teach peer-tutoring behaviors to an entire class of first graders. The continued usage of peer-tutoring skills in the absence of prompting by university observers suggests that eighth graders can effectively implement a peer-tutoring program without adult supervision once they have received appropriate supervisory training. (Author)

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Establishing Supervising Behaviors in Eighth Graders
and Peer-Tutoring Behaviors in First Graders

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Abstract

Cross-age and peer-tutoring projects are innovative approaches which both harness untapped school resources and provide opportunities for children to help one another. In order to implement effective tutoring programs, there is a need to delineate precise tutoring behaviors employed, as well as the requisite behaviors of supervisors. Using a multiple baseline design, the present study documented the establishment of supervising behaviors (corrective feedback, re-presenting questions, contingent praise) in a class of eighth graders. The eighth graders then successfully used prompts to teach peer-tutoring behaviors to an entire class of first graders.

Establishing Supervising Behaviors in Eighth Graders and Peer-Tutoring Behaviors in First Graders

Given the increasing demand for mental health services in school settings (Glidewell & Swallow, 1969), there is a need to develop nontraditional approaches (e.g., use of paraprofessionals) which might effectively extend the reach of services. In addition to helping resolve mental health manpower shortages, the use of paraprofessionals has been strongly endorsed by Riessman (1965) because of the "helper-therapy principle," which asserts that those who help are helped most. One effective way to help is through the medium of teaching. Gartner and Riessman (1977) have argued that since the best way to learn is to teach, mental health professionals might devise ways of engineer settings to create more roles for helpers (teachers). Cross-age and peer tutoring projects in school settings represent optimal mechanisms for both harnessing untapped paraprofessional resources and creating opportunities for enabling children to help each other.

Cross-age tutoring projects involve older children, with more advanced skills, tutoring younger students. Dreyer (1973), for example, found significant improvements in first graders with reading difficulties after being tutored by seventh graders. Cloward (1967) used high school tutors to teach fourth and fifth graders evidencing problems in reading achievement. Those exposed to the program evidenced higher gains in reading achievement when compared to controls. Frager and Stern (1970) also reported that kindergarten children tutored by sixth graders did significantly better than controls. In Johnson and Bailey's (1974) project, fifth graders tutored kindergarten children, and those in the program learned more than those not provided the tutoring. When seventh grade children were provided college student tutors, substantial gains

in reading behaviors were found (Schwartz, 1977). College students and fifth graders were found to be equally effective in tutoring second graders in a study by Robertson, DeReus and Drabman (1976). Staats, Minke, Goodwin and Landeen (1973) did not document significantly greater gains in tutored versus untutored seventh and eighth graders. However, unbeknownst to the investigators, the control children had been provided a special educational program. The majority of the cross-age tutoring studies have successfully improved functioning in tutees with identified academic lags.

Peer-tutoring projects have featured children in the same grade level tutoring each other. Using college students, Coyne (1978) found greater improvement on exams for those provided peer tutors as opposed to those who studied independently. In Boraks and Allen's (1976-77) program, college students supervised fourth and fifth graders who tutored each other in pairs. While the children generally felt positive about the tutoring experience, the program was not formally evaluated. Oakland and Williams (1975) found that third and fourth graders who received peer tutoring in reading and spelling as a supplement to teacher instruction learned more than children who received all their instruction through peer tutoring. Hamblin and Hamblin (1972) found that peer tutors were more effective than teenager tutors in teaching reading materials to disadvantaged preschoolers. Dineen, Clark and Risley (1977) found that elementary school-age tutors learned many of the words they used in tutoring other children, even though the tutors had never been specifically taught those words. In another study, generalization effects were found when a preschool peer tutor's presence (independently working on a task at an adjacent table) led to a dramatic increase in word recognition for the tutee (Stokes & Baer, 1976). Harris and Sherman (1973) arranged an entire class of fourth graders in groups

of 2-3 in order to help each other solve math problems. The percent of math problems correct and problems worked on were highest when the math period was preceded by peer-tutoring. In this latter project, all children had the opportunity to partake in the positive peer-tutoring experience and none were identified as evidencing academic or behavior difficulties.

