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By- Cooper, Margaret; Thomson, carolyn

HEAD START EVALUATION AND RESEARCH CENTER, UNIVERSITY OF KANSAS. REPORT NO. I, THE OBSERVATION OF REINFORCEMENT BEHAVIOR OF TEACHERS IN HEAD START CLASSROOMS AND THE MODIFICATION OF A TEACHER'S ATTENDING BEHAVIOR.

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Two teachers were subjects of this investigation into the effect of various forms of feedback on the frequency of a teacher's attending to desirable child behavior. The feedback took three forms: (1) a report of the frequency of the teacher's attending to appropriate pupil responses, (2) a report of the frequency of attended and unattended appropriate pupil responses, and (3) "irrelevant" feedback in the form of observer questions or comments. Teacher A, who manifested the lower initial attending behavior during the baseline observation period, was given a training program while Teacher B was given a control condition. Subsequently, Teacher B also received the training program. The study was conducted in two schools serving low income families in a large midwestern city. The results indicated that (1) both teachers increased in total attention to appropriate child responses during the training periods, Teacher A increasing more than Teacher B, (2) the children did not show a noticeable increase in average output of appropriate responses, (3) social attention by the observer did not, by itself, produce modification of teacher attending behavior, and (4) the increase in teacher attending behavior involved only appropriate child responses rather than all child responses. (WD)

The University of Kansas Head Start Evaluation and Research Center

I.



# "The Observation of Reinforcement Behavior of Teachers in Head Start Classrooms and the Modification of a Teacher's Attending Behavior."

Margaret Cooper, M.S.

Carolyn Thomson, M.A.

Department of Human Development

# The Experimental Modification of Teacher Attending Behavior[1]

Margaret L. Cooper and Carolyn L. Thomson

Department of Human Development
University of Kansas

## ABSTRACT

Running head: Modification of Teacher Attending Behavior

This study was designed to develop a method of observing and modifying the frequency of teacher attention to appropriate child responses in two preschool classrooms. Two teachers with no formal training in reinforcement principles were observed for a baseline of eight days. Teacher A, with the lower baseline rate of attending to appropriate child responses, was selected to be trained first. Teacher B served as a control for Trainer-Teacher interaction during the first part of the Training condition for Teacher A. Feedback during Training Phase I included the frequency of attentions given to appropriate child responses every ten minutes and the total percentage of attending to appropriate child responses at the end of the day. Training Phase II included feedback given during Phase I plus the frequency of unattended responses. Teacher B was trained in a similar way. Both teachers showed an increase in attending to appropriate child responses and a decrease in occurrences of unattended appropriate child responses. Attention to disruptive responses remained at about the same rate for both teachers during the study. The rates of attending to appropriate child responses increased more dramatically following feedback which included occurrences of unattended appropriate responses than when feedback was merely the number of times appropriate responses was attended. Higher rates of attending were maintained during the Probe than during Baseline.

Submitted: August 1967

# The Experimental Modification of Teacher Attending Behavior[1]



Margaret L. Cooper and Carolyn L. Thomson

Department of Human Development
University of Kansas

## INTRODUCTION

Studies in adult social reinforcement of individual child behavior have shown that teacher attention used contingently is an effective stimulus in producing change in the child's behavior (Allen, Hart, Buell, Harris, Wolf, 1964; Coats, 1967; Foxwell, 1966; Harris, Johnston, Kelly, Wolf, 1964; Hart, Allen, Buell, Harris, Wolf, 1964). These studies suggest that using attention effectively is a highly specialized skill. Previously the researchers involved in social reinforcement studies have been persons who had a competent understanding of the reinforcement process as well as experience in the practical application of social reinforcement.

This study asks whether the behavior of a teacher who has had no training or study in the use of reinforcement principles can be modified to become similarly effective. Social attention can be an effective reinforcer as the studies referred to above have shown. This study uses social attention in the form of feedback as a reinforcer for teacher behavior. If such feedback is in fact a reinforcing event, a modification of that teacher's behavior might occur. The particular teacher behavior to be studied is the teacher's attention to desirable child behavior.

## METHOD

Two teachers from separate schools were selected for observation.[2] The teachers taught in schools serving low income districts of a large midwestern city. Both teachers had college degrees and had taught previously in a Head Start program. The teachers and children were of the same ethnic background. The teachers' classes were of comparable size. The classes were operating as a part of a Head Start program sponsored by the OEO under auspices of the local school system.

### Procedure

The general procedure for both teachers included conditions of Baseline, Training to attend to desirable child responses, and Probe (or post-test). Baseline condition consisted of recording teacher behavior as it normally occurred. The Training condition consisted of 2 phases of giving feedback to the teacher concerning her behavior.

Phase I - number of appropriate child responses attended to in a 10 minute block

Phase II- Phase I plus frequency of unattended appropriate child responses.

The Probe condition consisted of recording behavior under similar conditions as Baseline, but after the training was completed.

A baseline of eight days was recorded for each teacher two weeks after the classes opened. Teacher A, having the lower rate of attending to appropriate child responses, was selected to be trained initially. During the Training condition for Teacher A, Teacher B served as a control subject. Her behavior during the control period indicated she could profit from training; thus she was then shifted to an experimental program and training was initiated.

Procedure for Teacher A

After baseline data were obtained the training condition began. Teacher A was told that the investigators wanted to find out what teachers do when they are attending to children. The procedure then explained to her was to have someone observe her and to report to her every 10 minutes the frequency of her appropriate attending. Examples of children's appropriate responses were cited. She was shown her baseline graph and was told that there was no criterion to reach, but that the investigators expected to find out what amount of time teachers could attend to appropriate child responses.

The trainer observed and recorded behavior of Teacher A two days a week, alternating days between Teacher A and Teacher B. At the end of every ten minutes of observation, feedback was given by telling the teacher the number of times she attended to appropriate child responses during those 10 minutes (Training Phase I). At no time during this study was information given on the teachers' attention to disruptive child responses.

At the end of each day of observation the trainer would tell the teacher her total percentage of attending appropriate child responses that day, and would again define appropriate child responses.

At the end of the 7th Training day (15th day of the study) the trainer began telling the teacher the number of appropriate child responses which were unattended (Training Phase II). This information was given at the end of the day along with the daily percentage. On the 9th Training day (17th day of study) the process of decreasing feedback (fading) was begun: feedback was discontinued at the end of every ten minutes. Between Training days 10 and 13 the trainer stopped giving the frequency of unattended child responses and hypothetical examples of appropriate child responses. On the 13th day of Training the trainer left early (thus giving no daily percentages). The first day after this no-feedback procedure Teacher A asked for her percentage and it was given to her. After this day no further data were given until the end of the study. In all, there were 17 days of Training. One week later an observer recorded attending behavior for a Probe of four days.

Procedure for Teacher B

After the eight days of Baseline, Teacher B was told that another observer (trainer for Teacher A) would be observing her to continue to record her attending behavior. This was explained as a procedure to find out the pattern of teacher's attending behaviors. Teacher B was told that periodically (on a ten minute schedule similar to Teacher A) the observer would ask questions or make comments about a child or about an activity. She was told that communication would be brief requiring a minimal response in order not to interrupt her teaching. This was done to equate the social interaction between trainer and teacher for both teachers and is referred to as "Irrelevant Feedback" for Teacher B in this study.

