DOCUMENT RESUME

ED 040 974 24 SP 004 094

AUTHOR Cormier, William H.
TITLE Effects of Approving Teaching Behaviors on Classroom Behaviors of Disadvantaged Adolescents. Final Report.
INSTITUTION Tennessee Univ., Knoxville.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO BR-9-D-017
PUB DATE Mar 70
GRANT OEG-4-9-520017-0029-057
NOTE 115p.

EDRS PRICE EDRS Price MF-$0.50 HC-$5.85
DESCRIPTORS Adolescents, Behavior Change, *Class Management, *Disadvantaged Youth, Economically Disadvantaged, *Positive Reinforcement, Secondary School Students, *Social Reinforcement, *Student Behavior, Student Teacher Relationship

ABSTRACT

The aim of this study was to determine the effect of social reinforcement by the teacher on the classroom behavior of economically disadvantaged adolescents. The study also investigated the length of time necessary to demonstrate marked changes in behavior and the effect of social reinforcement on non-target class members. Subjects were six eighth-grade classes. Three students in each class were identified by the teacher as disruptive (target students) and were the object of social reinforcement techniques. Teacher and student behavior was observed and recorded during a baseline period of several weeks, and then teachers were instructed in the principles of social reinforcement. Further observations were made during a random sequence of varied-length control and experimental conditions. Analysis of student behavior revealed a significant change in the behavior of both target and non-target students during experimental conditions. There was also a significant difference between short and long time periods. It is concluded that social reinforcemend can improve the classroom behavior of economically disadvantaged adolescents. Further research is recommended with middle class adolescents. (Forty pages of data tables are appended.) (RT)

Final Report

Project No. 9-D-017

Grant No. OEG-4-9-520017-0029-057

EFFECTS OF APPROVING TEACHING BEHAVIORS ON CLASSROOM BEHAVIORS OF DISADVANTAGED ADOLESCENTS

William H. Cormier
Project Director

Department of
Educational Psychology & Guidance
The University of Tennessee
Knoxville, Tennessee

March 1970

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

PREFACE

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare (OEG -4-9-520017-0029-057) to The University of Tennessee, Department of Educational Psychology and Guidance. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

ACKNOWLEDGMENTS

We express our appreciation for the administrative support of this project from the Knoxville City Schools. We thank the teachers who participated in this project for their cooperation in applying procedures which at times made their teaching difficult. We are especially grateful to the students who made this research possible and to the team of observers who collected the data. A special debt is owed to Miss Mariana Davis who coordinated and supervised the collection of the data. We are also indebted to Mr. D. M. Miller, Principal of Rule Junior-Senior High School, without whose cooperation, participation, and supportive counsel this study would not have been possible. Special tribute is due to the late Dr. Travis L. Hawk who provided the inspiration for the evolution of this project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

FIGURE PAGE

CHAPTER I

INTRODUCTION

The most widely advocated and practiced teaching methods are based either on philosophical tradition or the personal needs of teachers (Wallen and Travers, 1963). These methods or paradigms have generated many explanations about teaching strategy which are unassailable from the standpoint of logic but which elude practical application. The recommended teaching strategies are generally discussed in rather vague terms, for example mediating processes and perception (Prescott, 1957; Snygg and Combs, 1949; Ausubel, 1968), group dynamics (Bradford, 1958), Adlerian approaches (Dreikurs, 1959), and "teacher-centered" or "learner-centered teaching" (Flanders, 1951; McKeachie, 1954). These strategies have not provided many precise statements related to the functional relationships between teacher and pupil behavior.

There is evidence that a field-experimental method might provide a new "vision" of classroom behavior. The field-experimental method (functional analysis) uses an ecological approach which focuses on understanding the functional relationships of observable behavior (Baer, Wolf, and Risley, 1968; Bijou, Peterson, and Ault, 1968; Bijou, Peterson, Harris, Allen, and Johnston, 1969). The functional analysis of behavior seeks to identify the determinants of behavior in the natural setting and then attempts to bring the determinants under experimental control. Functional analysis may focus on a single subject design (individual descriptive) as recommended by Bijou et al. (1969), and Sidman (1960) or the group design (group comparative) used by Bandura and Walters (1963). In either case data on the subject(s) are collected under differential conditions (usually baseline, treatment, reversal, and reinstatement of treatment) in order to evaluate the functional relationship between the manipulated conditions and changes in behavior. Analysis of the data may be made statistically, or by graphic plots or discrete curves.

There are two major advantages that educational research may derive by employing the functional analysis paradigm. First, the quest for functional relationships cuts across the conventional educational taxomony which classifies research as status studies, associational studies, and comparative experimentation (Campbell and Stanley, 1963). The functional analysis paradigm represents a continuum emerging from the basic research, and extending through the applied and field studies, to dissemination of results (Schutz, 1968). The second advantage is that functional analysis offers parsimonious explanations and interpretations. The difficulty and necessity of making translations from technical and statistical jargon is eliminated. This approach translates the results into specific usable suggestions which enables the teacher to become a frequent consumer of research.

Problem

The major purposes of the current investigation are based on the rationale that a crucial factor in classroom learning prevails in the functional relationship between a teacher and his pupils. Within the last few years, the functional analysis of classroom behavior has demonstrated that the pre-school and primary teacher can create a more effective classroom for learning by applying social reinforcement. The application of social reinforcement by the teacher to modify the classroom behavior of adolescents has not been investigated systematically. The primary aim of this investigation was to study the effects of teacher contingent and non-contingent (random) social reinforcement (praise and/or attention) on the classroom behavior of economically disadvantaged adolescents. Other purposes of the study were to explore the length of time necessary to demonstrate marked changes in behavior, and to ascertain the relationship between contingent social reinforcement on the non-target members of the classroom. A brief glimpse at the self-concepts and attitudes of students participating in the study was also examined.

Hypotheses

The major hypotheses of this study are:

Hypothesis 1. The EBSs of relevant behavior for the experimental conditions (contingent and non-contingent) will exceed the EBSs for the control conditions.

Hypothesis 2. The effects of long periods of contingent praise and/or attention will yield greater EBSs for relevant behavior than for short periods.

Hypothesis 3. The effects of contingent praise will yield greater EBSs of relevant classroom behavior than under non-contingent conditions.

The above hypotheses generate six interactional hypotheses:

Hypothesis 4. Non-contingent long (NCL) conditions will have greater EBSs of relevant behavior than during non-contingent short periods (NCS).

Hypothesis 5. Non-contingent long (NCL) conditions will have greater EBSs of relevant behavior than during short contingent conditions (CTS).

Hypothesis 6. The EBSs of relevant behavior will be greater for contingent long (CTS) periods than for non-contingent long conditions (NCL).

Hypothesis 7. Relevant EBSs will be greater under contingent long (CTL) than under non-contingent short (NCS) conditions.

Hypothesis 8. Relevant EBSs will be greater for contingent long periods (CTL) than for contingent short periods (CTS).

Hypothesis 9. EBSs will be greater for contingent short (CTS) than for non-contingent short (NCS).

The nature of all effects stated in the above nine hypotheses will be meaningful if achieved at .05 level of significance.

Importance of Study

There are two important features of this investigation. First, teaching may be viewed as an attempt to arrange environmental events (contingency management) in the classroom in order to maximize changes in pupil behavior which are coherent with specified goals or objectives. An example of an environmental event may be teacher praise as a consequence of appropriate student behavior. However, there are a couple of prerequisites that a teacher must possess in order to arrange successfully the environmental events that will facilitate behavioral changes in the classroom. He must be able to evaluate the differential effects that his behavior has on the behavior of his students, and lastly, he must be able to modify and control his own behavior. If a teacher can learn to apply behavior management techniques consistently, age and personality characteristics should not be significant variables. Also if a teacher can learn to use these techniques consistently by reading a programmed book and a set of instructions, this study has significance for pre- and in-service training of teachers in classroom management techniques.

The second major focus of this study is to evaluate the effects of two classroom management techniques (contingent and non-contingent social reinforcement) on the relevant behavior of adolescents. "School failures" have been frequently attributed to such causes as: lack of interest or motivation, poor home situation, low intelligence, and economic or cultural deprivation. Recent studies in the elementary classroom suggest that a great number of school failures can be avoided by creating a more effective pupil-teacher relationship for learning through the systematic use of positive social reinforcement. One feature of this investigation is that no attempt has been made to study systematically the effects of teacher positive social reinforcement on the classroom behavior of economically disadvantaged adolescents. If social reinforcement increases the frequency of relevant behavior, it would provide management techniques that would facilitate learning for disadvantaged adolescents. Another important aspect of the study is to

assess the effects of non-contingent social reinforcement. If the application of non-contingent social reinforcement is effective in increasing relevant classroom behavior, it would increase the teacher's efficiency by providing him with an easily administered technique that could be used in overcrowded classes. Also, the length of time needed to administer social reinforcement in order to demonstrate significant changes in relevant behavior of adolescents is another important aspect of this study.

Definition of Terms

The following definitions are further developed in the method chapter of this report.

Contingent praise and/or attention: Teacher praise and/or attention administered when a target adolescent is doing one of the relevant behaviors (see below).

Non-contingent praise: Teacher praise presented at random time intervals during a class period. Administered without regard to the behavior that occurred immediately before praise was delivered.

Relevant behavior: S responds: (1) verbally to the teacher's question (directed to him or to the class in general, or to an appropriate recitation; (2) by raising hand in order to recite; (3) to written classroom assignments; and (4) to assigned classroom reading.

Inappropriate behavior: Gross motor behaviors, disruptive noise with object(s), orienting responses (head turning), talking or vocal noise, and any other behavior that might be disruptive or incompatible with relevant or appropriate classroom behaviors.

Appropriate behavior: A neutral category, S appears to be oriented or attending to class activity; was rated only if did not fit one of the relevant or inappropriate categories.

Reversal: The third sequence of events occurring in an ABAB paradigm. For example, data is collected in the following sequence: baseline (A), treatment (B), treatment is withdrawn briefly and the experimenter attempts to restore the conditions that existed during baseline (reversal A), reinstatement of treatment (B).

Control periods: During the control periods teachers were instructed to reinstate the baseline conditions. The frequency of the categories rated during the baseline condition was shown individually to each teacher. If baseline and one treatment condition preceded a control period, it may be considered a reversal.

Target S: Each teacher participating in the study identified three target adolescents in his class as being either disruptive or not motivated to do the assigned work.

Non-target S: All other members of a class.

Limitations

The study was developmental and therefore limited to one school in Knoxville, Tennessee, in which over 50 per cent of the student population came from families with a median income of less than $3,000. The selection of the sample and the use of only one school in the study may restrict the generalizability of the findings. Also, it is possible that the number of experimental conditions (6) confounded the effects of non-contingent praise. The effects of non-contingent as a single independent variable may yield only moderate increases in relevant behaviors.

Another possible limitation of the study was the assumption that junior-high school teachers would have approximately the same reinforcing potential with adolescents that was demonstrated in other studies by elementary school teachers (see Review of Literature).

Organization of the Remainder of the Report

A review of the literature related to this investigation is presented in Chapter II. The subjects, setting, and procedures used in the study are presented in Chapter III. The results are presented and discussed in Chapter IV. A summary of the study, conclusions, and recommendations for future studies are included in Chapter V.

CHAPTER II

REVIEW OF LITERATURE

This chapter presents a review of the research using behavior modification in natural settings. The review includes five areas of research: A. Behavior Modification of Adolescents; B. Social Reinforcement Applied to Classroom Behavior; C. Non-Contingent Social Reinforcement; D. Time Required to Produce Behavioral Change; and E. Effects of Social Reinforcement on Non-Target Pupils.

A. Behavior Modification of Adolescents

Most investigations that have used the principles of reinforcement to modify adolescent behavior have been conducted either in predominately institutionalized settings or with rather specialized populations. Phillips (1968) has demonstrated effective results using a token economy (points negotiable for privilege(s)) to modify aggressive verbal behavior, bathroom cleanliness, punctuality, homework, and poor grammar in a home-styled rehabilitation setting for pre-delinquent boys. Other investigators have used tokens to increase reading of a culturally-deprived juvenile delinquent (Staats and Butterfield, 1965) and for treating reading deficits of several emotionally disturbed, retarded, and culturally deprived adolescents (Staats, Minke, Goodwin, and Landeen, 1967). Tokens or money have also been used to modify academic behavior in a basic education program for school dropouts (Clark, Lachowicz, and Wolf, 1968) and to increase appropriate (task relevant) classroom behavior of institutionalized female offenders (Meichenbaum, Bowers, and Ross, 1968). Food, cigarettes, and small change have been used to induce attendance at work in adolescent delinquent boys (Schwitzgebel and Kolb, 1964). A striking demonstration of the Premackian principle[1] was used in a junior high disabilities classroom in which high probability behavior (activities chosen, i.e., handicrafts, typing, woodworking, organized games, or science units) provided a source of consequences for manipulating and accelerating a variety of low probability academic behaviors (Nolen, Kunzelmann, and Haring, 1967). Finally, Burchard and Tyler (1965) used positive social reinforcement to eliminate anti-social behavior of a 13-year-old boy. Although the above studies demonstrate the efficacy of applying the principles of reinforcement to modify adolescent behavior, no attempt has been made to study systematically the effects of teacher contingent praise and/or attention on the classroom behavior of economically disadvantaged adolescents. However, several studies have shown that the teacher has been quite an effective source of positive social reinforcement for modifying pre-school and elementary classroom behaviors.

---

[1] A high probability response is used to reinforce a low probability response.