Several investigators have attempted to identify critical tutoring behaviors employed during the tutoring process. For example, Niedermeyer (1970) found trained fifth grade tutors, as opposed to untrained tutors, scored significantly higher in the following categories: engaging the pupil in friendly conversation, confirming the correct pupil response, praising the pupil, giving the correct answer when the pupil was incorrect, and eliciting the correct response before going on. In another project, Johnson and Bailey (1974) found that tutors usually corrected incorrect responses; however, there was high variability among tutors in the use of praise and repeating the stimulus after an incorrect response was corrected. There is a need to systematically document the establishment of requisite teaching behaviors in tutors.

A wide assortment of behavioral techniques have been employed in establishing teaching behaviors. For example, Bandura (1971) has clearly demonstrated how modeling procedures can be used to develop new patterns of behavior. This approach is illustrated in a study by Cash and Evans (1975), which documented the acquisition of teaching behaviors in older siblings of retarded children after they viewed a training film in which instructional skills were modeled. Using a more complex, package approach, Gladstone and Sherman (1975) successfully taught high school students to teach through the use of video tapes, rehearsal of techniques modeled, corrective feedback and praise. In establishing teaching skills in tutors, most of the tutoring programs reviewed have employed a package

of behavioral techniques in order to instill teaching skills.

A recent study by Jason, Ferone and Soucy (in press) implemented a peer tutoring project for an entire first and third grade classroom. Children were placed in groups of three for two 15 minute tutoring sessions each week. The three children were assigned the role of either tutor, tutee, or scorekeeper. Roles were switched every five minutes so that each child had the opportunity to play each of the three roles. Modeling of teaching behaviors by supervisors led to the establishment of teaching behaviors in several children. However, prompting needed to be introduced in order to establish tutoring behaviors (i.e., correcting wrong answers, re-presenting the questions following an incorrect answer, and using praise) in the majority of children. Multiple baseline design was used to show the differential effectiveness of modeling and prompting in establishing each of the three tutoring behaviors.

The present study differs from the previous one in several ways. While the investigation above documented the establishment of tutoring behaviors in first and third grade children, the present study investigated the feasibility of establishing "supervising" behaviors in eighth grade students who would then establish peer-tutoring teaching behaviors in an entire class of first graders.

Method

Site and Subject Selection

The program children were enrolled in an inner-city parochial elementary school in Chicago. The elementary school did not have access to either a school psychologist or guidance counselor. The entire first and eighth grade classes were involved in the study. There were 31 children in the first grade, with ages ranging from 5 years 11 months to 7 years. Within the first grade there were 20 males and 11 females; 11 Caucasians, 5 Blacks, and 15 Latinos. There were only

10 children in the eighth grade. Eight were males and 2 females; 5 were Latino, 3 were Caucasian, and 2 were Black.

Program

The peer-tutoring program demonstrated the manner in which older children within a school system learned to supervise the tutoring process. In the actual program, triads of first graders assumed three roles: tutor, tutee and score-keeper. The children, working in groups of three, rotated roles every five minutes. There were nine triads and one group of four (in this latter group, two children assumed the role of scorekeeper). On alternate sessions, children were tutored in arithmetic and spelling. The teaching material was placed on three by five inch file cards and was obtained from lessons the teacher was currently introducing and working on in her classroom. Following the fifteen minute peer tutoring program, a fifteen minute free play period followed. The program occurred in the morning, two times each week.

Prior to the first session, the child "supervisors" attended a meeting and met observer's (i.e., university students), who were teamed up with them during the peer-tutoring sessions. During this session, the child "supervisors" were told they would be helping the observers in a peer tutoring project involving an entire class of first graders. The child "supervisors" were not given any instructions in regard to how to prompt specific teaching behaviors. At this meeting, the child "supervisors" were told to do whatever possible to help the children play the teaching game correctly.