The two conditions of Baseline (8 days) and "Irrelevant Feedback" (10 days) served as the control conditions for her own behavior under the Training procedure. A Training procedure was initiated for Teacher B on day 19. Feedback was given at the end of every 10 minutes (Phase I). The nature of the verbal interaction between trainer and Teacher B during "Irrelevant Feedback" necessitated a change in how feedback was given during the Training condition. Teacher B was accustomed to talking about a wide range of child behaviors under "Irrelevant Feedback" condition. Therefore a slip of paper with the number of her appropriate attending behaviors written on it was used to focus her directly on the behavior under study. Reports at the end of the day included the percentage of attention to appropriate child behaviors for the day as well as examples of hypothetical appropriate behaviors.

At the end of eight days of Training (26th day of study) the daily report included the frequency of unattended behaviors (Phase II). At the end of 12 days of Training (30th day of study) the 10 minute feedbacks were eliminated to begin the fading procedure. From the 13th to the 17th days information given at the end of the day was decreased using a similar fading procedure as was carried out with Teacher A. The following week the original observer recorded data for a four day Probe.

## Instruments

Two observers were trained to observe and record teachers' attending behaviors. Teacher behavior was defined grossly as attending to appropriate child responses (category I) and attending to disruptive child responses (category II). Attending was defined as verbalizing (talking, singing) to a child, displaying facial gestures (smiling, eye contact responded to), and using physical contact (touching, patting).

Attending to appropriate responses was defined as giving attention to a child when he (1) is involved in an activity, (2) follows directions, (3) is involved in group play, (4) initiates adult interactions.

Attending to disruptive responses was defined as giving attention to a child when he (1) physically disturbs another, (2) verbally disturbs another, (3) abuses materials, and (4) does not follow directions.[3]

Behaviors were recorded in 10 second intervals. Data were figured on the bases of percentage of teachers' behaviors emitted during a day.

A third observer (trainer) was trained to observe and record behaviors in category I and to record occurrences of child responses which could have been attended to but which were not.

Reliability of observing was made by having two observers record behaviors simultaneously and aligning the two.[4] Four days of reliability were obtained on each teacher.

## "Norm" Teachers

During the training sessions for Teachers A and B two observers recorded behaviors of four teachers with advanced graduate training and several years of experience of working with groups of preschool children. These teachers had also participated in and directed behavior modification studies employing

reinforcement techniques. Teachers 1 and 2 taught in a university demonstration school with children from low income districts. These teachers were not informed in detail about the scale on which they were being observed. Teachers 3 and 4 taught in a university laboratory preschool composed of normal middle class children and several teaching assistants giving a low teacher/child ratio. They were familiar with the scale on which they were being observed. The data from these observations were viewed as near-maximum criteria by which to evaluate attending patterns of the subject teachers. Four days of data were obtained on each teacher in their normal preschool setting.

## RESULTS

In Figure 1, the average amount of time spent by Teacher A in attending to appropriate child responses was found to be 8% of each session over eight Baseline days.

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Insert Figure 1 about here
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Teacher B's attending behavior to appropriate child responses was slightly higher, with a baseline average of 14%.

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Insert Figure 2 about here
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Teacher A, having the lower rate of attending behavior to those child responses defined earlier as "appropriate," was selected as the teacher upon whom the training condition was to first be applied. Teacher B served initially during the Training phase as a control for trainer-teacher interaction.

### Teacher A

At the top of Figure 3 the total percent of time the teacher attended to or did not attend to appropriate child responses is plotted for 29 observation days (in two-day blocks except for Day 15) for Baseline, Training, and Probe conditions.

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Insert Figure 3 about here
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Figure 3 also shows a breakdown of four different child response categories for which teacher attention was observed. These categories are mutually exclusive and contribute to the top graph of total percent of time.

During Baseline Teacher A had an average rate of 2% attending to a child in an activity, 3% to child following directions, 1% to children in group play, and 3% to children's initiations. This made a total average of 8% of attending to appropriate child responses.

After seven days of Training (days 9-15, Training Phase I) Teacher A had an average of 8% attending to a child in an activity, 8% to child following

directions, 1% to children in group play, and 6% to children's initiations. This made a total of 23% of attending to appropriate child responses.

The next 10 days (days 16-25, Training Phase II) Teacher A had an average of 15% attending to a child in an activity, 11% to child following directions, 3% to children in group play, and 7% to children's initiations. Her total rate of attending to appropriate child responses for the 10 days averaged 37%. Her total rate of attending to appropriate child behavior for the entire Training period (17 days) was 30%.

Four days (days 26-29) of data were recorded by the Baseline observers for a Probe one week following the Training condition. During the Probe an average of 12% of attending to appropriate child responses was directed to a child in an activity, 13% to child following directions, 3% to group play, and 8% to children's initiations. Total attention given to appropriate child responses average 35% during the Probe.

During the Training condition the trainer was also recording occurrences of appropriate child responses which were not attended to. Figure 1 shows the decrease in occurrences of unattended appropriate child responses. An average of 21% unattended appropriate child responses was recorded during Training Phase I (days 9-15). During Training Phase II (days 16-25) there was an average of 10% unattended appropriate child responses.

Figure 4 shows the percent of attending to disruptive child responses as defined earlier for Teacher A during Baseline, Training, and Probe. On the abscissa are the days on which attention to disruptive child responses was recorded. Teacher B is plotted on the same figure.

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Insert Figure 4 about here

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During the eight days of Baseline (shown in two-day blocks on Figure 4) Teacher A averaged 9% attending to disruptive child responses.

On the days reliability checks were taken during Training, the baseline observers recorded attention to disruptive child responses. Teacher A showed an average of 5% attending to disruptive child responses for these four days. During the Probe the total attention to disruptive child responses increased slightly to an average of 11%.

The proportion of total attending time directed to attending to appropriate child responses for Teacher A is plotted in Figure 5 for Baseline, Training, and Probe conditions. Teacher B is plotted on the same figure.

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Insert Figure 5 about here

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Of the total time spent attending to appropriate and disruptive child responses during eight days of Baseline, Teacher A attended to appropriate child responses an average of 51% of that time. During Training attending to appropriate child responses rose to an average of 85% of the total attending time. During the final four days of Probe condition the average attending behavior of Teacher A to appropriate child responses decreased slightly to 76% but remained well above Baseline conditions. In Figure 4 one notes that

attending to disruptive child responses remained relatively unchanged during the entire study. The increase in attending behavior of Teacher A occurred in her attending to appropriate child responses, not in her attending to disruptive child responses.

Teacher B

At the top of Figure 6 the total percent of time that the teacher attended to or did not attend to appropriate child responses is plotted for 38 observation days (in two-day blocks) for Baseline, "Irrelevant Feedback", Training, and Probe conditions.

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Insert Figure 6 about here

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Figure 6 shows also a breakdown of four different child response categories where teacher attention was observed. The top graph represents the total of these four mutually exclusive sub-categories (as was represented in Figure 3 for Teacher A).

During Baseline Teacher B had an average rate of 14% of her time spent in attending to appropriate child responses. She displayed an average of 2% attending to a child in an activity, 3% to a child following directions, 0% to children in group play, and 8% to children's initiations.

Teacher B, during "Irrelevant Feedback" (days 9-18), had an average of 14% attending to appropriate child responses. This was no change at all from her baseline average.

When Training Phase I (days 19-26) was initiated with Teacher B, her average rate of attending appropriate child response rose to 19%. She had an average of 7% attending to a child in an activity, 4% to child following directions, 0% to children in group play, and 6% to children's initiations.