B. Social Reinforcement Applied to Classroom Behavior

A number of studies have used social reinforcement to alter a variety of classroom behaviors such as hyperactivity (Allen, Henke, Harris, Baer, and Reynolds, 1967; Patterson, 1966), isolate play (Allen, Hart, Buell, Harris, and Wolf, 1964), excessive crying (Hart, Allen, Buell, Harris, and Wolf, 1964), excessive passivity (Johnston, Kelley, Harris, and Wolf, 1966), regressive behavior (Scott, Burton, Yarrow, 1967; Brown and Elliot, 1965), and disruptive behaviors (Ward and Barker, 1968). Positive social reinforcement has been used successfully by teachers to reduce disruptive behavior in special education classrooms (Zimmerman and Zimmerman, 1962; Becker, Madsen, Arnold, and Thomas, 1967). These studies illustrate that pre-school and primary teachers can function as effective sources of reinforcement for specific kinds of classroom behavior.

Other investigators have studied the effects of elementary classroom behavior of children on relevant classroom behavior by systematically varying teacher behaviors. Madsen, Becker, Thomas, Koser, and Plager (1968) showed that an increase in "sit down" commands by the teacher was correlated with increased standing. Only praising sitting down and ignoring standing up behavior seemed to increase sitting. Another study demonstrated that teacher approval (praise, smiles, contacts, etc.) served as a positive reinforcing function in maintaining appropriate[2] classroom behaviors (Thomas, Becker, and Armstrong, 1968). Also, disruptive behaviors increased each time approving teacher behavior was withdrawn and when the frequency of teacher disapproval was tripled. In an earlier study, Becker, Madsen, Arnold, and Thomas (1967) asked teachers to: (1) make explicit rules as to what was to be expected of children for each period; (2) ignore (not attend to) behaviors which interfered with learning or teaching unless a child was being hurt, and also, to use punishment when appropriate by withdrawal of some positive reinforcement; and (3) give praise or attention to behaviors that were appropriate and facilitated learning. The results of this study indicated a marked increase in appropriate behavior but inasmuch as the rules, praise, and ignoring disruptions were not systematically executed by the teachers it is impossible to formulate functional relationships from these data. In a later study, Madsen, Becker, and Thomas (1968) refined the procedures and reported that rules alone exerted little effect, but ignoring disruptions and showing approval for appropriate behavior in combination were very effective in achieving classroom control. Hall, Lund, and Jackson (1968a) reported that attention to study and the ignoring of non-study behaviors is an effective means of facilitating study behavior. In modifying the

---

[2]Appropriate behaviors: time on task; answers questions, listens, raises hand, works on assignment, and must include whole 10-second interval except for turning around responses of less than 4-seconds duration (Becker, Madsen, Arnold, and Thomas, 1967; Madsen, Becker, and Thomas, 1968).

appropriate behavior of an economically disadvantaged kindergarten boy, Sibley, Abbott, and Cooper (1969) obtained results similar to the above studies. These Es used the additional technique of contingent isolation upon unacceptable behavior. Finally, results are reported for beginning teachers using teacher attention, length of time between period break and a classroom game to increase study rates and concomitantly reduce disruptive behaviors (Hall, Panyan, Rabon, and Broden, 1968b).

Such findings indicate that approving appropriate and ignoring disruptive classroom behaviors can exert a great deal of influence over pre-school and elementary classroom learning and motivation. The functional importance of the teacher's behavior is also apparent from the above findings and illustrates the need for classroom management techniques which have not been investigated or demonstrated with economically disadvantaged adolescents.

C. Non-Contingent Social Reinforcement

The few studies that have used non-contingent reinforcement in the natural setting have not been effective in altering (increasing) the desired behavior (Bushell, Wrobel, and Michaelis, 1968; Hart, Reynolds, Baer, Brawley, and Harris, 1968; Ayllon and Azrin, 1965). However, there is evidence to suggest that non-contingent (random) social reinforcement may increase appropriate classroom behavior.

The functional analysis paradigm describes a man's behavior in his normal ecology. One of the basic tenets of this paradigm is that the customary behaviors of an individual occur as a result of environmental consequences of that behavior. The basic process which produces the development and elaboration of specific behaviors is discrimination. The process of discrimination is a result of two different procedures applied to the same behavior, but in a different stimulus settings.

Research in the classroom setting has showed that desired behavior was strengthened by a teacher using social reinforcement; while in another setting the teacher's behavior weakened the desired classroom behavior (see above). It is possible that the teacher can function as a discriminative cue for either disruptive or relevant classroom behaviors. The process by which a teacher acquires either positive or negative discriminative cue properties may be a result of several factors. As previously noted, if a teacher's percentage[3] of negative social behavior (attention to disruptive behaviors) is greater than (approximately 8:2) positive social behavior (praise and/or attention),

[3] The percentage of 10-second time intervals in which the behavior occurred.

the percentage of relevant classroom behavior was relatively low (15 to 35 per cent) in comparison with the high occurrence of disruptive classroom behaviors (60 to 82 per cent) (Hall et al., 1968a; Ward and Baker, 1968; Madsen et al., 1968). In these settings the teachers might be described as possessing negative discriminative cue properties. Furthermore, these studies showed that a teacher might have acquired positive discriminative cue properties during the treatment phases when attention to relevant behavior was increased (from approximately 20 per cent to 70 per cent) and attention to disruptive behavior decreased (from 80 per cent to 30 per cent).

Other factors that might enhance a teacher's discriminative cue properties are the temporal contiquity and frequency in which social reinforcement is administered. A great number of studies using a single S design have increased (approximately 30 per cent to 40 per cent) the teacher's frequency of praise and/or attention for a selected number of target children (i.e., Hall et al., 1968b; Ward and Baker, 1968). In these studies social reinforcement was administered contingently, in temporal proximity to relevant classroom behaviors. Conceivably from the student's point of view, the teacher that frequently administered contingent praise and/or attention would represent a very positive discriminative cue.

Finally, another factor which might increase the teacher's potential for acquiring positive discriminative cue properties is the previous experience that students have had in receiving some praise or attention for relevant or appropriate classroom behavior. Studies have reported that during baseline conditions teachers administer some (10 per cent to 20 per cent) praise or attention contingently to single Ss (Hall et al., 1968b; Ward and Baker, 1968; Madsen et al., 1968). If a student has received some contingent classroom praise or attention during his school experience, it is quite probable that most teachers could have a potential for acquiring positive discriminative cue properties under conditions in which praise or attention is administered non-contingently.

The effects of non-contingent (random) approval perhaps would not be as effective as contingent praise or attention in elevating relevant classroom behaviors. However, if the application of non-contingent praise or attention is effective, it would increase the teacher's efficiency by providing him with an easily administered technique that could be used in poverty areas, and with overcrowded classes.

D. Time Required to Produce Behavioral Change

The time required to produce behavioral changes in the classroom is influenced by many variables such as the reinforcement history, and the environmental contingencies. These variables and the idiographic approach of the functional analysis paradigm make generalization about the time required to produce behavioral changes very difficult. However, to a

teacher dealing with an overcrowded classroom environment, the time factor can be a very important issue. Generally, most classroom behavior modification studies indicate that changes in behavior will occur within a few days (three or four) after initiation (see below studies). Possible exceptions are a long history of maladaptative behavior, severe organic defects, unidentified contingencies maintaining maladaptative behavior, and weak reinforcers.

A summary of partial results of selected studies using behavior modification in the classroom appears in Table 1. This table depicts the dependent variables expressed in percentages in which the behavior (dependent variable) occurred over time (sessions or days) for the experimental conditions immediately preceding treatment and the initial days of treatment. The data from these studies indicate the relatively short period of time (three or four days) required to product behavioral change. Hart et al. (1968) showed that the percentage of increase in proximity and cooperative play with other children did not exceed the preceding condition until the seventh day of treatment. Bushell et al. (1968), using tokens for a group of pre-school children, and Hall et al. (1968a), employing contingent teacher attention to a third-grade class, demonstrated effective results in two days after initiation of treatment. Also the studies using adolescent subjects showed rapid and stable changes (two to three days) with tokens and money used as reinforcers (Phillips, 1968; Meichenbaum et al., 1968). One very striking point about the two studies with adolescent subjects is the marked and quick changes in behavior using a token economy and money. The rapidity of changes in behavior using teacher contingent and non-contingent praise and/or attention in a public school classroom of disadvantaged adolescents is unexplored.

E. Effects of Social Reinforcement on Non-Target Pupils

Classroom investigations that have applied teacher contingent approval or praise have chosen one or two target children to receive systematic reinforcement. Two investigators have reported that their experimental teachers have noticed a change in the non-target pupils as well as the classroom atmosphere in terms of general improvement in overall behavior (Hall et al., 1968a, Madsen, et al., 1968). No corroborative data were collected to verify these reports. The degree to which contingent teacher praise and/or attention might generalize to non-target pupils warrants empirical consideration. If generalization does occur as indicated by a greater relative frequency of appropriate classroom behavior for non-target pupils, contingent praise and/or attention to one or two target adolescents would have highly desirable consequences for teachers in overcrowded classrooms.

TABLE 1

SUMMARY OF PARTIAL RESULTS OF SELECTED STUDIES USING BEHAVIOR MODIFICATION TECHNIQUES IN THE CLASSROOM

Study	Subjects	Reinforcer	Dependent Variable (Percentages)		EXPERIMENTAL CONDITIONS: Days or Sessions Immediately Preceding Treatment 5	4	3	2	1	Treatment 1	2	3	4	5
1	Adolescent Girls	Money	Appropriate Classroom Behavior	Class I:	65	75	50	40	50	70	55	70	68	70
				Class II:	42	39	14	52	29	76	65	45	65	94
2	2 Adolescent boys	Points Exchanged for privileges	Homework Assignment Completed	[a]Don:	0	0	42	0	0	100	100	0	100	100
				Jack:	0	0	0	40	0	0	100	40	100	100
3	12 Preschoolers	Tokens	Study Behavior				[b]58	50	52	45	67	73	75	80
4	2 Third Graders	Teacher Attention	Study Behavior	Gary	59	64	33	44	35	85	83	80	81	78
				John	22	32	25	45	46	69	76	68	74	70
5	5 Year Old Girl	Social	Cooperative Play	[a]Martha:	3	11	3	4	4	5	8	13	11	4

[a]Preceded by another experimental condition.

[b]Special event presented non-contingently.

Sources: Study 1--Meichenbaum et al. (1968), Figure 1, p. 343; Study 2--Phillips (1968), Figure 4, p. 221; Study 2--Bushell et al. (1968), Figure 1, p. 58; Study 4--Hall et al. (1968a), Figures 6 and 7, pp. 7 and 8; and Study 5--Hart et al. (1968), Figure 1, p. 75.

CHAPTER III

METHOD

A. Subjects and Settings

The Ss used in this study were 150 eighth-grade adolescents attending a junior-senior high school in Knoxville, Tennessee. Over 50 per cent of the students in the school came from families with an annual income of less than $3,000. Six teachers (one male and five females) volunteered to participate in the study. All teachers had several years of teaching experience, and their ages ranged from 27 to 65; the average age was 38. One class period for each teacher was selected for observation. The eighth grade subjects taught during these periods were three English, two mathematics, and one health. With the exception of one mathematics class in the afternoon, all class periods were in the morning. The study was begun during the second semester and continued to the end of the school year. All students had the same teacher for the first semester.

B. Procedures

Target and Non-Target Adolescents

Each teacher participating in the study identified three target adolescents in his class as being either disruptive or not motivated to do the assigned work. The three target adolescents and three other members of the class (non-target) were observed daily. Table 2 gives each target student's age, IQ (California Test of Menta. Maturity), and obtained grade placement (based on the California Achievement Tests). The teacher, subject taught, and a brief description of classroom behavior is also given for each target student (Table 2).

Behavioral Categories

The first major activity of the investigation was to define behavioral events to be rated. After several weeks of observing and recording the most common classroom behaviors for the teachers and adolescents, the behaviors were grouped into classes on the basis of topographic similarity. The behavioral categories for this study were similar to the ones previously developed for elementary school Ss (Becker et al., 1967). The following categories were rated.

TABLE 2

AGE, IQ, OETAINED GRADE PLACEMENT, AND TEACHER'S DESCRIPTION OF CLASSROOM BEHAVIOR OF TARGET Ss FOR EACH TEACHER

Teacher	Target S	CA	IQ	OGP	Teacher's Description of Classroom Behavior[a]
Miss T (English)	Roger	13	90	6.6	He refuses to do the assigned work and often makes taunting remarks to other members of the class.
Miss T	Louis	16	84	8.9	Talks without permission and attempts to get the members of the class to laugh by making funny remarks.
Miss T	Stan	15	82	6.9	Frequently makes silly comments to get class attention. The work is difficult for him.
Mrs. M (English)	Stuart	16	102	10.6	Does not do assigned work, and talks incessantly to people around him.
Mrs. M	Fred	15	87	7.9	Constantly interrupts class lectures and discussions with his comments.
Mrs. M	Barbara	15	94	7.4	Spends most of class period either combing her hair or fixing her make-up.
Mrs. H (English)	Jim	14	95	6.3	Very talkative, likes to get out of his seat and walk around the room.
Mrs. H	Tim	14	84	6.1	A very quiet boy. He has not completed any assigned work while he has been in this class.
Mrs. H	Donald	14	77	5.0	Most of the period he reads or talks to people who sit near him.