Prior to the first tutoring session in the first grade, the first and eighth grade children observed a role play of a correct and incorrect response. In triads, the observer said, "We're going to play the teaching game. Watch how this is done. I'm the teacher and ____ (point to child supervisor) is the student. I lift this card and say: 'What is this?' (Supervisor says answer.)

And then I say: 'That's right.' Now if _____ (child supervisor) says the wrong answer, this is what I do (the first card is put down, the second is held up): 'What is this?' (Observer whispers to eighth grader to say an incorrect response. Child supervisor says the wrong answer.) 'This is a _____. What is it?' (Child supervisor says the correct answer). 'That's right.'"

On the first day, the scorekeeping system was described. The observer pointed to one of the children and said, "You are going to be the scorekeeper." The Child Recording Form was then placed in front of the child. The observer then said, "There are 30 spaces for answers (point to the spaces). If the right answer is given, write a plus in the first line. O.K., watch, 'What is this?' (Child supervisor says right answer.) 'Right.' So I put a plus right here. Now if the wrong answer is given, write a dash. Watch and we'll do it 'What is this?' (Wrong answer is given.) 'This is a _____. What is this?' (Right answer is given.) 'Great.' Now I put a dash (-) here because the wrong answer was given first."

The observer then said, "Now we are ready to start. You will be the teacher (point to one child), you will be the student (point to another child), and you will be the scorekeeper (point to the third child.)" As the 30 cards were handed to the teacher, the observer said, "Be sure to hold the cards between your hands like this. After the student has given the right answer, take the card and put it down like this. After each card has been answered, put it down neatly on top (demonstrate)."

When the teaching game was finished, each child was praised by the observer and given feedback about how many of the 30 trials were correct. When all children achieved $\geq 90\%$ accuracy for that unit, the class moved on to the next section. For good conduct during the teaching game, children received a small

star which was placed on a Happy Gram.

Experimental Design

A multiple baseline, reversal design was employed.

Baseline. During the first four sessions, child supervisors were instructed to help the tutoring effort in any way they felt would be helpful.

Prompting Feedback. During sessions 5-16, the eighth graders were instructed to prompt corrective feedback. Prior to Session 5, undergraduate observers told the supervisors to prompt the tutor to give correct feedback to the tutee following an incorrect response, provided the tutor did not give the corrective feedback. The supervisors were instructed to tell the tutors, "Tell the student this is a ____." If prompts were not offered during the actual sessions, the university observers told the eighth graders, "Tell ____ (tutor's name) to tell ____ (tutee's name) this is a ____ (correct answer)."

Prompting Re-presenting the Question. For sessions 9-16, the supervisors were asked to prompt re-presenting the question. Prior to Session 9, supervisors were told to prompt the tutor to re-present the question ("Tell ____ (the tutor) to ask ____ (the tutee), 'What is this?'") following corrective feedback, provided the tutor failed to re-present the question without prompting. During the actual sessions, if the child supervisor did not prompt, the university observer told the eighth grader, "Tell ____ (the tutor) to ask ____ (the tutee), 'What is this?'"

Prompting Praise. Supervisors prompted praise during sessions 13-16. After a correct answer, prompters were asked to tell the tutor to praise the tutee, provided the tutor did not use praise spontaneously. If the eighth

graders did not prompt during the session, the university student told the supervisor, "Tell _____ (the tutor) to say 'very good' to _____ (the student)."

Baseline. For the subsequent six sessions (17-22), the university observers did not prompt the eighth grade supervisors.

Prompting Plus Scoring. During sessions 23-28, university observers prompted the eighth graders to prompt the three tutoring behaviors, using similar procedures as outlined in previous prompting phases. In addition, during the first two sessions of this phase, the undergraduates explained the scoring system to the eighth graders. The supervisors were asked to look at the actual scoring during the sessions. During the next two sessions, eighth graders scored along with the university observers. When the eighth graders scored incorrectly, the observer corrected the eighth grader. For the last two sessions, the eighth graders scored, and they were given no feedback as to the accuracy of their score-keeping.

Scoring. During sessions 29-31, the university students did not prompt the eighth graders for either prompting tutoring behaviors or scoring. The eighth graders did score during this last phase.