On days 27-34 (Training Phase II when feedback was given relevant to occurrences of unattended appropriate child responses) Teacher B had an average attending rate of 23%. An average of 13% was directed to a child in an activity, 3% to child following directions, 1% to group play, and 9% to children's initiations. Her total average of attending to appropriate child responses during both phases of Training was 21%.

Four days (days 35-38) of data were recorded by the baseline observer for a Probe following Training. During the Probe, Teacher B had an average of 25% attending to appropriate child responses: an average of 5% to a child in an activity, 8% to child following directions, 1% to group play, and 13% to children's initiations.

Occurrences of not attending to appropriate child responses were recorded during "Irrelevant Feedback" (days 9-18). Figure 2 shows an average attending rate of 31% during "Irrelevant Feedback", and a decrease to a 19% average after Training (Phase I) was introduced. During Training Phase II (days 26-34) the average rate of not attending to appropriate child responses continued to decrease to 12%. The total average for the entire Training period (days 19-34) was 16%.

In Figure 4 one observes similar rates of attending to disruptive child response for Teacher B as for Teacher A. During the eight days of Baseline (shown in two-day blocks) Teacher B had an average of 9% attending to disruptive child responses. On days 12 and 16 (during "Irrelevant Feedback") when reliability checks were taken, her rate of attention to disruptive child responses was 6% and 8% respectively. On days 24 and 31 during Training the rate of attention to disruptive child behaviors was 11% and 7% respectively. During the Probe (days 35-38) Teacher B had an average of 11% attending to disruptive child responses. Both teachers had comparable rates of attending to disruptive child responses and both teachers maintained fairly stable rates throughout the study.

Of the total attending time of Teacher B (attending to appropriate and disruptive child responses) an average of 61% of that time during Baseline was directed to attending to appropriate child responses, as shown in Figure 5. During "Irrelevant Feedback" the average proportion was 69%, during Training 64%. During the four days of Probe the average continued to increase to 72%. As was true for Teacher A, the increase in total attending time was in attending to appropriate child responses, not in attending to disruptive child responses.

Figure 7 shows the percentages of attending to appropriate child responses for four trained and experienced teachers and the two experimental teachers.

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Insert Figure 7 about here

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Four days of observations were made on the four "norm" teachers. The average percent of attending to appropriate child response for the "norm" teachers 1, 2, 3, and 4 was 49%, 43%, 39%, and 38% respectively. Figure 7 also shows Study Teachers A and B for comparison purposes with the "norm" teachers under Baseline and Probe conditions to show the effects of Training.

Figure 8 shows the percentage of attending to disruptive child responses

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Insert Figure 8 about here

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for the four "norm" teachers and the two experimental teachers. Teacher 1, 2, 3, and 4 show in general a lower percentage of attending to disruptive child responses than Teachers A and B. Teacher attending to disruptive child responses was not modified during this study for Teacher A and B, and the similar curves for Baseline and Probe conditions reflect no change in their behavior in this area. It should be noted that differences between the "norm" and study Teachers in attending to disruptive child responses is not necessarily due to the "type" of children in the classroom since two of the "norm" teachers had children of comparable economic backgrounds and ethnic characteristics.

## DISCUSSION

During the condition of "Irrelevant Feedback", Teacher B served as a control for Teacher A (who was undergoing training) and for herself when she subsequently was placed in the Training condition. The fact that Teacher B varied only slightly from her baseline rate of attending to appropriate child responses under "Irrelevant Feedback" conditions while Teacher A made sizeable increases under Training indicates that relevant feedback is effective in altering attending behavior. The fact that Teacher B made subsequent increases under Training conditions over Baseline and "Irrelevant Feedback" conditions also supports the conclusion of the effectiveness of the Training conditions. It appears that social interaction with the trainer by itself does not affect attending behavior. The Trainer was not presented as an evaluating person. However, the nature of the feedback in the "irrelevant Feedback" condition resulted in verbal responses and on occasion initiations from Teacher B. This social attention altered Teacher B's attending behavior very little, if any.

Teacher A made the most dramatic progress. Her rate of attending to appropriate behavior increased immediately when Phase I of Training was begun and when she was given reports every ten minutes. During this time she attended to appropriate child responses 2½ times above the baseline rate. When Phase II of Training was introduced she increased her attending to appropriate child responses to an average of 4 times above the baseline rate. Upon introduction of each phase of Training, Teacher A made immediate increases in her attending to appropriate child responses. One factor which no doubt helped to produce both increases and the pursuant levels of achievement was the display of Teacher A's behavior that could be labeled as exceedingly cooperative.

Under the Phase I of Training, Teacher B increased her rate of attending to appropriate child responses by one-third above her baseline rate. When Phase II of Training was introduced her attending to appropriate child responses increased to a rate which was two-thirds more than the baseline rate. The Trainer reported that upon receiving the written report at the end of the ten minutes Teacher B did not seem to use the information it contained at that time as she would put the note in her pocket or on her desk. Teacher B reported to the investigators that she had kept the notes until the end of the session and looked at the accumulated notes for the day at that time. She had been charting her own daily totals during the training.

It had been hoped that receiving the information immediately would have helped to sensitize the subject to the many occurrences of appropriate child responses. It is possible that reading them collectively at the end of the day may have had a limiting effect on her rate of increase in attending to appropriate child responses. It would appear that immediate feedback is more effective than delayed feedback and that were the study to be replicated again the condition of immediate attention to relevant feedback would be mandatory. However, in both instances the use of information regarding attended appropriate child responses and unattended appropriate child responses were more effective than only information regarding attended appropriate child responses.

The question arises as to whether Teachers A and B increased their total attending rate to both appropriate and disruptive child responses or whether their increase was only with the former. Results seem to indicate that attending behavior did not increase in all areas but only in the area of appropriate child responses--that behavior which was being experimentally modified. This

is based on the fact that neither A nor B increased proportionately in attending to disruptive child responses. And further, that Teacher A and B's attention to appropriate child responses increased as the rate of unattended appropriate child responses decreased during the period of training. It has been hoped that a delayed probe could have been made to further clarify the lasting effects of the training, but this proved to be impossible due to the termination of the school year.

The results indicated that both Teachers A and B increased in total attention to appropriate child responses, and further that there are some variations with respect to the sub-categories or areas where their attention increased. For example, Teacher A increased her attending behavior mostly in the category when children were engaging in an activity and also for a child following directions. Teacher B increased most in the former area. However, during Training and during Probe conditions some decrease was noted. This raises the question of the lasting effects of this change for this teacher. The investigators would like to have extended the training time for Teacher B, but due to the approaching end of the school year, it was decided there was not time to prolong Phase II of Training. As a result, fading procedures were introduced somewhat abruptly. Further examination shows that Teacher B made some gains in attending to a child's following of directions and to a child's initiation to her.

In both instances, the experimental teachers made virtually no change in attending to a child while he was participating in group play. This proved also to be true for the "norm" teachers. Discussion with the Observers and Trainer revealed that they considered this behavior to occur only when the teacher had spoken to a play group as a whole. If a teacher had commented to one child in that group it was recorded as attending to a child engaged in an activity. The investigators suspect that a different definition of attending to a child participating in a play group would have reflected a higher rate of attending by both "norm" and experimental teachers in this category.

This study presents evidence of a change in teacher's behavior under the procedures discussed. While the purpose of this study did not include a measurement of the children's responses, it might be expected from the use of reinforcement procedures, that an increase in child appropriate responses would occur. That is, when the child emits appropriate responses and there is an increase in the frequency for which this behavior is reinforced (increased teacher attention), then child appropriate responses also increase.