TABLE 2 (continued)

Teacher	Target S	CA	IQ	OGP	Teacher's Description of Classroom Behavior[a]
Mrs. E (Mathematics)	George	14	73	6.1	He does not have self-discipline. He cannot keep quiet or stay in his seat.
Mrs. E	Jim	14	95	6.3	He cannot keep quiet. He gets out of his seat and walks around every chance he has.
Mrs. E	Bobby	15	86	6.1	He is the most disruptive boy that I have ever had in class. He often disrupts class activities by making comments and loud noises.
Mrs. C (Health)	Mark	15	83	6.2	Stares at the students who sit near him and gazes out the window most of the period.
Mrs. C	Danny	13	89	6.0	He trys to be the class clown. He has never completed any of the assigned work.
Mrs. C	Sherry	14	88	7.0	She brings comic books and movie magazines to class and reads them during the period. Rarely finishes an assignment.
Mr. S (Mathematics)	Gary	15	79	5.8	He never completes his work and bothers the students who sit near him.
Mr. S	Brenda	15	62	4.9	Always talking to people around her. She is seldom prepared for class.
Mr. S	Jerry	17	63	6.6	Hard for him to work independently. He says that the work is too hard.

[a]Descriptions were made during baseline conditions.

Behavioral Coding Categories for Adolescents' Inappropriate Behaviors

Symbol	Definition
M	Gross Motor Behaviors. Getting out of seat; standing up; walking around; rocking in chair; disruptive movement without noise; moving chair to neighbor; gestures without talking.
ON	Disruptive Noise with Object(s). Tapping pencil or other objects; clapping; tapping feet; rattling or tearing paper (do not include accidental dropping of objects or noise made while performing M above).
T	Orienting Responses. Turning head or head and body to look at another person; showing objects to another adolescent; attending to another adolescent. Must be of 4-second duration to be rated; responses were not rated unless seated.
V	Talking, Blurting Out, Commenting, and Vocal Noise. Carrying on conversation with other adolescents when it is not permitted. Must be directed to a particular person. Blurting out--answers question without being called on, may be directed toward teacher. Vocal noise--singing, whistling, laughing, etc.
BI	Behavior Inappropriate. Ignoring teacher's question or command; doing something different from that directed to do. Sleeping, head on desk; subject appears to be passive and not oriented to what is occurring in class. To be rated only when other behavioral ratings not appropriate.
Appropriate Behavior	
RB	Appropriate Behavior. Appears to be oriented or attending to class activity; to be rated only if does not fit one of the below categories (Relevant Behavior).
Relevant Behavior[1]	
VR	Verbal Response. Answers questions; must be lesson oriented.
W	Writing. Writing when assigned or directed to do so.

[1] None of the above categories were rated if time on task was for only a very short duration (1-4 seconds). Ratings were for sustained activity of greater than 4 seconds, this applied only to relevant behaviors.

Symbol	Definition

R Reading. Reading, or looking at book when directed to do so.

H Hand Raised. Hand raised in order to get teacher's attention.

Teacher Behavioral Categories

Non-Contingent	Response given to entire class or part of class but not to single S.
Contingent--Non-Target	Response to a non-target (other member of class) student, to a single S.
Contingent-Target	Response to a target student (single S).

C Positive Contact. Positive contact with child, physically--the teacher's intent is positive.

P Verbal Praise, Non-Contingent, Contingent Non-Target, Contingent-Target. This category includes paying attention to appropriate behavior with verbal comments indicating approval, commendation, or achievement such as: "That's good." "You're studying well." "Fine job." Praise may be administered non-contingently to the entire class, a group. Administered contingently to a target student or another member of the class, contingent praise indicates that it is administered to one adolescent.

F Facial Attention, Contingent Non-Target, Contingent-Target. Looking or attending to an adolescent; teacher might nod his head or look at a student or give some other non-verbal indication of approval; smiling. F can be administered only contingently.

A Attention to Undesirable Behavior, Non-Contingent, Contingent--Non-target, Contingent-Target. Teacher verbally calling attention to undesirable behavior and may be of high intensity (yelling, screaming, scolding, or raising the voice) or of low intensity "Go to the office." "You know what you are supposed to be doing." "You are stupid." "Why did you do that?" "I don't know what's wrong with you people today." May be administered contingently or non-contingently, as praise above.

NA Non-Verbal Attention to Undesirable Behavior, Contingent--Non-Target, Contingent-Target. Looking at a student when he or she is doing something they are not supposed to be doing. Rated only if administered contingently.

Symbol	Definition
R	Recognition. Calling on a student for academic purposes. Hand does not have to be raised.
I	Instructional Behavior. Instructional or content oriented, directed to entire class, may be facing or looking at class without saying anything (a pause).
IA	Instructional Behavior to an Individual, Contingent--Non-Target, Contingent-Target. Attending to one adolescent for the purpose of instruction. If the teacher gives verbal praise, rated P. If the teacher is critical, rated A. This is a neutral category. Identify, if to target student.
TO	Time Out. Time out means time out from instruction or from any interpersonal interaction with the class (i.e., counting money, reading a book, grading papers, leaving the room, back to class without verbal interaction, or talking to someone other than class member; or back to class without verbal interaction that is lesson oriented). Rated only if other categories are not appropriate.

Observation and Recording

For each class three target and three non-target adolescents were observed daily. All members of each class were numbered, except for the target students. The daily procedure for selecting the three non-target students consisted of using a table of random numbers with replacement. Each behavioral code was rated only once for a ten-second time interval. Each adolescent (target and non-target) was observed for a total of three minutes daily in alternating (with the teacher) ten-second intervals. The total observational time for the teacher was eighteen minutes and for six adolescents eighteen minutes, thirty-six minutes for the entire daily observational period. The order in which each adolescent (non-target and target) was observed during an observational period was random. An observer recording sheet appears in Appendix D.

Timing Apparatus

Compact (4-5/16 inches x 9-7/8 inches x 2-1/2 inches), solid-state, cartridge, tape recorders were used as timing devices for each observer.[2] The ten-second intervals were reliably recorded and time sequences announced to the observer the exact intervals. Each recorder had a "Y" connector from which two ear plugs were connected, one with a

[2] Ross, Model Mark - 8200, distributed by Ross Electronics Corporation, Chicago, Illinois

three-feet extension and one other twelve feet. Using the same tape recorder, the "Y" connection facilitated independent observation for purposes of reliability checks. Also, the recorder eliminated the need for the observer to monitor visually a stop watch which might distract him from observing and recording.

Observer Training and Reliability

Six graduate students in Educational Psychology served as observers. Observer training consisted of three phases. The first phase consisted of the gradual introduction of each behavioral code until each observer became familiar with all of the codes. Second, two observers would each rate the same adolescent or teacher for a certain period (usually two to six minutes) and then compare their ratings and discuss differences. The last training phase required weekly sessions for the entire study in which all observers viewed the same video-taped classroom activities. From a video monitor, observers viewed ten-second time intervals, which were in alternating sequence between the teacher and selected adolescents. Observers rated independently these time intervals and from these weekly ratings inter-observer reliability was computed. The reliabilities between all combinations of observers is expressed in pi-coefficients (Scott, 1955). The complete matrix of pi-coefficient averages for eight weekly sessions is presented in Appendix A, Table 6. The resulting average pi-coefficient was computed to be .90, with a range of 78 to 97. Classroom reliabilities were also obtained for pairs of observers during the initial phases of the study and the average pi-coefficient was computed to be .92, with a range of 74 to 98 (Appendix A, Table 7).

Except for reliability checks, there was one observer for each class. The observers were instructed to sit in back of the classroom in a way to maximize their observational range and without disrupting any normal classroom activity. Also, observers were instructed to avoid all eye contact and interaction with the Ss and teacher. All observers were in the classroom at least two weeks before the collection of baseline data. Observers were not informed about the sequence of the experimental conditions.

Training of Teachers

At the end of the baseline period the teachers read a programmed book on the principles of social reinforcement which provided them with rationale for the procedures introduced in their classes (Patterson and Gullion, 1968). If the teacher started the experimental sequence with a control period, this book and the instructions were not presented until the completion of that period. Seminars were not held on operant techniques or principles of reinforcement. The following instructions were given individually to each teacher.

Ignoring Inappropriate Behavior (After Madsen et al., 1968)

During this phase of the study you should learn to ignore (do not attend to) behaviors which interfere with learning or teaching, unless a student is being hurt by another, in which case use a punishment which seems appropriate. Learning to ignore is rather difficult. Most of us pay attention to the violations. For example, instead of ignoring we often say such things as the following: "Howard, you know you are supposed to be working;" "Gary, will you stop bothering your neighbors;" "Bert, will you or can you keep your hands off Bob;" "Mariana, stop running around and do your work;" "Hank, will you please stop rocking on your chair."

Behaviors which are to be ignored include motor behaviors such as getting out of seat, standing up, walking around the room, moving chairs, or sitting in a contorted manner. Any verbal comment or noise not connected with the assignments should also be ignored, such as: carrying on conversations with other members of the class when it is not permitted, answering questions without raising hands or being called on, making remarks when no questions have been asked, calling your name to get attention, and extraneous noises such as whistling, laughing loudly, blowing nose, or coughing. An additional important group of behaviors to be ignored are those which the student engages in when he is supposed to be doing other things, for example, when the student ignores your instructions you are to ignore him. Any noises made with objects, playing with pencils or other materials should be ignored, as well as, taking things from or disturbing another student by turning around and touching or grabbing him.

The reason for this phase of the study is to test the possibility that attention to inappropriate behavior may serve to strengthen the very behavior that the attention is intended to diminish. Inappropriate behavior may be strengthened by paying attention to it even though you may think that you are punishing or decreasing the behavior.

This phase of the study should be followed during the phases in which you will deliver contingent and non-contingent praise.

Contingent Praise and/or Attention (After Madsen et al., 1968)

This phase of the study is designed to increase classroom participation or relevant behaviors through praise and other forms of approval. We are inclined to take relevant classroom behavior for granted and pay attention only to disruptive classroom behaviors. During this phase of our research, we would like for you to try something different. The technique that you will use is characterized as "catching the student participating in appropriate classroom behavior" and making a positive comment to the target student.

The positive comment or praise is designed to reward the target student for relevant behavior. Give praise, attention, or smile when a target student is doing what is expected during the class period. Specifically, give student praise when the target adolescent responds (1) verbally to your questions, directed to him or to the class in general, or to an appropriate classroom recitation, (2) to hand raising in order to recite, (3) to written classroom assignments, and (4) to assigned classroom reading. Start "small" by giving praise and attention at the first signs of appropriate behavior. Watch carefully and when the adolescent participates in terms of any of the four above kinds of behavior, make such comments as "You're doing a fine job, (name)," or "That's good." It is very important during the first few days to catch as many participating behaviors as possible. Even for example if an adolescent has thrown an eraser at you (one minute ago) and is now working or appropriately responding, you should praise the participating behavior. We are assuming that your commendation and praise are important to the student. This is generally the case, but sometimes it takes a while for praise to become effective. Persistence in catching adolescents participating in classroom activity and delivering praise and attention should eventually increase relevant behavior of the target student.

Examples of praise comments are as follows:
I like the way you're doing your work, (name).
That's a very good (paper, answer, report, job), (name).
You're doing fine.
That's very good (if he or she generally gets only a few answers correct).

In general, give praise for achievement. Specifically, you can praise for working individually (writing or reading), raising hand when appropriate, responding to questions, paying attention to directions and following through. Try to use variety and expression in your comments. Stay away from sarcasm. Attempt to become spontaneous in your praise and smile when delivering praise. At first you will probably get the feeling that your praising a great deal and it sounds a little phony to you. This is a typical reaction and it becomes more natural with the passage of time. If comments sometimes might interfere with the ongoing class activities then use facial attention and smiles. Walk around the room during study time. Praise quietly spoken to a student has been found effective in combination with some physical sign of approval. Praise should be given individually to each target student when you catch them participating, and remember to ignore inappropriate behavior.

Non-Contingent Praise

During this phase of the study you should deliver non-contingent praise to the entire class. Praise should be presented according to random intervals of time during the class period. Also, praise should be given without regard for what behavior might be occurring at those times. During the contingent delivery of praise we asked you to give praise when you "caught" a target child participating in one of four relevant behaviors. The praise was contingent on the student's behavior. Praise during this phase of the study is without regard to what behavior occurred immediately before you deliver it. Attempt to give praise about ten (10) times during a class period, try to spread your comments over the period. Remember to give praise generally to the entire class and to ignore inappropriate behavior.

Experimental Conditions

Each teacher began the study with an eight-day baseline phase in which observers recorded classroom behavior of the teacher and adolescents (three target and three non-target) before the introduction of the experimental conditions. After the baseline phase, one of the following experimental conditions was initiated: contingent praise and/or attention, non-contingent praise, and control. Each condition has two time periods--short (four days) and long (eight days).[2] The frequency of the rated categories for the teacher and adolescents during baseline was the only condition in which each teacher was shown the results. During the control conditions the teachers were instructed to reinstate the baseline conditions (i.e., attend to inappropriate behavior). The instructions for ignoring inappropriate behavior were followed under contingent and non-contingent conditions. The assignment of teachers and the sequence of the six experimental conditions were random. The experimental sequence for each teacher is shown in Table 3.

By daily inspection of the observer-recording sheets, the E monitored the teacher's behavior for each experimental condition. E consulted with each teacher individually, almost daily, about any problems that occurred in executing the particular experimental condition. All teachers were instructed about the confidential nature of the research. Teachers were also requested not to discuss with any other teacher what was occurring in his classroom.

---

[2] As a result of school scheduling it was necessary to decrease the length of the time periods for two teachers. Four experimental conditions were shortened to six days (long) and three days (short) for Mrs. C. All time periods for Mr. S were shortened two days (short) and five days (long).