University Promoters. For session 32, the eighth graders were on a field trip. The university students directly prompted the first graders during this last session.

Observational Indicators. The Observer Recording form was used to score tutoring and prompting behaviors. Correct feedback referred to the tutor's provision of the correct answer following a tutee's incorrect response. Repeating the question referred to re-presenting the question ("What is this?") following a wrong tutee answer and a tutor's provision of the correct answer. Praise was defined as a positive verbal comment (e.g., that's correct, right, etc.).

great, etc.). If the child tutee correctly responded to the card, a check was inserted in the answer column; a minus signified an incorrect response on a trial.

If the child tutor correctly used the three prompts, correct feedback, repeat question and praise, checks were also placed in these columns. If prompts were not correctly used, minuses were placed in these columns. If the child supervisor correctly used a prompt for the child tutor, a plus was inserted in the correct feedback, repeat question and/or praise column.

Reliability. Throughout the study, 4-5 extra university observers were rotated to different peer-tutoring groups in order to gather 149 interrater reliability estimates (each triad had one undergraduate observer assigned to it). During the final two phases of the study, 43 interrater reliability estimates were obtained from the eighth graders and the university observers (eighth graders were not given feedback for their scoring during these sessions).

Results

Reliability.

Undergraduate interrater agreement on the Observer Recording form was conservatively defined as concordant ratings for an entire peer-tutoring episode. In other words, for agreement to occur, both observers had to agree on the tutee answer, corrective feedback, re-presenting the question, and use of praise. The average agreement among undergraduates, calculated by $\text{agreements} / (\text{agreements} + \text{disagreements})$ was 95%; average agreement between eighth graders and university observers was 83%.

Supervisor Behaviors

Figure 1 presents the percent of unprompted supervisor prompting for corrective feedback, re-presenting questions and use of praise. Prompting for corrective feedback by the eighth graders increased dramatically from a baseline

average of 1% to an average of 89% with onset of the first intervention. During

Insert Figure 1 about here

the return to baseline phase, prompting corrective feedback decreased to an average of 58%, but increased to 98% during the next phase. During the last phase, when supervisors were scoring but were not being prompted, their prompting decreased to an average of 79%.

Re-presenting the question increased from 0% during baseline to 87% when the supervisors were prompted by the undergraduates. Prompting for this tutoring behavior decreased to 36% during the return to baseline phase. During the next two phases, the eighth graders' prompting was maintained at a high level, an average of 91% and 87%, respectively.

Praise increased from 1% at baseline to an average of 81% with the first intervention phase. Prompting decreased to an average of 17% during the next phase, but increased to 88% when the observers began prompting again. Prompting for praise stabilized at 86% during the final phase.

First Grade Tutoring Behaviors

Figure 2 presents the percent of the three tutoring behaviors over time for the first graders. The first graders' use of corrective feedback increased

Insert Figure 2 about here

from an average of 32% during baseline to an average of 53% during the first prompting phase. During the return to baseline phase, prompting averaged 55% and increased to 67% when prompting was reinstated. During the final phase, corrective feedback increased to an average of 77%.

With the implementation of prompting, re-presenting the question increased from a baseline average of 10% to an average of 53%. This tutoring behavior decreased to 25% during the next phase, but increased to 53% with the reinstatement of prompting. During the final phase, re-presenting the question occurred an average of 73% of the time.

With the introduction of prompting, use of praise increased dramatically, from a baseline average of 6% to an average of 82%. Praise decreased to 33% during the return to baseline phase, but again greatly increased to 83% when prompting resumed. The use of praise stabilized at 88% during the final scoring period.

During the last session, when university prompters replaced the eighth graders, tutoring behaviors among the first graders were not noticeably different from the preceding three days.

Scorekeeping

Even though first graders were never prompted for accuracy in scorekeeping, the average percent of correct scorekeeping was 80% (range from 64% to 86%).

Academic Materials

The first graders successfully mastered three units of spelling and six units of arithmetic.