The frequency of total child appropriate responses during Training conditions for Teacher A and "Irrelevant Feedback" and Training conditions for Teacher B can be computed by summing both child appropriate responses attended to by the teacher and child appropriate responses unattended. Using this sum, the children in Teacher A's classroom did not show a noticeable increase in average output of appropriate responses during the Training condition. The children in Teacher B's classroom showed a slight decrease between the "Irrelevant Feedback" and Training conditions. This indicates that at least during Training the children did not increase in their rate of appropriate responses. No specific conclusions can be drawn, however, since this data was not available during Baseline conditions for both teachers so that a comparison can not be made between Baseline and Training phases of the study. The fact, however, that there was no increase in child appropriate responses during Training in either group raises an issue which warrants some consideration.

Several studies (Terrell, Durkin, and Wiesley, 1959; Zigler and de Labry, 1962) have noted that the lower class child learns most efficiently under a material class reinforcer while the middle class child functions more effectively under intangible reinforcement conditions. This has been further supported by a recent study carried out in the preschool of the Juniper Gardens Project in Kansas City, Kansas (Risley, 1967). Their findings indicate that there is minimal behavioral change for their preschool children (lower class) when social reinforcement by the teachers is made contingent upon the rate of specific behaviors they are trying to increase. Their most striking effects are obtained when the teacher's social reinforcement is paired with snacks and preschool materials (objects and puzzles normally found in preschool classrooms).

These studies indicate that social reinforcement in the form of teacher attention by itself may have minimal effects on lower class preschool children. It may also account for the lack of change in appropriate child behavior during the Training condition in this study. Further studies in the area of teacher training where the teacher's classrooms are composed of lower class children seems warranted. Perhaps teachers of this population need to be trained to not only increase their rate of attending to appropriate child responses but to utilize the materials existing in the classrooms as reinforcers for desired behavior.

The data show that a simple but consistent training procedure can be effective in modifying teacher behavior in attending to children. Modification was effected when feedback was relevant indicating that social attention by itself did not produce modification of teacher attending behavior. Furthermore there is evidence that relevant feedback consisting of information about both attended appropriate child responses and unattended appropriate child responses are more effective in training teachers than information about attended child responses by itself. Finally, there is evidence that the resultant modification represents increased activity in attending to appropriate child responses and does not reflect a higher rate of attending to all child responses in general.

There are, then, some implications for training teachers. First, this procedure could be used to sensitize teachers to the occurrence of many child responses and to train them to attend to it. This fact would suggest that it might also be used to train teachers to ignore specific responses. While the more specific parameters of such a procedure are not known, further investigation might serve to locate more efficient limits as well as essentials in using it. Secondly, it raises a question of the components of training. This study did not result in an increase of appropriate child responses and was not designed to focus on this aspect. If teachers were trained to discover effective reinforcers for each child as well as to use those reinforcers effectively, an increase of that behavior in every child in that classroom would more likely occur. If refinements and adaptations of this procedure should prove to be effective and efficient, it would seem that a useful means of training persons who work with children to become more discriminating and sensitive teachers could be developed.

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## FOOTNOTES

[1]The research reported herein was performed pursuant to a contract with the Office of Economic Opportunity, Executive Office of the President, Washington, D.C. 20506. The opinions expressed herein are those of the author and should not be construed as representing the opinions or policy of any agency of the United States Government.

[2]We wish to express our thanks to Miss Norma Bush and her teachers for their cooperation during the course of the study. Special appreciation is expressed also to Dr. Barbara Etzel and Dr. Donald Baer of the Department of Human Development at the University of Kansas for their consultation during the study. And finally our thanks to Wallis Henning, Bonnie Flemming, and Shirley Gerstenberger for assisting as observers

## [3] DETAILED DEFINITIONS OF CATEGORIES I & II

ATTENTION: 1) verbalizing (talking, singing) to a child.
2) displaying facial gestures (smiling, eye contact responded to by the child as an indication of his recognition of her attention)
3) using physical contact (touching, patting, giving help).

CATEGORY I: Adult attending to appropriate responses

1. Giving attention to an individual child when he is in an activity which is ongoing or completed:
   - Ongoing--(Ex.) Teacher comments "What a big house you're building."
   - Completed--after child has completed a picture or puzzle the teacher says, "Fine, you did that all by yourself."
   - Can be a question to child about what he is doing with no response by child.

2. Giving attention to a child when he follows the teacher's directions:
   - Follows teacher's request--to pick up toys, wash hands, rest quietly, etc.
   - Answers teacher's question.

3. Giving attention to a child when he is involved with other children:
   - Playing cooperatively with another child(ren)
   - Sharing materials
   - Following rules of an activity involving other children.

4. Giving attention to a child who directly solicits teacher attention by:
   - Follows teacher around
   - Sits beside her
   - Asks for help
   - Asks questions--begins conversation
   - Asks for teacher time
   - Child is injured but not crying
   - Non-verbal request for physical assistance--extending a foot with shoelace untied or handing her a piece of clothing or equipment.

CATEGORY II: Adult attending to disruptive responses

1. Giving attention to a child when he physically disturbs another:
   - . Hitting
   - . Fighting
   - . Crying

2. Giving attention to a child when he verbally disturbs another:
   - . Arguing
   - . Teasing
   - . Responding incorrectly to a question
   - . Swearing or using socially unapproved language

3. Giving attention to a child when he abuses materials:
   - . Throwing blocks
   - . Climbing shelves
   - . Using materials in an incorrect (to the teacher) manner
   - . Running or jumping on equipment not designed for such activity

4. Giving attention to a child when he does not follow teacher's direction.

[4]The formula used for calculating percentage observer agreement was: /# agreements / (# agreements + # disagreements)/ X 100. An agreement was defined as the simultaneous recording of a response by both Observers either in the same interval or adjacent intervals. Otherwise, a disagreement was scored. The percent agreement for Teacher A during Baseline was 92% and during Training 87%, 90%, 73%, 84%. The percent agreement for Teacher B during "Irrelevant Feedback" was 95% and 89%, during Training 76% and 93%.

Figure 1. Behavior curves are graphed under three experimental phases specified above the chart for Teacher A whose attending behavior was being modified. Occurrences of unattended appropriate child responses are graphed under Training phases. The Training phase is broken at the point where the teacher received feedback relevant to occurrences of unattended responses.