TABLE 3

EXPERIMENTAL SEQUENCE FOR EACH TEACHER

Teacher	EXPERIMENTAL SEQUENCE 1	2	3	4	5	6
Miss T	CTS	NCS	CTL	NCL	CL	CS
Mrs. M	CTS	NCL	CTL	CS	CL	NCS
Mrs. H	CL	CS	NCS	CTL	CTS	NCL
Mrs. E	CTS	CL	NCS	CTL	CS	NCL
Mrs. C	CS	CTL	NCS	CTS	NCL	CL
Mr. S	CL	NCS	NCL	CS	CTS	CTL

NOTE: CTS = Contingent Short
CTL = Contingent Long
NCS = Non-Contingent Short
NCL = Non-Contingent Long
CS = Control Short
CL = Control Long

Semantic Differential and Tennessee Self Concept Scale

The Semantic Differential (SD) and the Tennessee Self Concept Scale (TSCS) were administered to all target and non-target Ss during baseline conditions (pretest) and following the experimental conditions (posttest). One eighth grade class not involved in the study was used to assess the reliability (test-retest, ten days between testing) of the SD. Using the procedure described by Scott (1955), the reliability was computed to be .93. Instructions for using the SD, and the 11 bipolar (paired) adjectives and the concepts used are presented in Appendix E.

CHAPTER IV

RESULTS AND DISCUSSION

A. RESULTS

For the purpose of analysis several of the rated adolescent behavioral categories were combined. Below are the behavioral categories used in the analysis and the specific behavior which comprised each category.

Categories Used in the Analysis	Behaviors Rated
relevant behavior	verbal response, writing, reading, hand raised
inappropriate behavior	gross motor behaviors, disruptive noise with objects, orienting responses, talking, blurting out, commenting, vocal noise, behavior inappropriate (if did not apply to one of the above categories)
appropriate behavior	S appears to be oriented or attending to class activity (was rated if behavior did not fit one of the categories of relevant behavior)

In addition to single S behavioral analysis, statistical analyses were used for the results of this study. The single S analysis of target and non-target Ss for each teacher was illustrated with discrete curves (line graphs). These data show the relationships of two behavioral categories (relevant and inappropriate) for each experimental condition. The statistical analyses showed the effects of the three experimental conditions (contingent, non-contingent, control), the two time periods (short, long), and the six teachers on three behavioral categories (relevant, inappropriate, and appropriate). The hypotheses were tested only for relevant behavior of target and non-target Ss. Further analyses of means between all effects were provided for target and non-target Ss.

Single S Data

Percentages of ten-second time intervals in which relevant and inappropriate behaviors occurred as a function of baseline and six

experimental conditions are plotted for each target adolescent. Also, for each teacher one curve depicted the same data for the daily samples of three non-target adolescents. The per cent of ten-second intervals in which appropriate behavior occurred for all experimental conditions appears in Appendix B, Table 8 for target Ss and Table 9, for non-target Ss.

The percentages, under each of the six experimental conditions, of the categories of behavior rated for each teacher and the uncombined categories rated for target and non-target adolescents appear in Tables 8, 9, and 10, Appendix B.

Single S data are represented by four figures for each teacher, only the Figures 1 through 4 for Miss T are presented in this chapter. Figures 14 through 33 for the other five teachers are presented in Appendix C. The experimental conditions were contingent short and long (CTS, CTL), non-contingent short and long (NCS, NCL), and control short and long (CS, CL). During the control conditions teachers were instructed to reinstate baseline conditions.

Miss T. The baseline period showed fluctuations in relevant and inappropriate behavior (see Figures 1, 2, 3, and 4). The characterisitcs of these data depict the range of percentages higher for inappropriate than for relevant behavior; for example, Roger 0 - 78 inappropriate, 0 - 100 relevant; Louis 17 - 68, 0 - 84; Stan less variable 39 - 50, 0 - 11; and non-target adolescents 33 - 75, 11 - 75.

The CTS treatment condition showed high percentages of relevant behavior for all target and non-target Ss (Roger 72 - 94, Louis 15 - 62, Stan 55 - 72, non-target 20 - 62). During this period the percentage of inappropriate decreased for all Ss (Roger 4 - 30, Louis 0 - 17, Stan 0 - 23, and non-target 0 - 20). The long condition of contingent reinforcement reflected the highest percentages of relevant behavior and the lowest occurrence of disruptive behaviors. These conditions prevailed during the next experimental condition (NCL) for all Ss, but with greater fluctuations for Roger (see Figure 1). Roger's behavior during NCL was typical of the variability in behaviors of all Ss during the NCS condition.

For both CL and CS conditions a reversal occurred in which the percentage of relevant behavior decreased and was exceeded by the relatively high increased percentage of inappropriate behavior. Similar data were obtained during the baseline conditions.

Mrs. M. Variability in percentages of inappropriate and relevant behavior occurred during baseline conditions for Fred and Barbara (Figures 15 and 16, Appendix C). Less variable were these behaviors for Stuart and the non-target Ss (Figures 14 and 17, Appendix C). Generally, percentages of inappropriate behavior exceeded relevant (CTS). However,

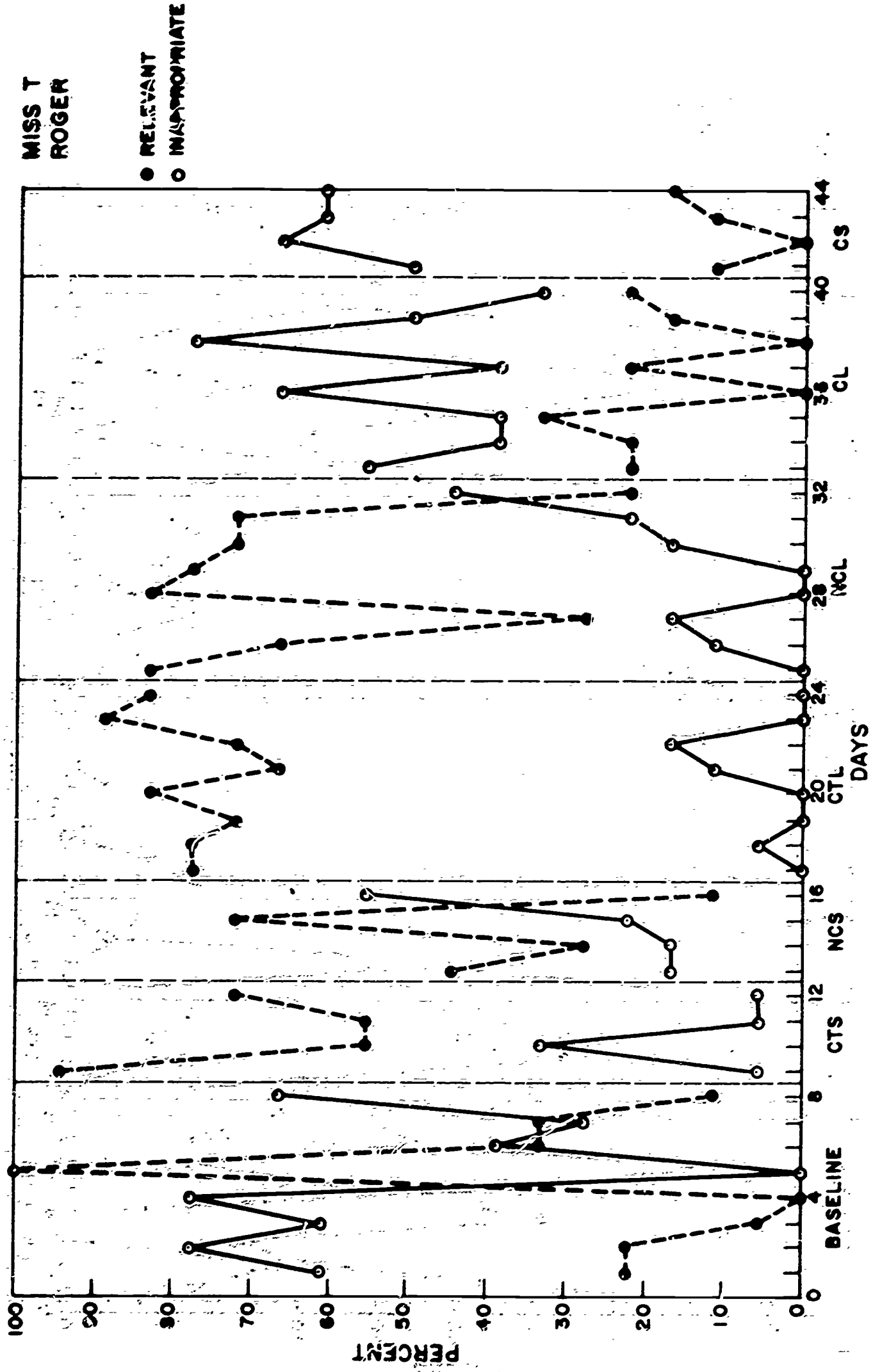

Figure 1. Roger: relevant and inappropriate behaviors as a function of experimental conditions in Miss T's class.

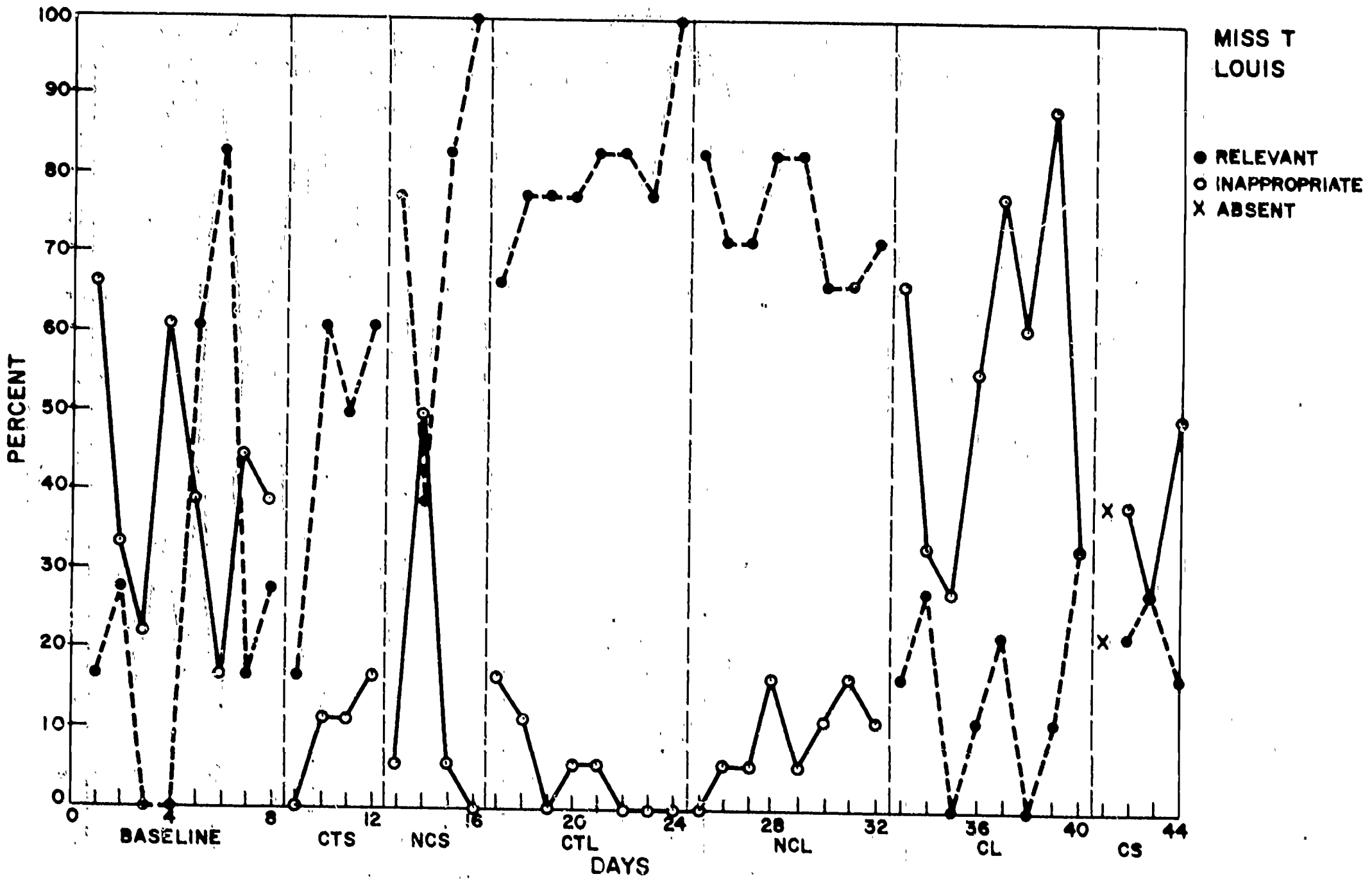

Figure 2. Louis: relevant and inappropriate behaviors as a function of experimental conditions in Miss T's class.