Discussion

The study's principal finding was that older children within a school system could be taught to supervise a peer-tutoring program in an entire first grade classroom. While a previous study documented the establishment of peer-tutoring behaviors in elementary school children (Jason, Ferone, & Soucy, in press), university undergraduates served as the prompters in that investigation. In the present study, using a multiple baseline design, university undergraduates systematically established supervising behaviors (i.e., corrective feedback,

re-presenting the question, use of praise) in eighth grade students who then established peer-tutoring behaviors in a class of first grade children. When eighth graders were taught how to score interactions, they continued prompting first graders even in the absence of prompting by the university observers. This latter finding suggests that after learning how to prompt and score appropriate tutoring skills, eighth graders might be able to effectively implement a peer-tutoring program without adult supervision.

When the eighth graders were asked to help the tutoring process during baseline sessions, most of the youngsters did not prompt, offer suggestions or instructions to the first graders. Even though the eighth graders had observed correct tutoring behaviors before the first session, they did not employ the modeled behaviors during the actual sessions. With introduction of specific instructions and prompting by university observers, the eighth graders manifested dramatic increases in each of the three tutoring behaviors. When prompting was discontinued, prompting decreased for all three behaviors, although prompting remained above baseline levels. Of interest is that the longer the tutoring behavior had been prompted during the previous phase, the greater maintenance of gains during the return to baseline phase. In other words, the more opportunities target youngsters had to appropriately prompt behaviors, the greater the likelihood they would continue prompting when the university observers ceased prompting. The eighth graders learned to score accurately during the next phase, and gains tended to be better maintained during the last period (this is most striking for re-presenting questions and use of praise). When the children were asked to score interactions, this writing behavior functionally served as a prompt and replaced the more formal prompting by the university undergraduates. During the last session, prompting by undergraduates elicited similar levels of first

grader tutoring behaviors as when the eighth graders were prompting. This finding suggests that trained eighth graders might be as effective as college undergraduates in prompting tutoring behaviors and adds to the burgeoning literature concerning the effectiveness of paraprofessionals in myriad activities (Durlak, 1979).

While several first graders displayed the three tutoring behaviors after observing a model, the majority needed prompting before eliciting higher rates of peer tutoring behaviors. Of the three behaviors, corrective feedback manifested the least noticeable changes with introduction of prompting. There are two possible explanations for this: (a) on some trials, tutors did not know the answers and consequently could not provide corrective feedback; and (b) at times the eighth graders provided feedback before the first grade tutors had a chance to state the answer. In an attempt to correct these problems, future programs might establish two additional behaviors: for first graders, having them ask their supervisors for the correct answer if they don't know the response; and for eighth graders, waiting a few seconds before supplying corrective feedback. The clearest results were evident with re-presenting questions and use of praise. For these behaviors, when prompting was being employed, elevated levels were manifest, and decreases were evident when prompting from eighth graders had been reduced (i.e., during the return to baseline phase).

There were several limitations in the present study. Since instructions and prompting were used in establishing supervising behaviors, the differential effectiveness of each element was not documented. In the "scoring" phase of the study, the eighth graders prompted in the presence of university students. It is not known whether the supervisors would have continued prompting in the absence of the observers. A functional relationship between eighth grade

behaviors and first grade peer-tutoring skills was not evident for corrective feedback (this problem has been previously discussed). Finally, there is a need to document the short-term and long-term effect of this experience on other academic and behavioral indices of competence for the first and eighth grade children.

Most early intervention programs have focused on remediating disorders or building social skills in school children identified as evidencing incipient problems (Glenwick & Jason, in press). In contradistinction primary preventive programs seek to prevent onset of specific problems, insure that high-risk vulnerable populations or those about to experience potentially traumatic milestone events do not succumb to disorders, or build competencies and adaptive skills which might enable children to withstand stress and later life difficulties. The peer-tutoring program illustrated this latter approach by fostering academic and interpersonal skills for all children within an inner city first and eighth grade classroom.