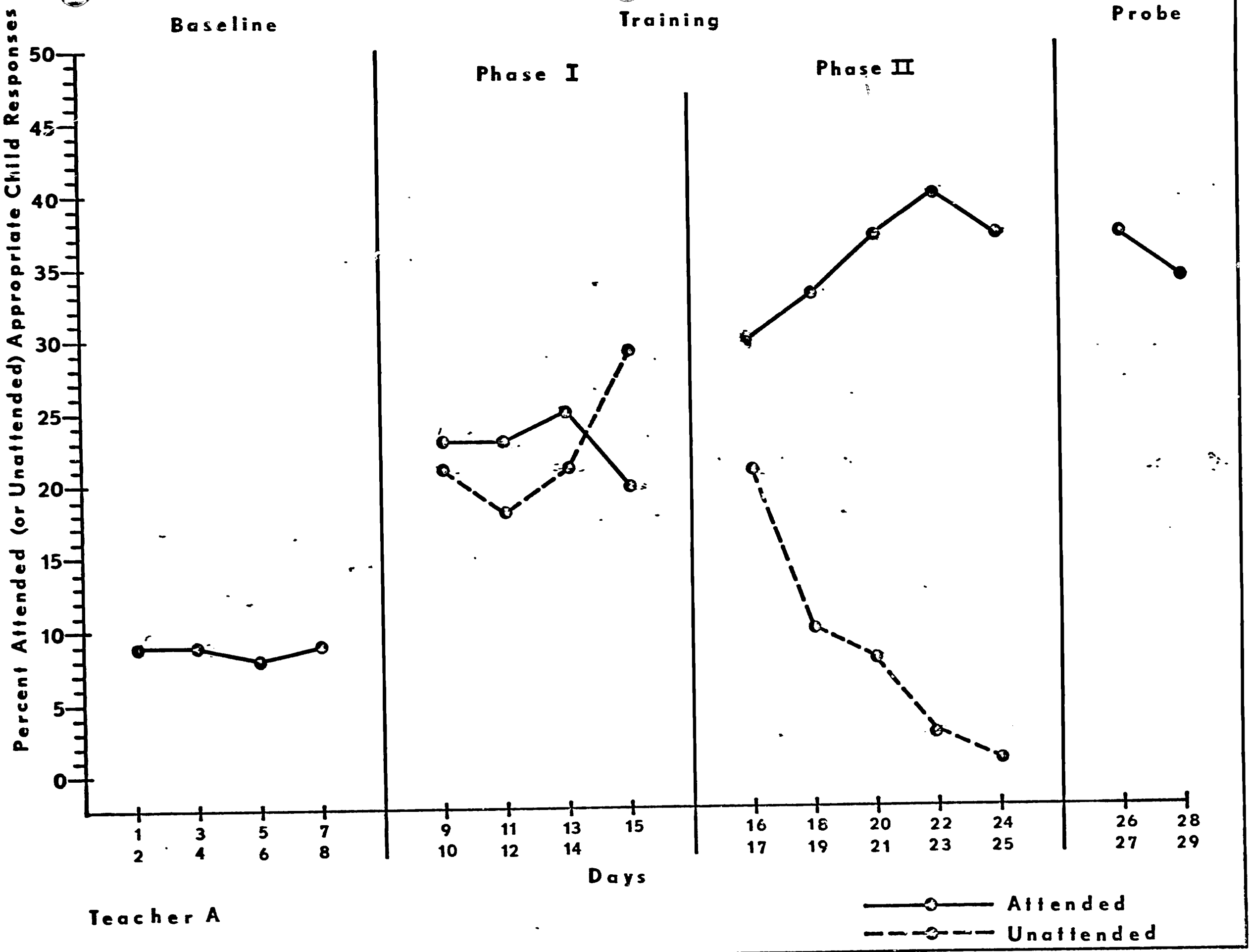
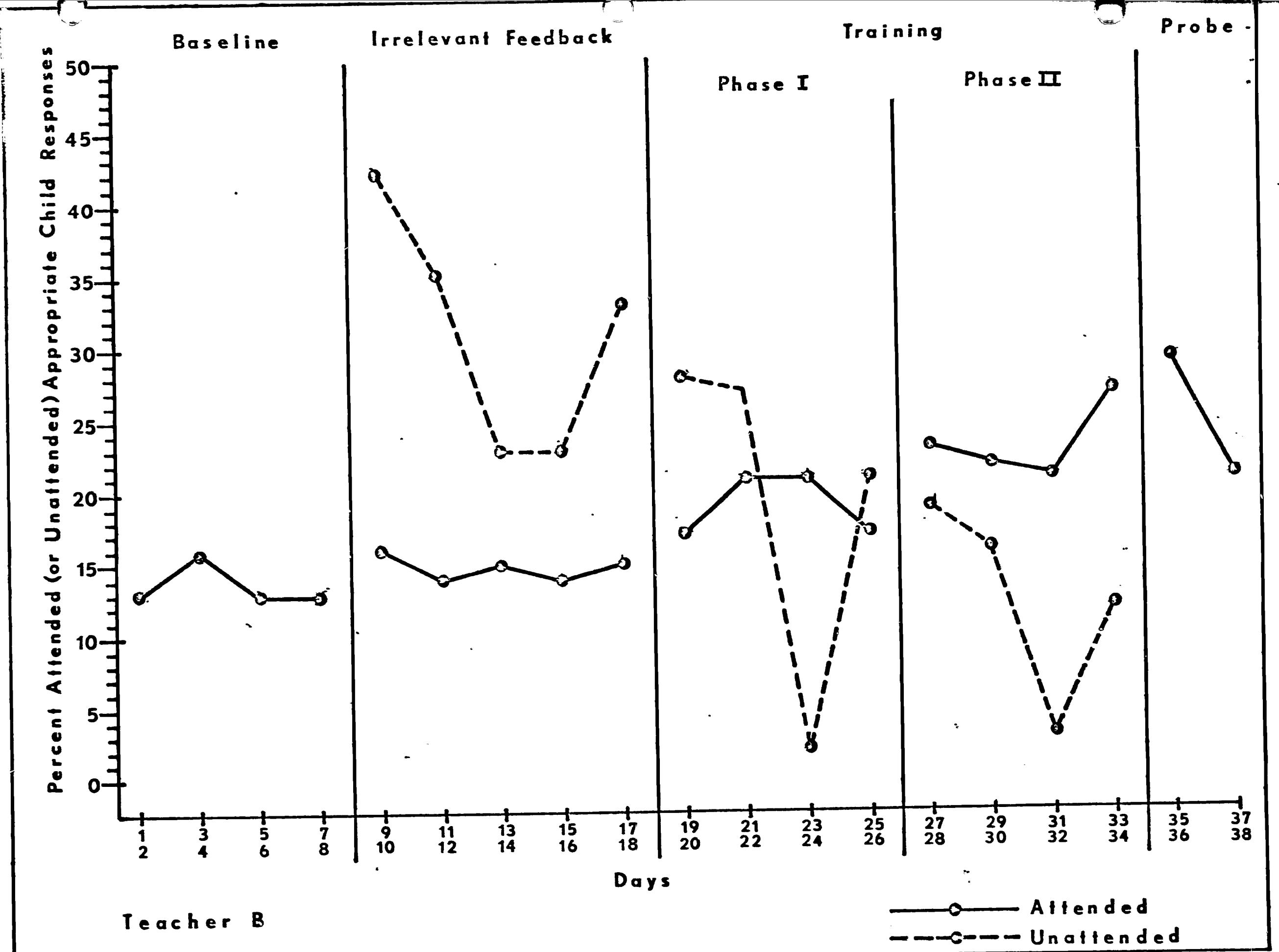

Baseline
Training
Probe
Phase I
Phase II
Percent Attended (or Unattended) Appropriate Child Responses
50
45
40
35
30
25
20
15
10
5
0
1 2
3 4
5 6
7 8
9 10
11 12
13 14
15
16 17
18 19
20 21
22 23
24 25
26 27
28 29
Days
Teacher A
Attended
Unattended

Figure 2. Attending to appropriate child response curves are graphed under four experimental phases specified above the chart for Teacher B whose attending behavior was being modified. Occurrences of unattended appropriate responses are graphed under phases of "Irrelevant Feedback" and Training. The Training condition is broken at the point where the teacher received feedback relevant to occurrences of unattended responses.




Teacher B

Figure 3. Four concurrent response (and the total) curves are graphed under the three experimental phases specified above the chart for Teacher A. Occurrences of unattended appropriate responses are graphed under the Training condition (Phase I and II).