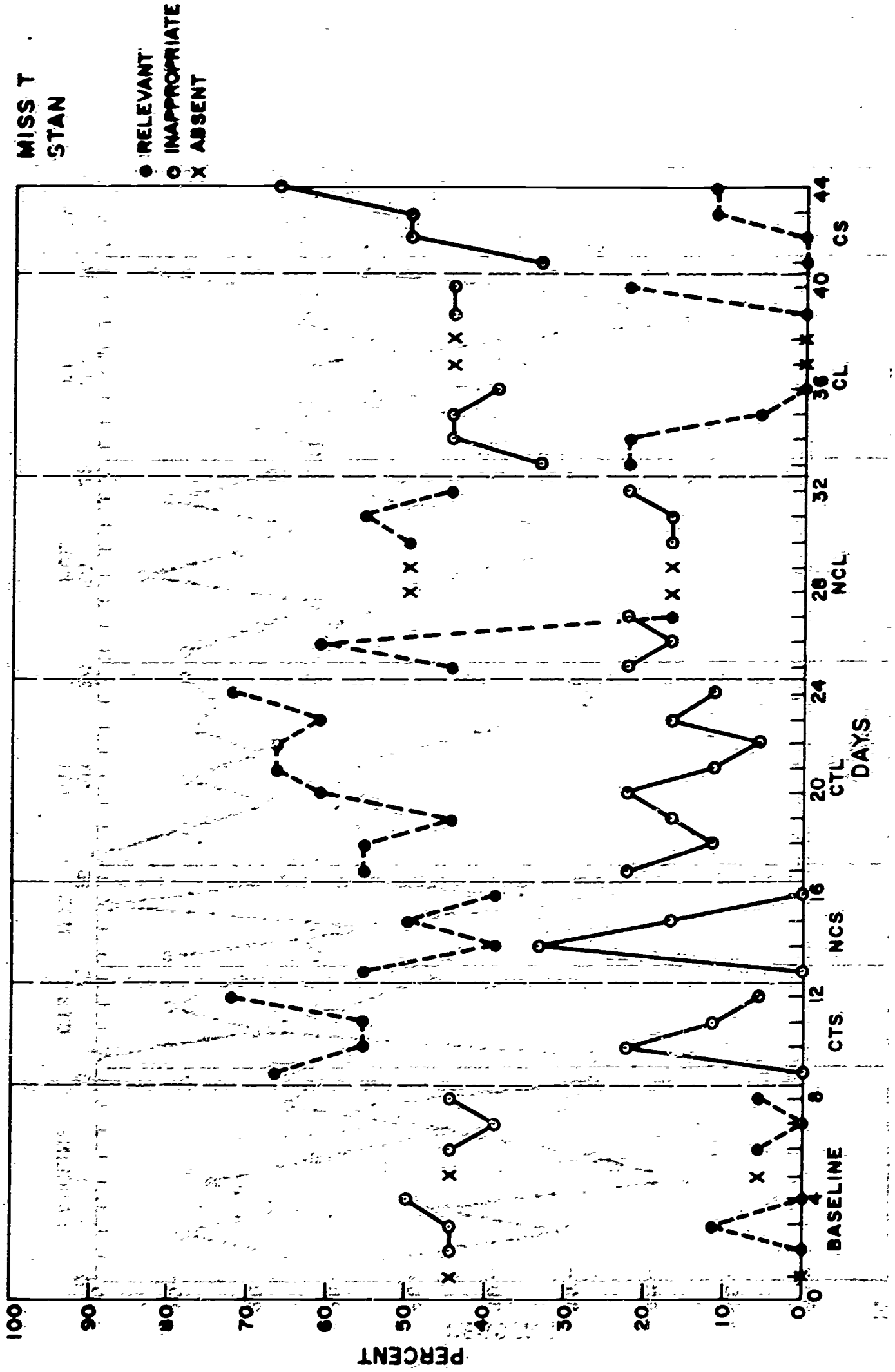

Figure 3. Stan: relevant and inappropriate behaviors as a function of experimental conditions in Miss T's class.

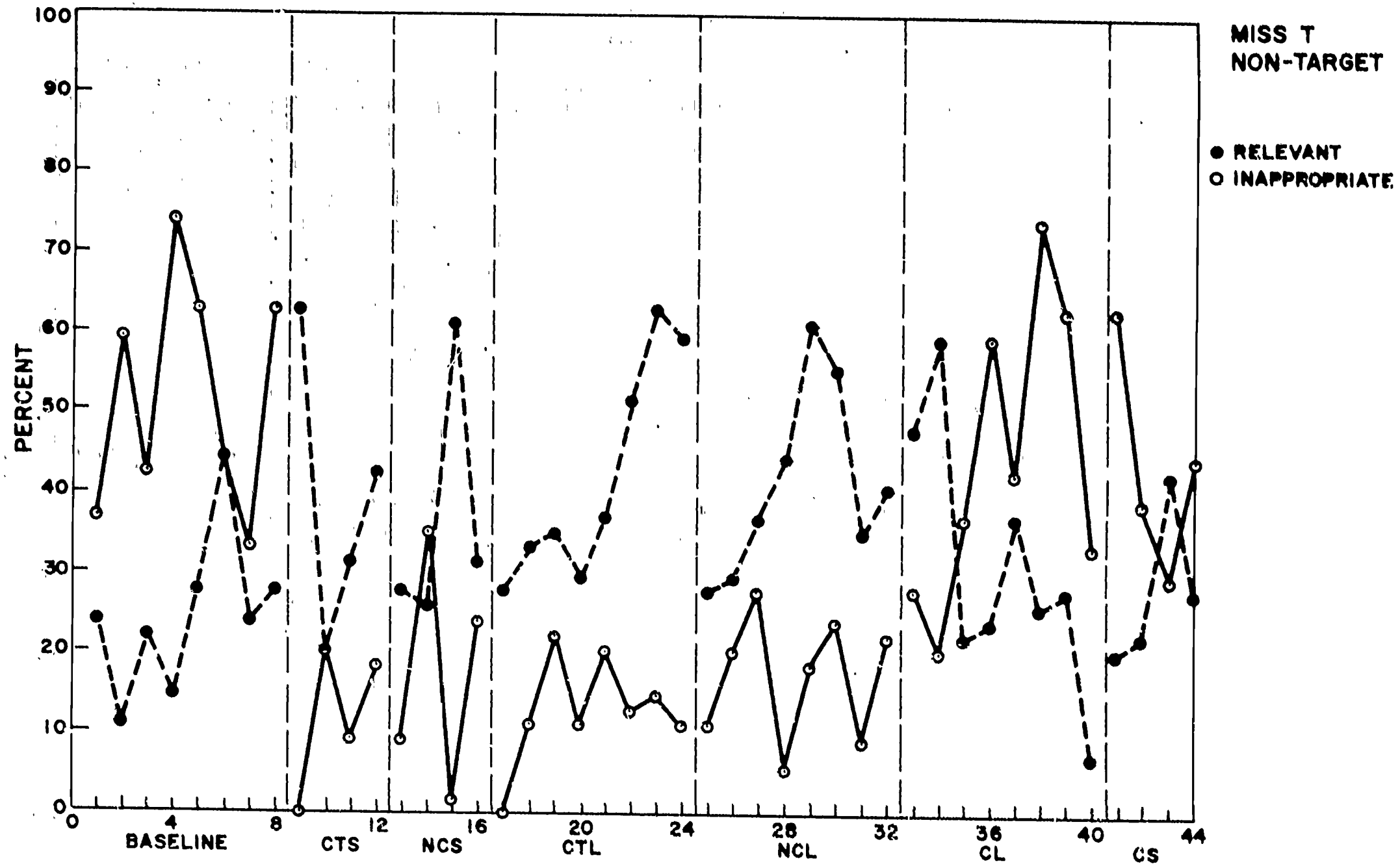

Figure 4. Non-target Ss: relevant and inappropriate behaviors as a function of experimental conditions in Miss T's class.

the next experimental condition showed a greater percentage of relevant and a decrease of inappropriate behavior for all Ss during the last day (Barbara and Stuart 100, Fred 66, and non-target 15). This trend was reversed for two Ss during the next condition (NCL) and the last day showed inappropriate behavior to be 50 per cent for Stuart and 82 per cent for Fred while relevant behaviors were 5 per cent and 12 per cent, respectively (see Figures 14 and 15). The higher percentages of relevant behavior and lower occurrences of inappropriate behavior were maintained from the previous condition (CTS) for Barbara (48:33) and non-target Ss (55:23) (see Figures 16 and 17, Appendix C).

Similarly with Miss T's class, high percentages of relevant and low inappropriate behaviors occurred during the CTL condition (Stuart 95:0, Fred 78:0, and non-target 58:12). The percentage for both behaviors was the same for Barbara during the last two days of the CTL period (22 and 28, Figure 16). Figure 14 (Stuart) shows that the high percentage of relevant (100) and low inappropriate (0) behaviors during CTS were not reversed during the control periods. Reversals did occur for Fred, Barbara, and non-target Ss (Figures 15, 16, and 17, Appendix C).

The last day of the NCS condition showed a high percentage of relevant (63) over inappropriate (15) behavior for Stuart and Fred (see Figures 14 and 15, Appendix C); however, these differential percentages were not established for Barbara and non-target Ss (Figures 16 and 17).

Mrs. H. Baseline results for Donald, Tim, Jim, and non-target Ss were similar to those found in the two previous classrooms (Figures 18, 19, 20, and 21, Appendix C). In this classroom the relationship of highly variable percentages of inappropriate behavior (Donald 12-78, Tim 17-78, Jim 25-95, and non-target 18-62) and relatively low percentages of relevant behavior (Donald 0-33, Tim 0-33, Jim 0-22, and non-target 11-25) prevailed during the next two control conditions (CL and CS). The NCS condition showed that the percentage of relevant did not exceed inappropriate behavior for Tim and Donald (see Figures 19 and 20). Jim's percentage of relevant behavior did exceed inappropriate (44:26) during the last day of this condition (Figure 18). Results similar to Jim's percentages occurred for non-target adolescents during this condition.

The condition of CTL showed marked percentage increases of relevant behavior for Jim (40-100), moderate increases for Tim (46-78), Donald (48-64), and non-target Ss (33-60). For the next condition (CTS) these percentages remained generally similar as CTL for Jim and Donald (see Figures 18 and 20), and with only moderate range of percentage decreases of relevant behavior for Tim (from 46-78 to 22-44) and non-target Ss (33-60 to 15-56). Ss during the last condition showed that relevant behavior exceeded inappropriate for the last two days, with one exception in which the percentages of these behaviors were reversed (Tim, Figure 19).

Mrs. E. The baseline condition had the same characteristic curves as the results for previous classrooms (see Figures 22, 23, 24, and 25, Appendix C). The first condition for this class (CTS) showed striking percentage increases in relevant behavior (78-98) during days 10, 11, and 12 for Jim (Figure 23), and no percentage increase for George (Figure 22), but a marked percentage drop of inappropriate behavior (from 100-33 to 55-5). Figures 24 and 25 show that relevant behavior did not exceed inappropriate at the end (days 11 and 12) of the CTS condition for Bobby and non-target Ss. The next condition was CL in which reversals of the previous percentages (relevant exceeds inappropriate) occurred for Jim, inappropriate 60 and relevant 20, and George 88 and 5. Changes did not occur for Bobby and non-target Ss during CL (see Figures 24 and 25).

NCS showed that the last day (24) of this treatment relevant behavior exceeded inappropriate for all Ss. As noted previously from results of other classes, CTL showed the greatest percentage increases of relevant behavior and decreases of inappropriate for George (83:5) and Jim (100:0). In the CTL treatment these percentages were reversed for Bobby (inappropriate 44: relevant 33) and non-target adolescents (44:27). During the short control condition the range percentages of inappropriate behavior exceeded the relevant percentages for Bobby (55-100:0-11), George (33-55:22-33), and non-target Ss (38-61:11-22). Only a slight percentage decrease for relevant behavior occurred (55-77) for Jim during CS which also prevailed during the next treatment condition (NCL). The percentage of relevant behavior increased sharply the last day of treatment (NCL) for George (55), moderately for non-target Ss (61), and Bobby (22). However, Bobby's relevant behavior was not elevated above the percentage of inappropriate behavior (see Figure 24).

Mrs. C. Inspection of Figures 26, 27, 28, and 29, Appendix C, shows that the same fluctuations in percentages occurred during baseline with the general trend of inappropriate behavior exceeding relevant. This trend prevailed during the next treatment condition (CS) with one exception in which relevant and inappropriate percentages were 0 for the last day (Danny, Figure 27). As with the other classes similar percentages existed during CTL, relevant behavior exceeded inappropriate (Mark 50:0, Danny 50:0, Sherry 77:0, non-target Ss (44:25).

For the remaining experimental conditions (NCS, CTS, NCL, CL) the short and long periods were shortened to three and six days. The last day of NCS condition showed that the percentages of relevant behavior were higher than inappropriate (Mark 50:16, Danny 33:27, Sherry 38:11, and non-target 55:0). With a wider range these percentages existed during the NCL condition.

Compared with the CTL condition, CTS showed comparable range of percentages for relevant behavior with slight percentage decreases for inappropriate behavior. During CL relevant and inappropriate percentages

were reversed from the previous conditions, inappropriate showed a higher percentage than relevant behavior. These data are comparable to the percentages that occurred during baseline (Figures 26, 27, 28, and 29, Appendix C).

Mr. S. The time periods were shortened from four to two days for short and from eight to five days for long periods. Baseline conditions for this classroom were less variable for the target Ss then the previous classroom results. Figures 30, 31, and 32, Appendix C, depict these data of high range of percentages of inappropriate behavior and low relevant for Gary (55-77:0-16), Brenda (67-88:0-22), and Jerry (44-61:0-22). Non-target Ss (Figure 33, Appendix C) baseline behaviors were similar to previous classroom results (27-55:11-33). These percentages generally existed for all Ss during the next CL treatment condition. The percentages of relevant behavior during the last day (12) of NCS were higher than inappropriate behavior for all Ss. This relationship between the two dependent variables existed during NCL condition, with one exception (Gary's relevant behavior decreased and on the last day (17) it was exceeded by a higher percentage of inappropriate).

During the short control time period reversals occurred from the previous two conditions in which the percentage of inappropriate behavior was higher than relevant behavior during the last day (19) (Brenda 67:27, Jerry 50:22, and non-target Ss 38:11). For all Ss the short contingent condition showed higher percentages of relevant behavior than inappropriate. Also, for all Ss the percentage increase of relevant behavior was greater during the next condition CTL than during the previous CTS. Non-target Ss percentage of increases were not as high as target Ss during this condition.