The present study demonstrated how eighth graders could be taught to effectively prompt tutoring behaviors in a class of first graders. Establishing behavior settings (Barker, 1976) whereby children can help each other learn, assume positions of responsibility, and adopt a more active stance in the learning process, represent salient factors in this competency enhancing primary prevention program. Behavioral community psychologists would profit from shifting some of the emphasis from tertiary and secondary approaches to primary preventive interventions.

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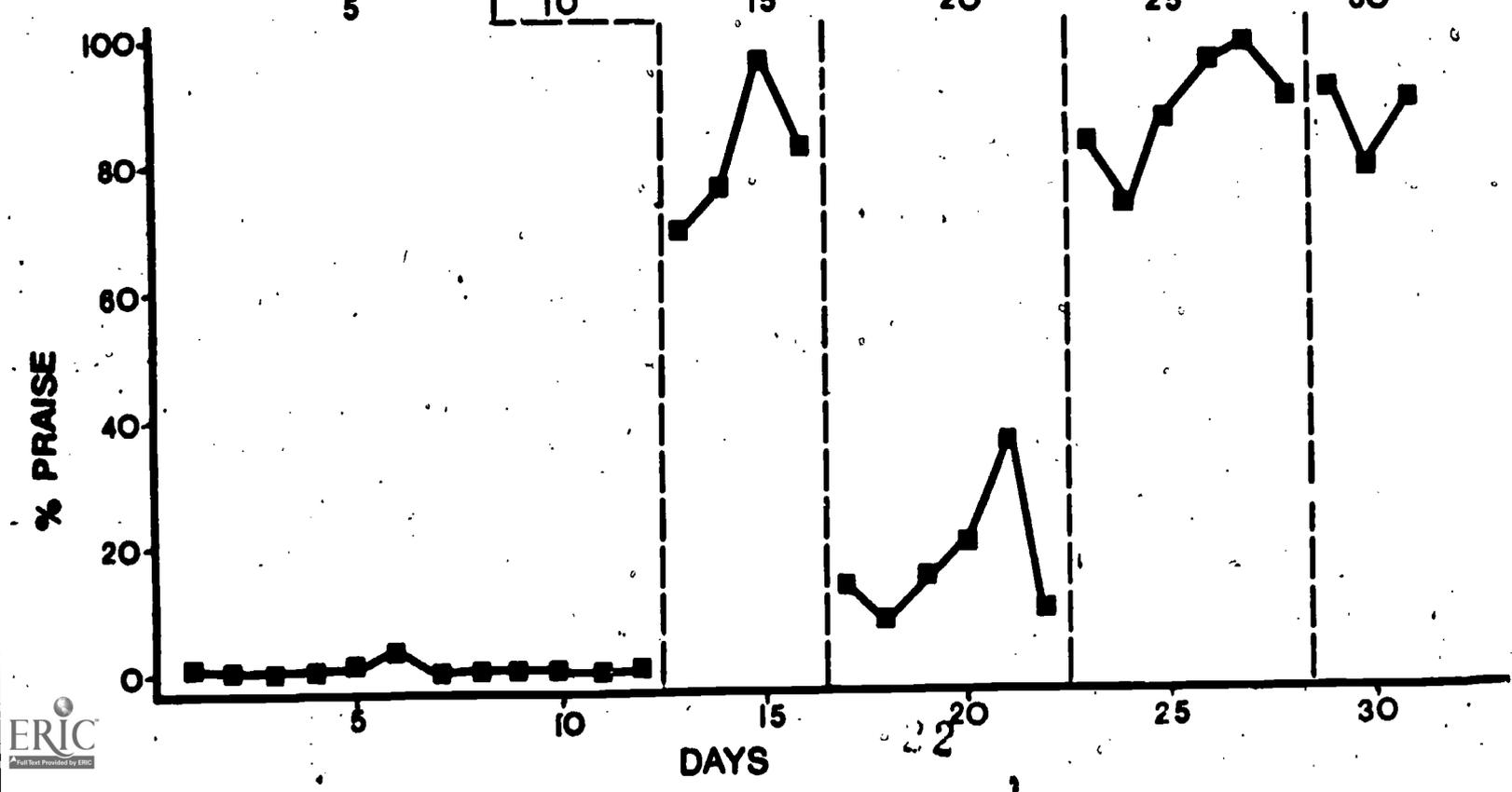