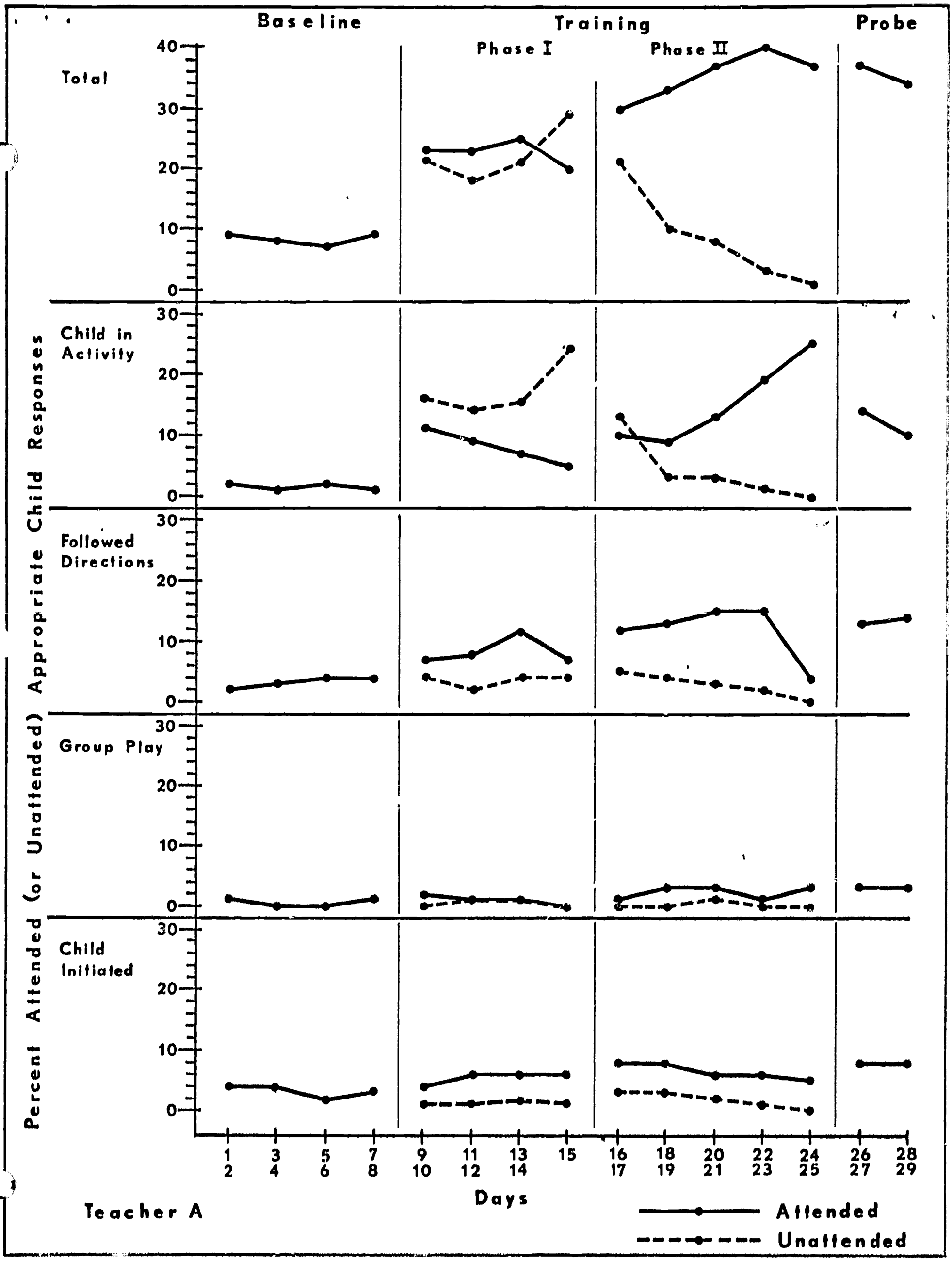

Baseline
Training
Probe
Phase I
Phase II
Total
Child in Activity
Followed Directions
Group Play
Child Initiated
Percent Attended (or Unattended) Appropriate Child Responses
0
10
20
30
40
1 2
3 4
5 6
7 8
9 10
11 12
13 14
15
16 17
18 19
20 21
22 23
24 25
26 27
28 29
Days
Teacher A
Attended
Unattended

Figure 4. Behavior curves of attending to disruptive child responses are graphed under three and four experimental conditions as specified above the chart for Teacher A and B respectively. Baseline and Probe points represent two-day blocks for both teachers. Other points represent single observation days for both teachers.