Statistical Analysis

Data transformation. To facilitate the analysis between short and long time periods of the experimental conditions, ratio scores (RS) were computed for target and non-target Ss. RS = BE/PT x 100 where BE = the number of behaviors emitted during an experimental condition or baseline and PT = the possible total occasions for observation. Percentages of increase or decrease were selected as dependent variables to indicate the magnitude of emitted behaviors during the experimental conditions. The emitted behavior score (EBS) represented a percentage increase or decrease in the ratio of emitted behaviors during an experimental condition when compared to baseline behaviors. EBS = $(RS_2 - RS_1)$ where RS_2 = the ratio of behavior (relevant, inappropriate, appropriate) emitted during an experimental condition and RS_1 = the ratio of behaviors emitted during baseline. Computation of EBSs had the effect of equating baseline performance to zero.

Hypotheses Tested

The hypotheses were tested for relevant behavior by the Newman-Keuls procedure (Winer, 1962, pp. 80-85) using the data (i.e., mean square error) in Table 4 for target Ss and Table 5 for non-target Ss. The results of the hypotheses tested were:

Hypothesis 1. The EBSs of relevant behavior for the experimental conditions (contingent and non-contingent) will exceed the EBSs for the control conditions.

The effects of the experimental conditions were significantly greater than the occurrence of relevant behaviors during the control conditions. Differences between EBSs means of target s were significant for NCS>CS (see Table 3 for meaning of symbols, page 23), CTL>CS, and NCL>CS at the .05 level. All other differences between combinations of experimental and conditions were significant at .01 level (CTL>CL, CTS>CL, NCS>CL, NCL>CL, CTS>CS). For non-target Ss only NCS CS and CTL CS were significant (.05) for relevant behaviors.

Hypothesis 2. The effects of long periods of contingent praise and/or attention will yield greater EBSs for relevant behavior than for short periods.

There were not significant differences between long and short periods under the contingent conditions for both target and non-target Ss.

Hypothesis 3. The effects of contingent praise will yield greater EBSs of relevant classroom behavior than under non-contingent conditions.

Differences between contingent and non-contingent EBSs were not significant for target and non-target Ss.

Hypothesis 4. Non-contingent long (NCL) conditions will have greater EBSs of relevant behavior than during non-contingent short periods (NCS).

For both target and non-target Ss there were no significant differences for relevant behavior between the periods.

Hypothesis 5. Non-contingent long (NCL) conditions will have greater EBSs of relevant behavior than during short contingent conditions (CTS).

TABLE 4

ANALYSES OF VARIANCE OF RELEVANT, INAPPROPRIATE, AND APPROPRIATE EMITTED BEHAVIOR SCORES FOR TARGET SUBJECTS

Source	df	Relevant			Inappropriate			Appropriate		
		MS	F	η^2	MS	F	η^2	MS	F	η^2
Between Ss:	17									
Teacher (T)	5	105.48	0.14	.01	1154.95	0.86	.09	782.89	2.02	.19
Subjects (S)	12	767.15		.19	1340.28		.26	386.99		.23
Within Ss:	90									
Time Period (P)	1	363.00	5.24	.01	40.33	0.11	.00	746.81	12.82*	.04
Experimental Conditions (C)	2	8703.40	12.76**	.36	10296.45	22.35**	.33	66.69	0.17	.01
T X P	5	69.31	0.67	.01	36.91	1.96	.03	58.24	0.79	.01
T X C	10	681.99	4.39**	.14	461.71	2.09	.07	393.95	3.48**	.19
P X C	2	735.19	1.95	.03	496.03	2.07	.02	1.56	0.02	.00
S X P	12	103.44		.02	184.76		.04	73.75		.04
S X C	24	155.48		.08	220.09		.08	113.27		.13
T X P X C	10	377.44	2.37*	.08	239.37	1.86	.04	80.55	0.79	.04
Residual	24	159.18		.08	128.55		.05	101.14		.12

*$p < .05$.

**$p < .01$.

TABLE 5

ANALYSES OF VARIANCE OF RELEVANT, INAPPROPRIATE, AND APPROPRIATE EMITTED BEHAVIOR SCORES FOR NON-TARGET SUBJECTS

Source	df	Relevant			Inappropriate			Appropriate		
		MS	F	η^2	MS	F	η^2	MS	F	η^2
Experimental Conditions (C)	2	781.86	5.51*	.13	934.11	7.99**	.15	11.58	0.12	.00
Time Periods (P)	1	427.11	6.02	.04	64.00	0.38	.00	225.00	4.74	.03
Subjects (S)	5	1366.51		.57	1339.58		.54	1026.67		.74
C X P	2	31.03	0.23	.01	34.33	0.19	.01	5.08	0.15	.00
C X S	10	141.79		.12	116.84		.09	98.55		.14
P X S	5	70.91		.03	167.73		.07	47.47		.03
Residual	10	136.63		.11	176.07		.14	34.25		.05

*$p < .05$.

**$p < .01$.

No significant differences occurred for target and non-target Ss.

Hypothesis 6. The EBSs of relevant behavior will be greater for contingent long (CTS) periods than for non-contingent long conditions (NCL).

No significant differences occurred for target and non-target Ss.

Hypothesis 7. Relevant EBSs will be greater under contingent long (CTL) than under non-contingent short (NCS) conditions.

No significant differences occurred for target and non-target Ss.

Hypothesis 8. Relevant EBSs will be greater for contingent long periods (CTL) than for contingent short periods (CTS).

No significant differences occurred between long and short periods for target and non-target Ss.

Hypothesis 9. EBSs will be greater for contingent short (CTS) than for non-contingent short (NCS).

No significant differences occurred between CTS and NCS for target and non-target Ss.

Figure 5 depicts the EBS means for target and non-target Ss as a function of the six experimental conditions. The Newman-Keuls procedure was used to determine the differences between the EBS means of inappropriate behavior. The analysis of target Ss was identical with the results obtained for relevant behavior (NCS > CS, CTL > CS, and NCL > CS at the .05 level; CTL > CL, CTS > CL, NCS > CL, NCL > CL, and CTS > CS at the .01 level). Inappropriate EBS means for non-target Ss were significant for NCS > CS and CTL > CS at the .01 level. Results revealed that no significant differences were found between experimental conditions for appropriate EBS means of target and non-target Ss.

Further examination of the data was made by analysis of EBS means for experimental conditions, teacher x condition interaction, teacher x condition x time periods for target Ss. Also, analyses of EBS means were made for experimental conditions x time, and experimental conditions of teachers for non-target Ss. These analyses appear in the following sections.

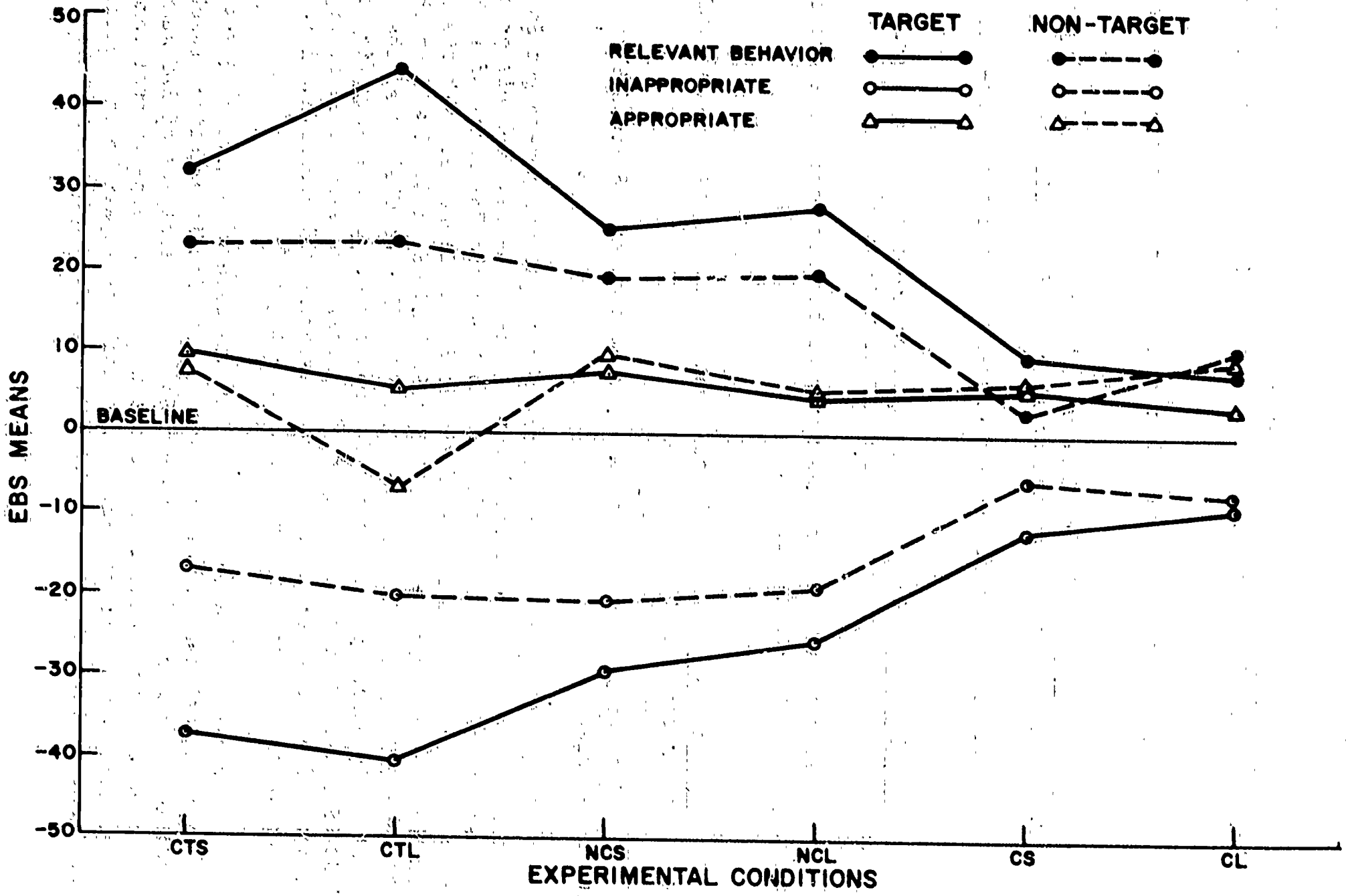

Figure 5. Relevant, inappropriate, and appropriate EBS means of target and non-target Ss as a function of the six experimental conditions.

Analyses of Variance for Target Ss

The analyses of variance of relevant, inappropriate, and appropriate EBSs appear in Table 4, page 35. The experimental conditions were significant for relevant ($F = 12.76$, $p < .01$) and inappropriate EBSs ($F = 22.35$, $p < .01$). The time period was significant for appropriate behavior, EBS means were greater for short periods than long periods ($F = 12.82$, $p < .05$). The interaction for teacher-experimental conditions was significant for relevant ($F = 4.386$, $p < .01$) and for inappropriate EBSs ($F = 3.48$, $p < .01$). The teacher-time period-experimental conditions interaction was significant for relevant EBSs ($F = 2.37$, $p < .05$).

Eta coefficients (η^2) are presented in Table 4 to provide inter-experimental comparisons of effect magnitude, a procedure described by Kennedy (1970). As suggested by η^2, prominent effect magnitudes occurred for the experimental conditions of relevant (.36) and inappropriate (.33) EBSs. The effect magnitude of T X C was .14 for relevant and .19 for appropriate EBSs. Between subjects effect was marginal for relevant (.19), inappropriate (.26), and appropriate (.23) EBSs. A greater distribution over all effects (T = .19, S = .23, T X C = .19, S X P = .13, Residual = .12) was obtained for appropriate EBSs.

Analyses of EBS Means for Target Ss

EBS means for experimental conditions. Significant differences at the .01 level were found for relevant and inappropriate EBS means between the following combinations: CT > C, NC > C, and CT > NC.

EBS means for T X C interaction. To determine which teacher was contributing to a significant teacher-experimental conditions interaction for relevant and appropriate behaviors, EBS means for each experimental condition were plotted as a function of each teacher. Figures 6 and 7 depict these data for relevant and appropriate EBS means. Inspection of Figure 6 suggests that Mrs. M's class contributed to the significant interaction. Using the Newman-Keuls procedure (Winer, 1962, pp. 80-85), an analysis of relevant EBS means indicated no significant differences between experimental conditions for Mrs. M's class. Analyses of relevant behavior showed that contingent EBS means were significantly greater ($p < .01$) than EBS means during control conditions for Miss T, Mrs. H, Mrs. C, and Mr. S, and at the .05 level for Mrs. E. In the classes of Miss T and Mrs. C the non-contingent EBS means were significantly greater than the control condition means at the .01 level. In Mrs. H's class the contingent EBS mean was greater than the non-contingent mean at the .05 level.