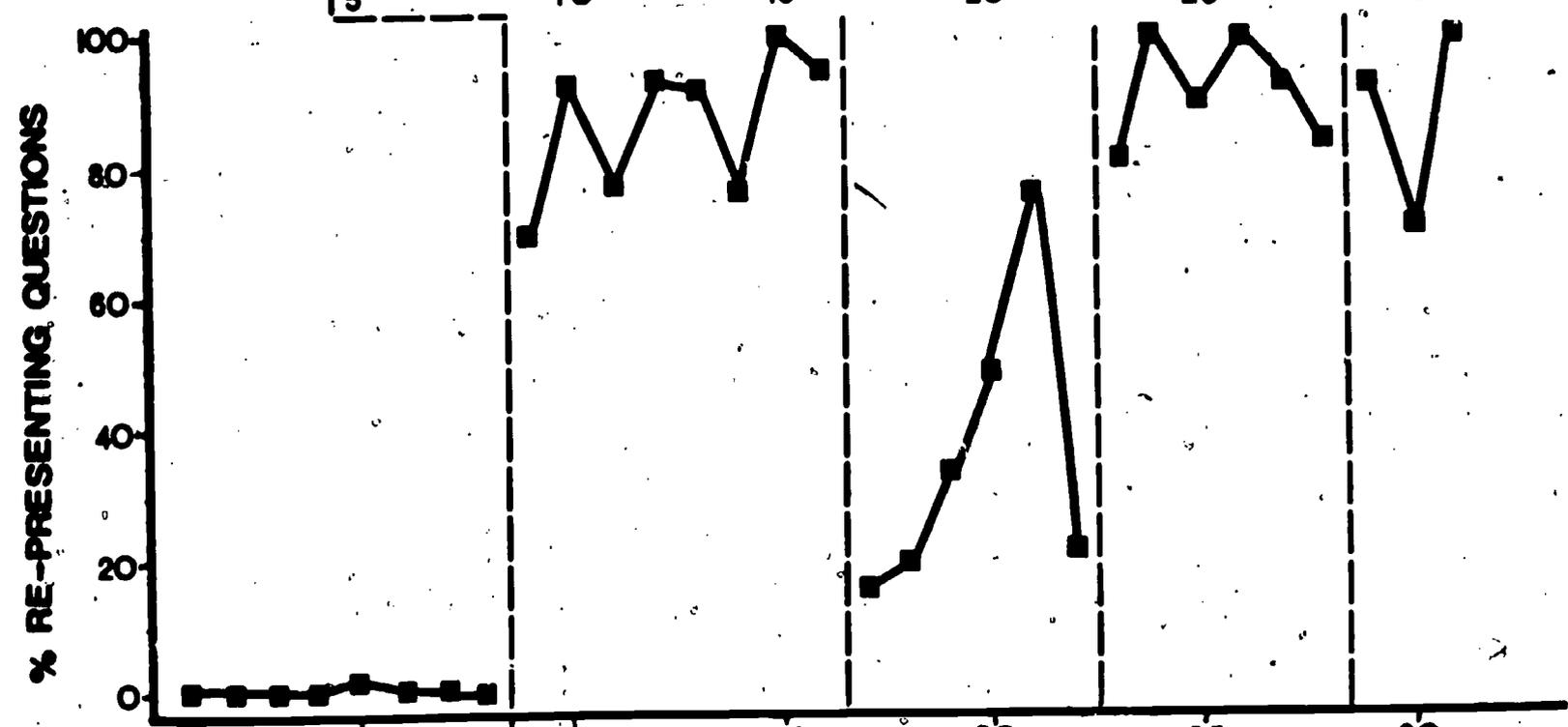
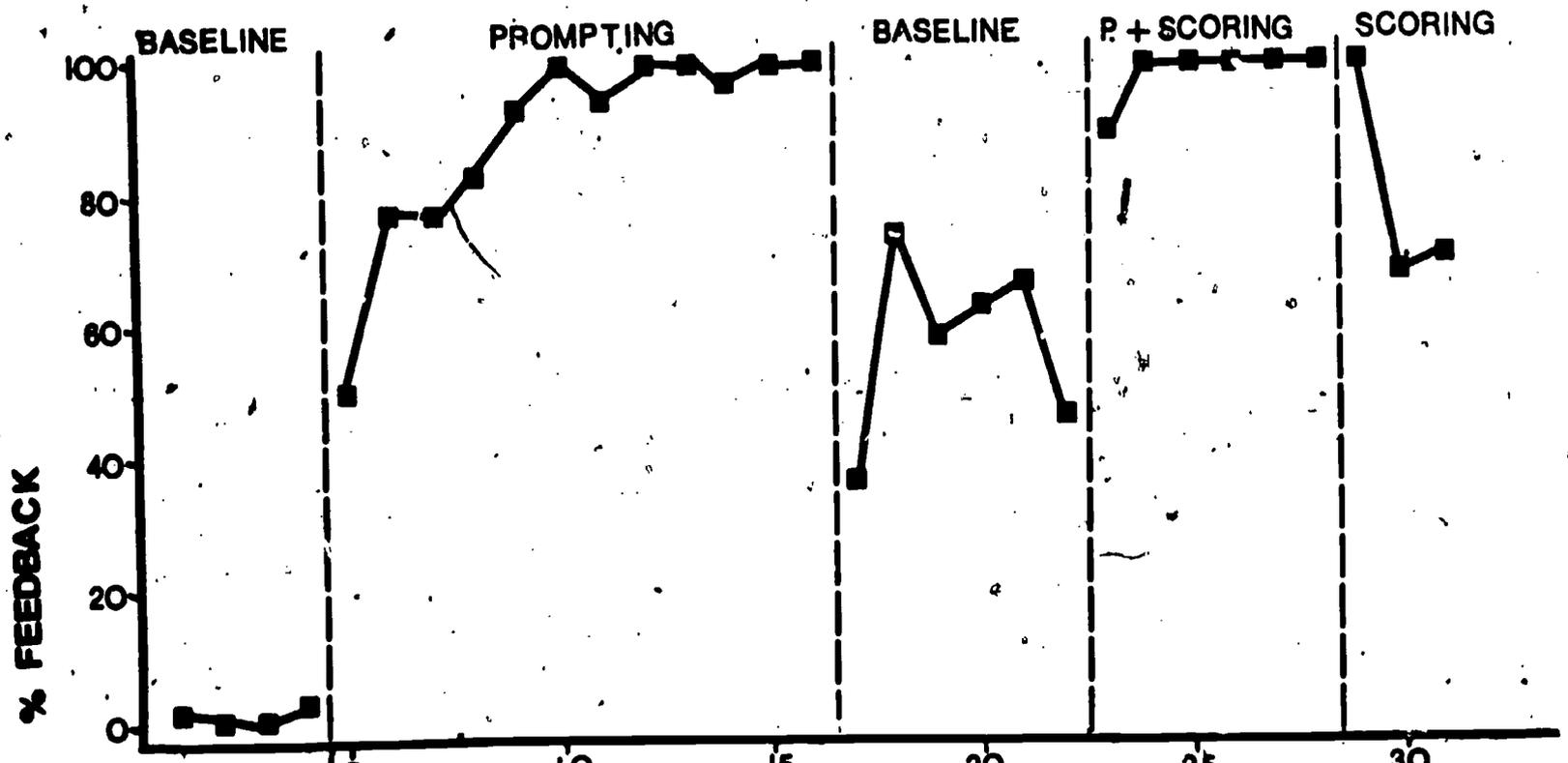
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Figure Captions

Figure 1. Unprompted supervisor prompting behaviors over time.

Figure 2. Unprompted first grader tutoring behaviors over time.

EIGHTH GRADERS



FIRST GRADERS