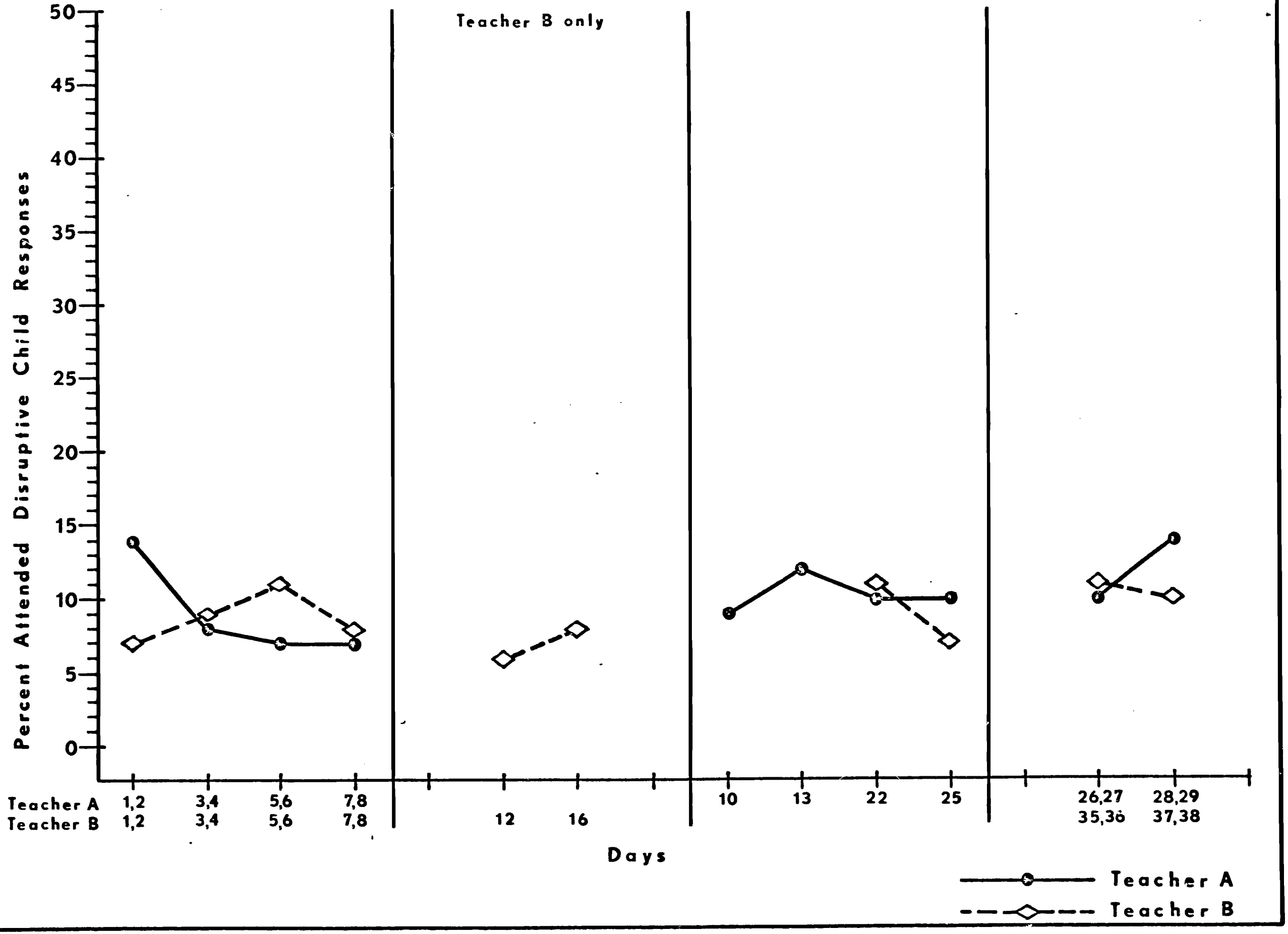

Baseline
Irrelevant Feedback
Teacher B only
Training
Probe
Percent Attended Disruptive Child Responses
50
45
40
35
30
25
20
15
10
5
0
Teacher A 1,2 3,4 5,6 7,8 12 16 10 13 22 25 26,27 28,29
Teacher B 1,2 3,4 5,6 7,8 35,36 37,38
Days
Teacher A
Teacher B

Figure 5. Attending to appropriate child response curves are graphed under the three and four experimental conditions specified above the chart for Teachers A and B respectively. The percentage is based on the total attention directed to both appropriate and disruptive child responses. Baseline for both Teachers is graphed in two-day blocks. Other points represent single observation days.

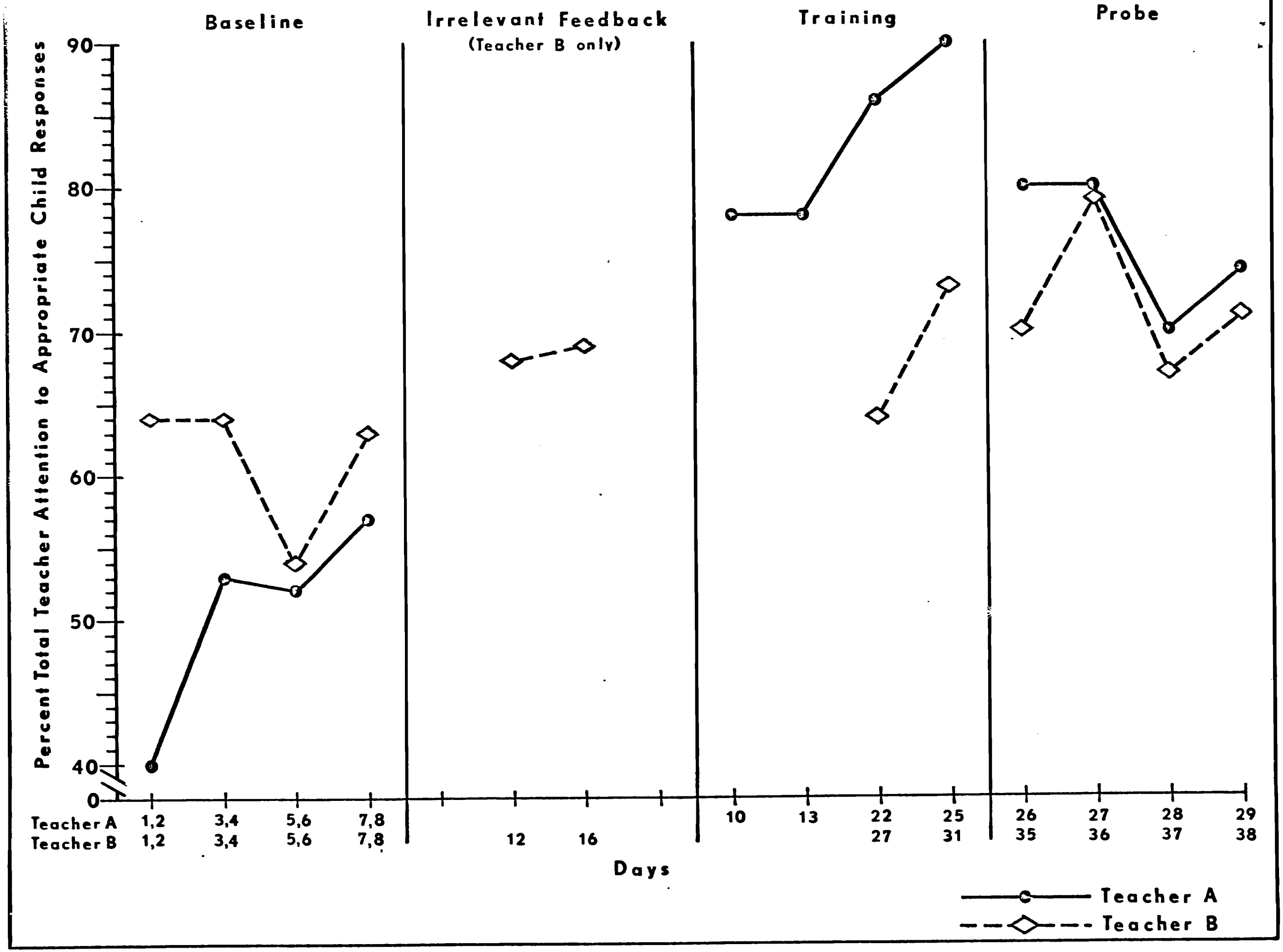

Baseline
Irrelevant Feedback
(Teacher B only)
Training
Probe
Percent Total Teacher Attention to Appropriate Child Responses
90
80
70
60
50
40
0
Teacher A 1,2 3,4 5,6 7,8 10 13 22 25 26 27 28 29
Teacher B 1,2 3,4 5,6 7,8 12 16 27 31 35 36 37 38
Days
Teacher A
Teacher B

Figure 6. Four concurrent response (and the total) curves are graphed under the four experimental phases specified above the chart for Teacher B. Occurrences of unattended appropriate child responses are graphed under the Training condition (Phase I, II).

Baseline

Irrelevant Feedback

Training

Phase I

Phase II

Probe

Percent Attended (or Unattended) Appropriate Child Responses

Total

Child in Activity

Followed Directions

Group Play

Child Initiated

Days

Teacher B

Attended

Unattended

Figure 7. Four concurrent response (and the total) curves are graphed for the four normative teachers and two experimental teachers. Curves for Teachers A and B represent Baseline and Probe experimental phases. Baseline curves are graphed by two-day blocks for Teachers A and B. All other points are single observation days.