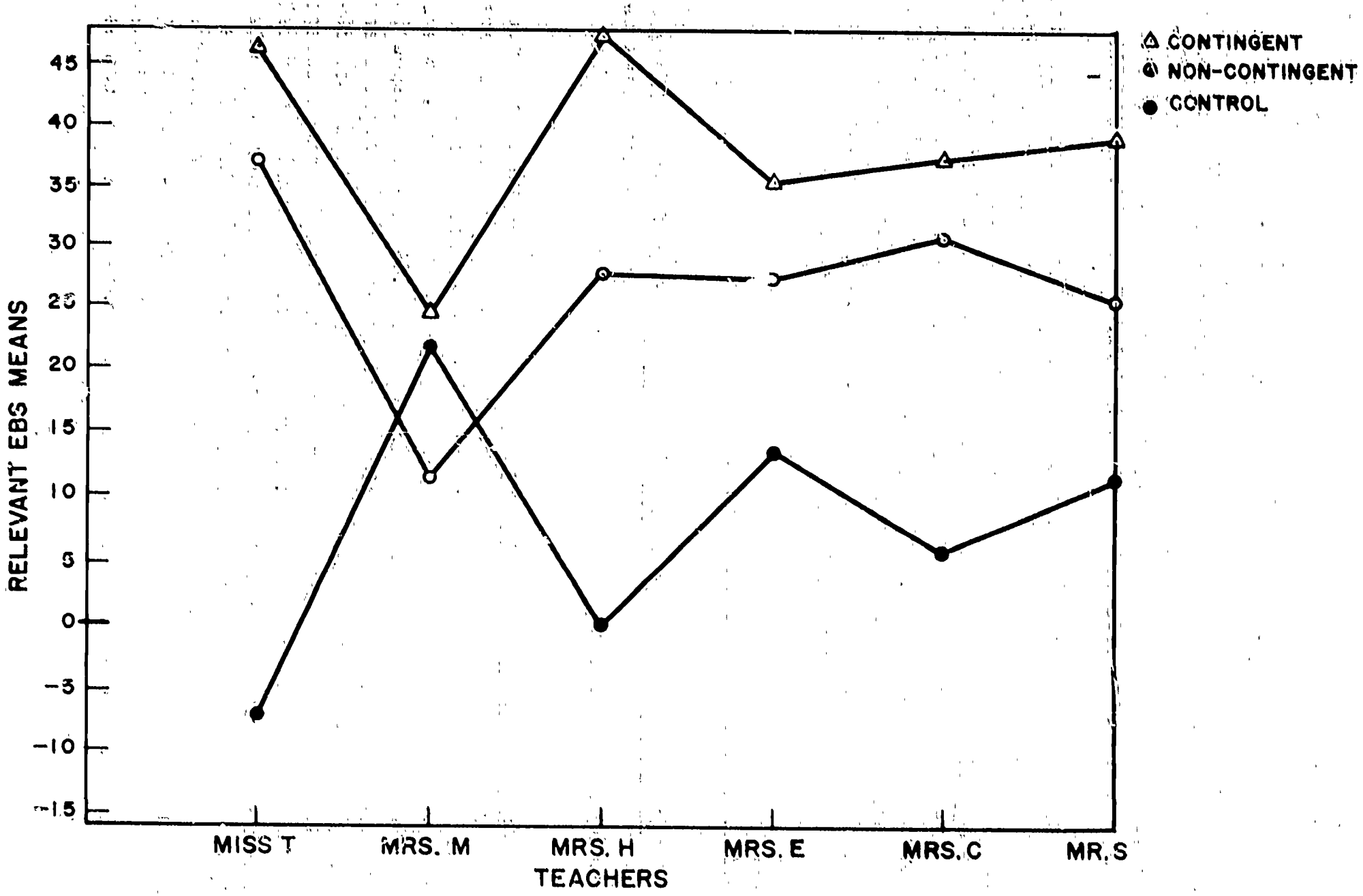

Figure 6. Relevant EBS means of target Ss for contingent, non-contingent, and control conditions as a function of each teacher.

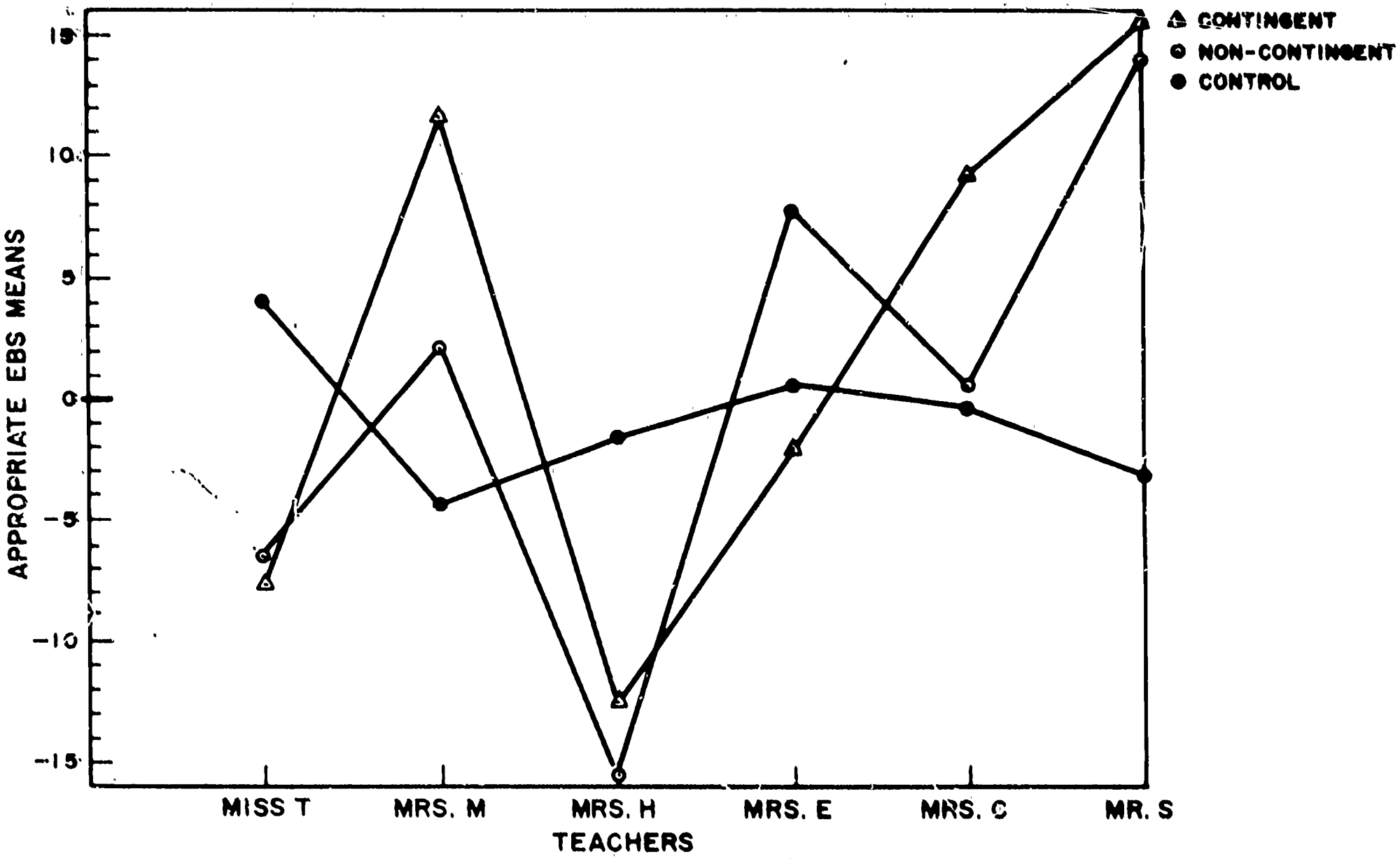

Figure 7. Appropriate EBS means of target Ss for contingent, non-contingent, and control conditions as a function of each teacher.

Inspection of Figure 7 suggests that Miss T, Mrs. M, and Mr. S contributed to significant teacher-experimental conditions interaction for appropriate behavior. The Newman-Keuls procedure indicated that differences between contingent EBS means and control EBS means were significant at the .01 level for Miss T, and at the .05 level for Mrs. M and Mr. S. A significant difference at the .05 level was computed between contingent and non-contingent EBS means for Miss T.

EBS means for T X C X P interaction. To illustrate the effects of the EBS means for the three experimental conditions as a function of short and long time periods for each teacher, EBS means were plotted in Figures 8 (relevant), 9 (inappropriate), and 10 (appropriate). During the short period of relevant behavior significant mean differences between CTS and CS means were found for Miss T, Mrs. H, and Mrs. C at the .01 level. NCS means were greater than CS at the .01 level for Miss T and Mrs. C. Significant differences between CTS and NCS means were found at the .01 level for Mrs. H.

During the long time periods of relevant behavior differences were significant at the .01 level between CTL and CL means for Miss T, Mrs. C, and Mr. S. NCL and CL mean differences were found ($p < .01$) for Miss T, Mr. S, and at the .05 level for Mrs. E. Also, difference ($p < .01$) was found between CTL and NCL for Mrs. M.

An analyses of differences between short and long time periods of relevant behavior indicated CTL > CTS ($p < .05$) and CTL > NCS at .01 level for Mrs. H. Differences were found to be significant between CTL > CTS ($p < .05$) and NCL > CTS ($p < .01$) for Mrs. E. The significant T X C X P interaction for relevant behavior was an artifact of no significant differences between the experimental conditions during the short time periods for Mrs. M, Mrs. E, and Mr. S, and during the long periods for Mrs. C.

An analyses of EBS means for inappropriate behaviors during short periods revealed that CTS > CS ($p < .01$) for Miss T, Mrs. H, Mrs. C, and Mr. S (Figure 9, page 44). NCS > CS was significant at the .01 level for Miss T, Mrs. C, and Mr. S. CTS > NCS was significant at .01 level for Mrs. E. During the long periods CTL > CL was significant for all teachers at the .01 level. CTL > NCL was significant for Miss T, Mrs. M, and Mr. S at the .01 level. NCL > CL was significantly greater at the .01 level for Mrs. H and Mr. S, and at the .05 level for Mrs. C.

Significant differences between EBS means of inappropriate behavior were found for Mrs. M (NCL > NCS, at .01 level) and for Mrs. E (CTL > CTS, at .01 level).

Significant differences of appropriate behavior means were found for Mr. S (NCS > CS, CTS > CS, NC > C, $p < .05$), and for Mrs. H's class

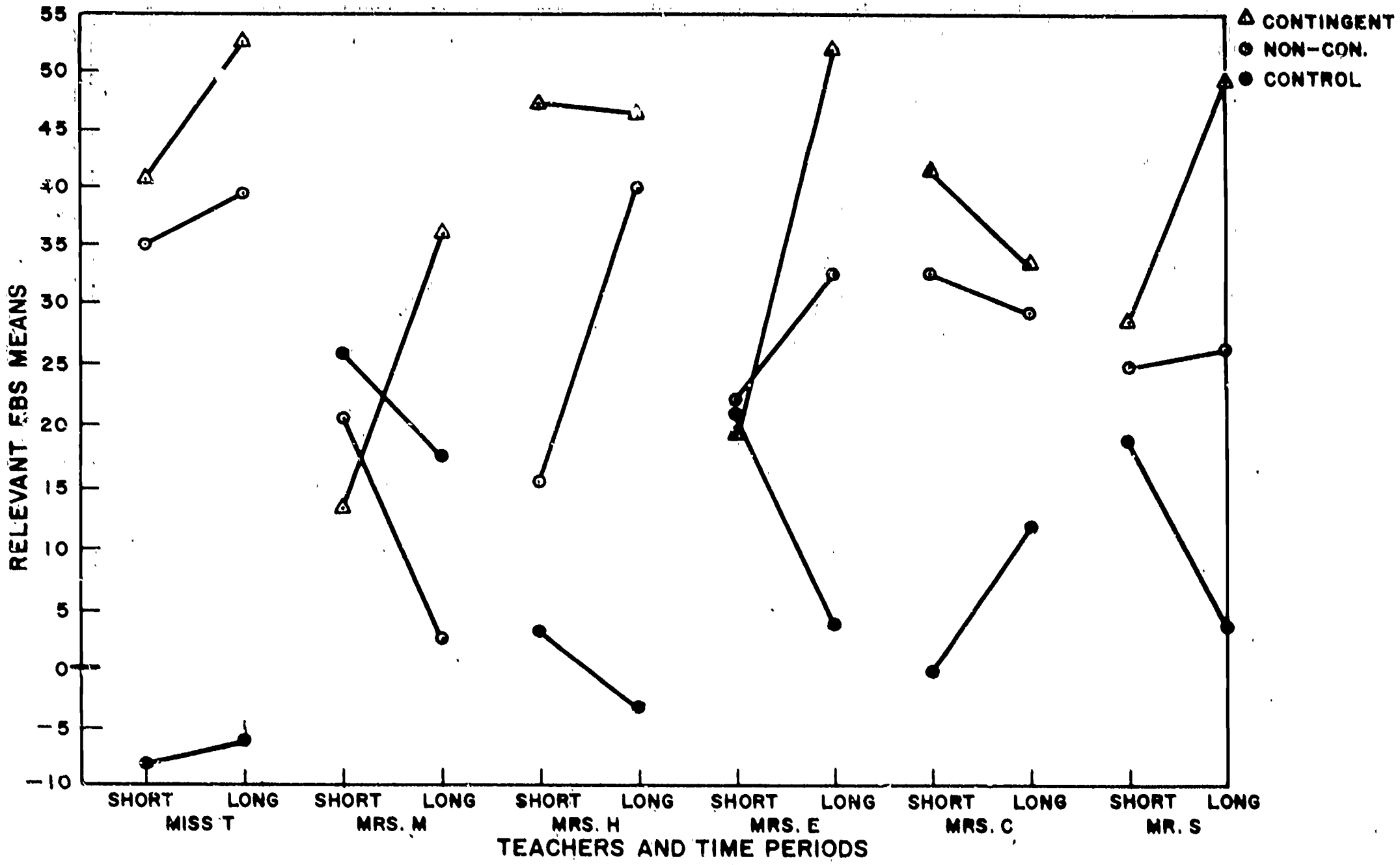

Figure 8. Relevant EBS means of target Ss for the experimental conditions as a function of short and long time periods for each teacher.