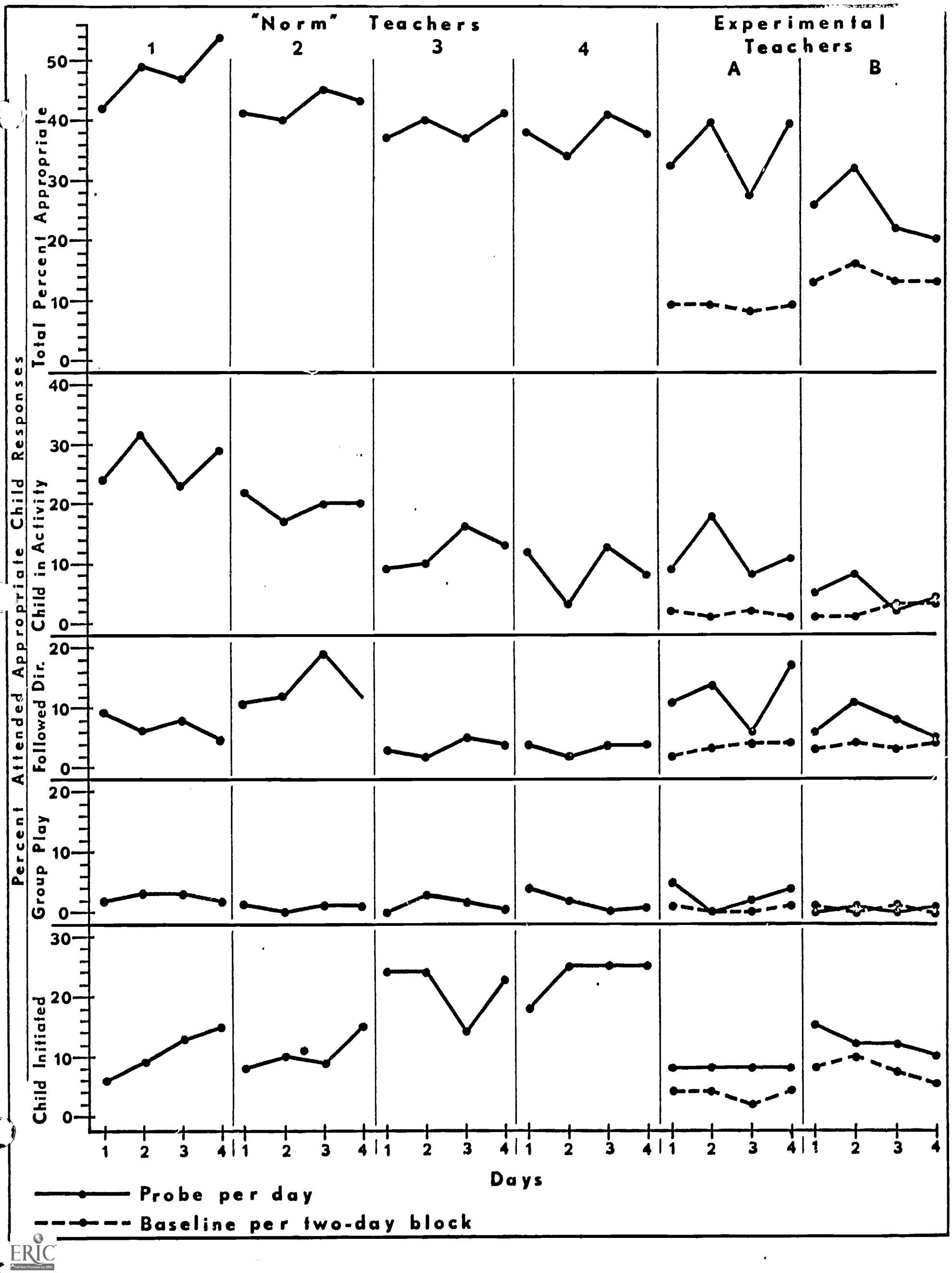
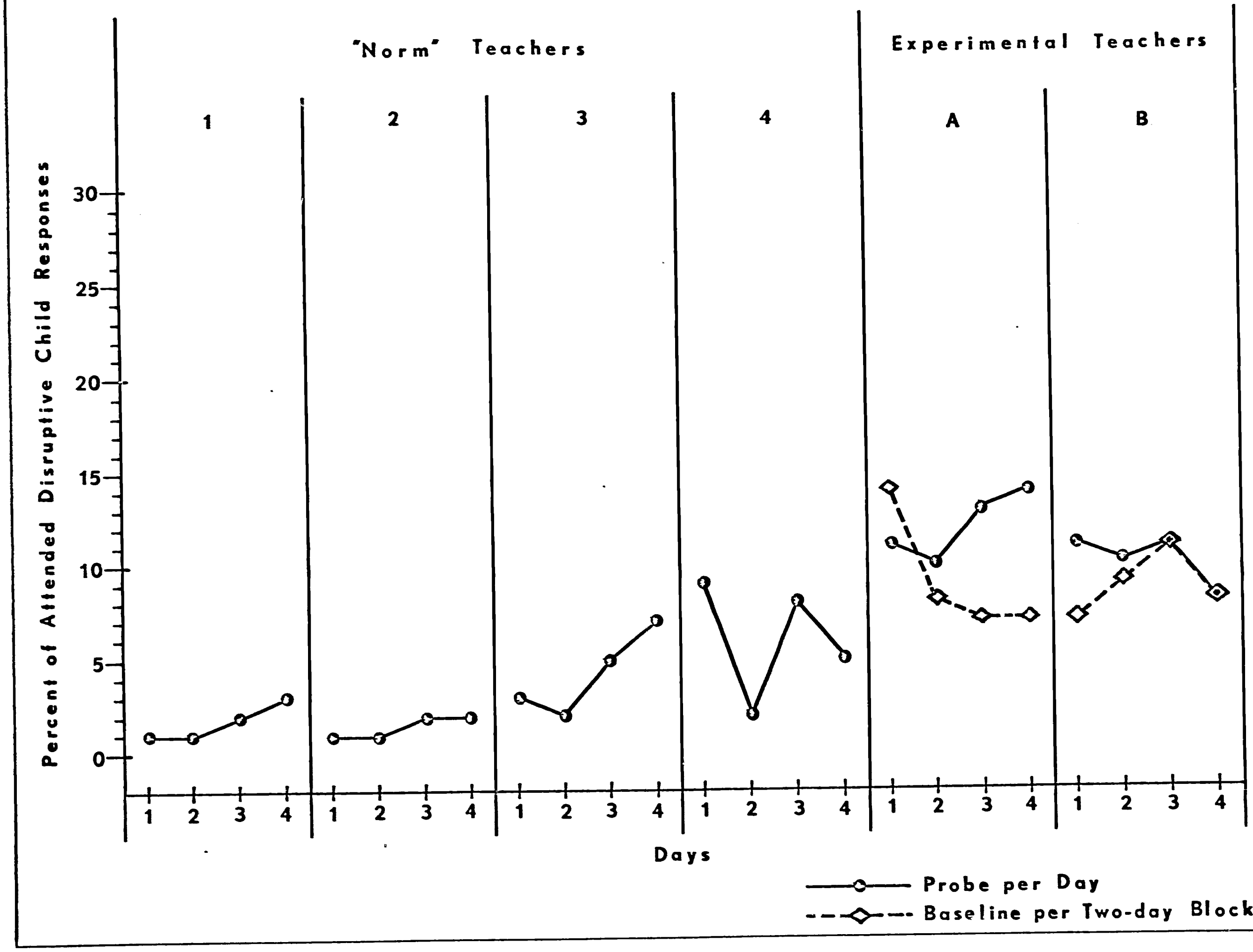

"Norm" Teachers
1
2
3
4
Experimental Teachers
A
B
Percent Attended Appropriate Child Responses
Total Percent Appropriate
Child in Activity
Followed Dir.
Group Play
Child Initiated
Days
Probe per day
Baseline per two-day block

Figure 8. Behavior curves of attending to disruptive child responses are graphed for four normative teachers and two experimental teachers. Curves for Teachers A and B represent Baseline and Probe experimental phases. Baseline curves are graphed by two-day blocks for Teachers A and B. All other points are single observation days.


"Norm" Teachers
Experimental Teachers
1
2
3
4
A
B
Percent of Attended Disruptive Child Responses
30
25
20
15
10
5
0
1 2 3 4
Days
Probe per Day
Baseline per Two-day Block