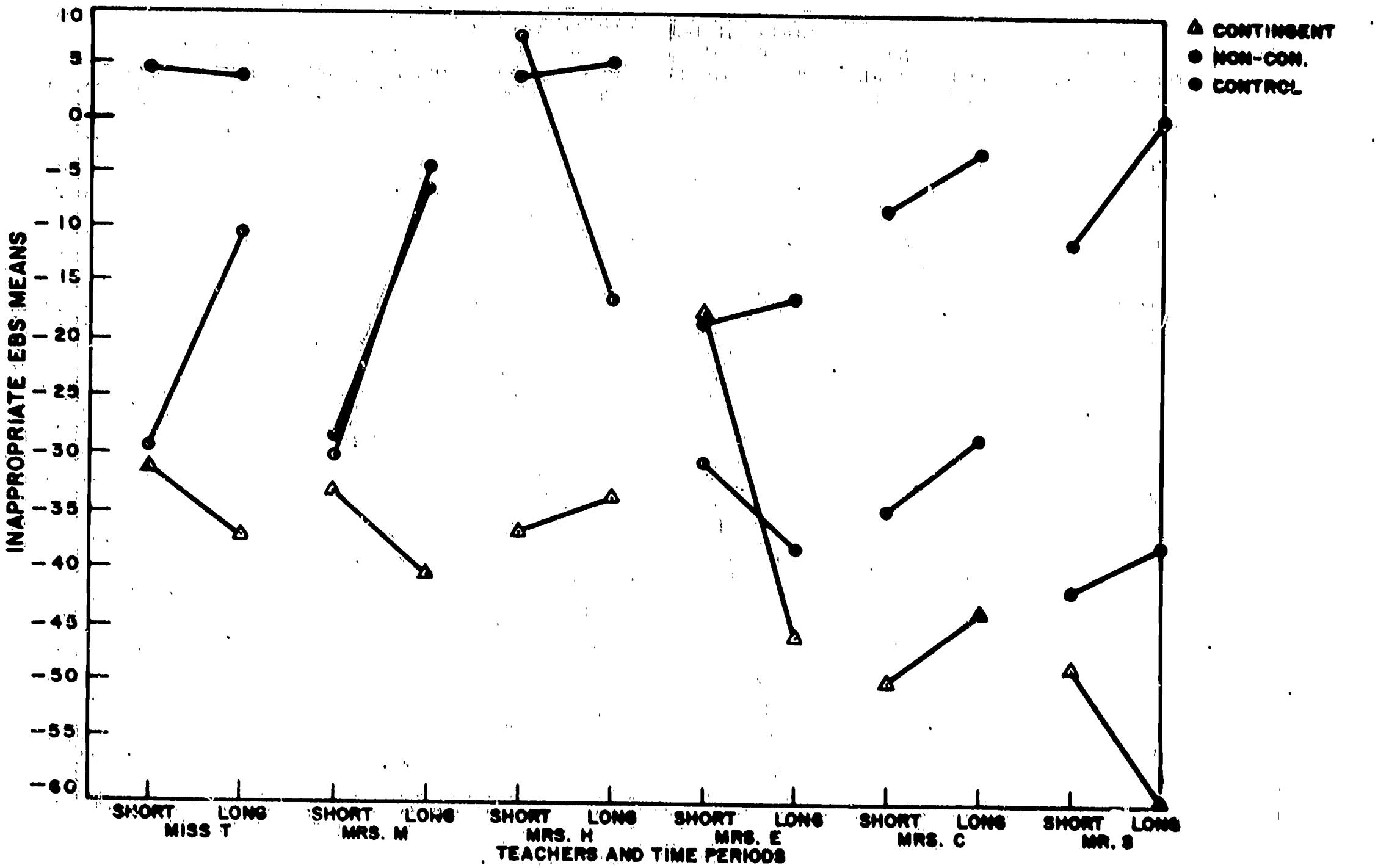

Figure 9. Inappropriate EBS means of target Ss for the experimental conditions as a function of short and long time periods for each teacher.

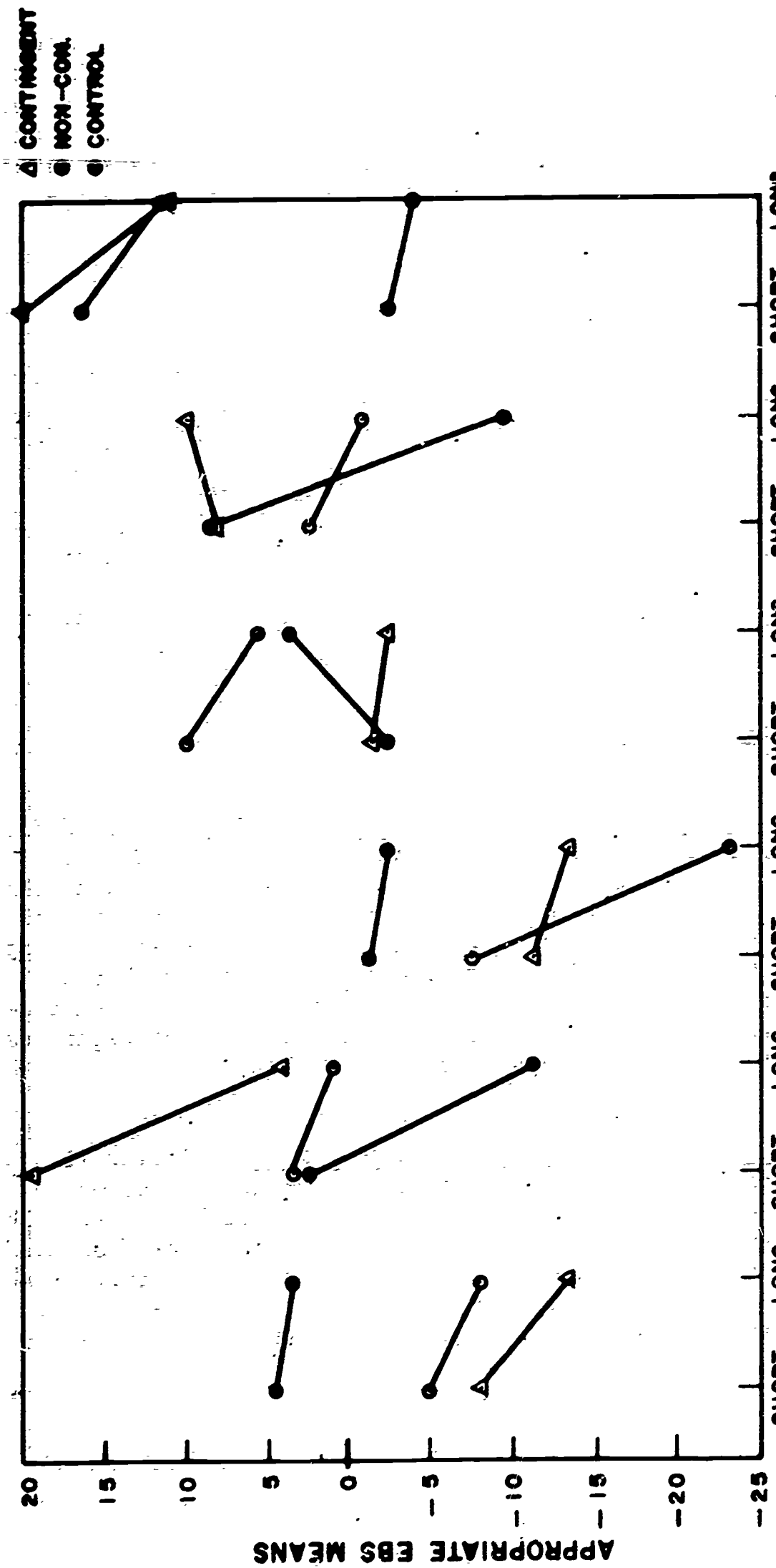

Figure 10. Appropriate EBS means of target Ss for the experimental conditions as a function of short and long time periods for each teacher.

(NC>C, $p < .05$ level). The experimental conditions were not found to be significant between time periods for appropriate behavior (Figure 10, page 44). No significant difference between experimental conditions occurred during either short or long time periods for Miss T, Mrs. M, Mrs. E, and Mrs. C. Two teachers had no significant differences between experimental conditions for a particular time period (Mrs. M and Mrs. E during the short period).

Analyses of Variance for Non-Target Ss

The analyses of variance of relevant, inappropriate, and appropriate EBSs appear in Table 5, page 36. The experimental conditions were significant for relevant ($F = 5.51$, $p < .05$) and inappropriate EBSs ($F = 7.99$, $p < .01$). Teacher effects were significant for relevant ($F = 10.00$, $p < .01$), inappropriate ($F = 7.61$, $p < .01$) and appropriate EBSs ($F = 29.98$, $p < .01$). The effect magnitude expressed by η^2 for the experimental conditions was relatively low .13 (relevant), .15 (inappropriate), and .00 (appropriate). The magnitude of teacher effects were relatively high for relevant (.57), inappropriate (.54), and appropriate (.74) EBSs.

Analyses of EBS Means for Non-Target Ss

EBS means for experimental conditions and time. Significant differences were found for relevant EBS means at the .05 level (CT>C, NC>C) and for inappropriate EBS means (CT>C at the .05 level and NC>C at the .01 level). No significant differences were found between experimental conditions for appropriate behavior. Although there were no significant differences between CT and NC EBS means, NC means were larger than CT means for relevant and inappropriate behaviors. Differences for experimental conditions between short and long time periods were not significant for relevant, inappropriate, and appropriate behaviors.

EBS means for experimental conditions of teachers. Figures 11, 12, and 13 show EBS means for each experimental condition as a function of each teacher for relevant, inappropriate, and appropriate behaviors. The Newman-Keuls analyses of mean differences of relevant behavior indicated that CT was greater than C ($p < .05$) for Mrs. H and Mr. S. Inappropriate behavior mean differences were significant for CT>C at .05 level (Miss T) and for appropriate behavior CT>C at the .05 level for Miss T's and Mrs. M's classes.

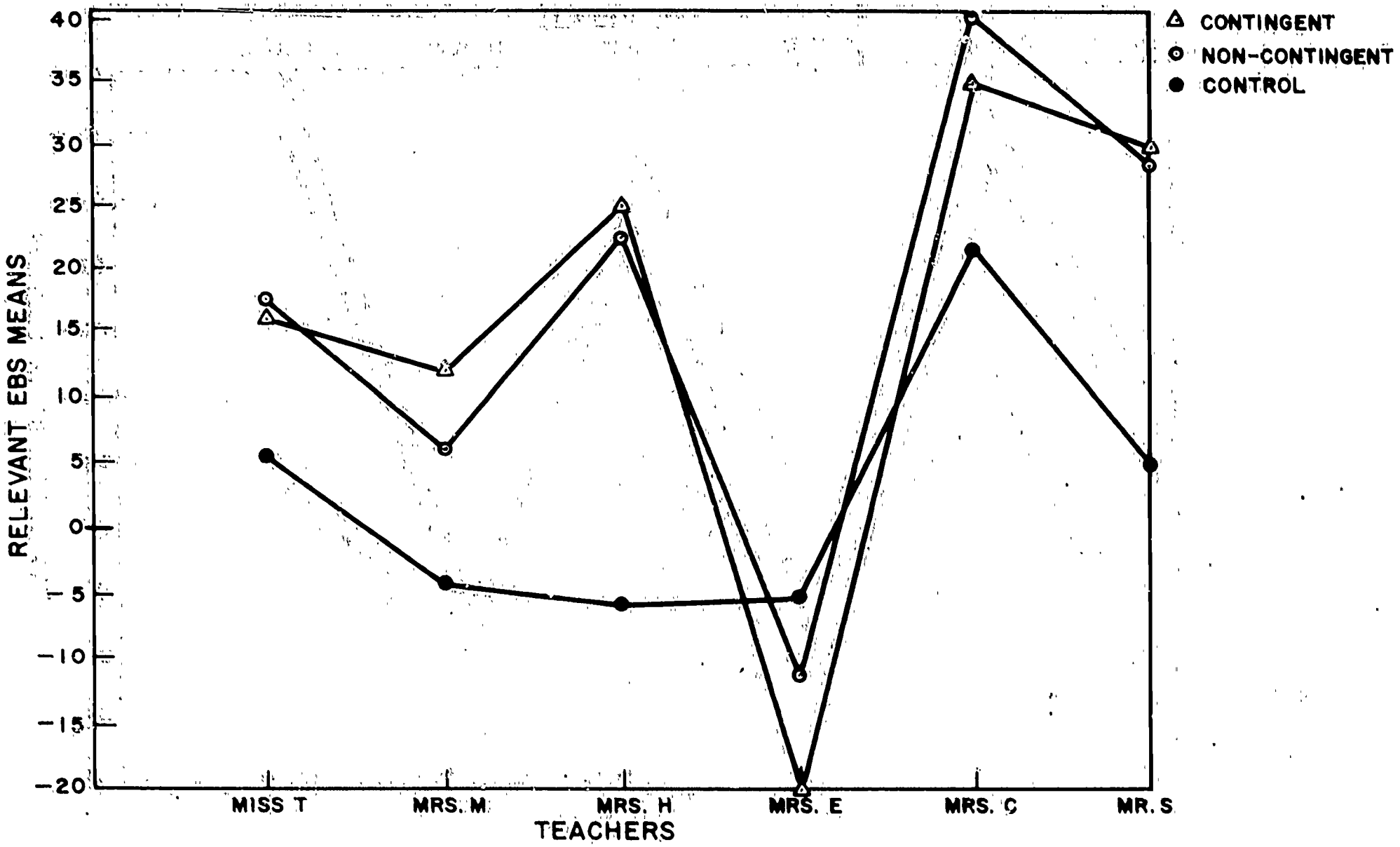

Figure 11. Relevant EBS means of non-target Ss for contingent, non-contingent, and control conditions as a function of each teacher.

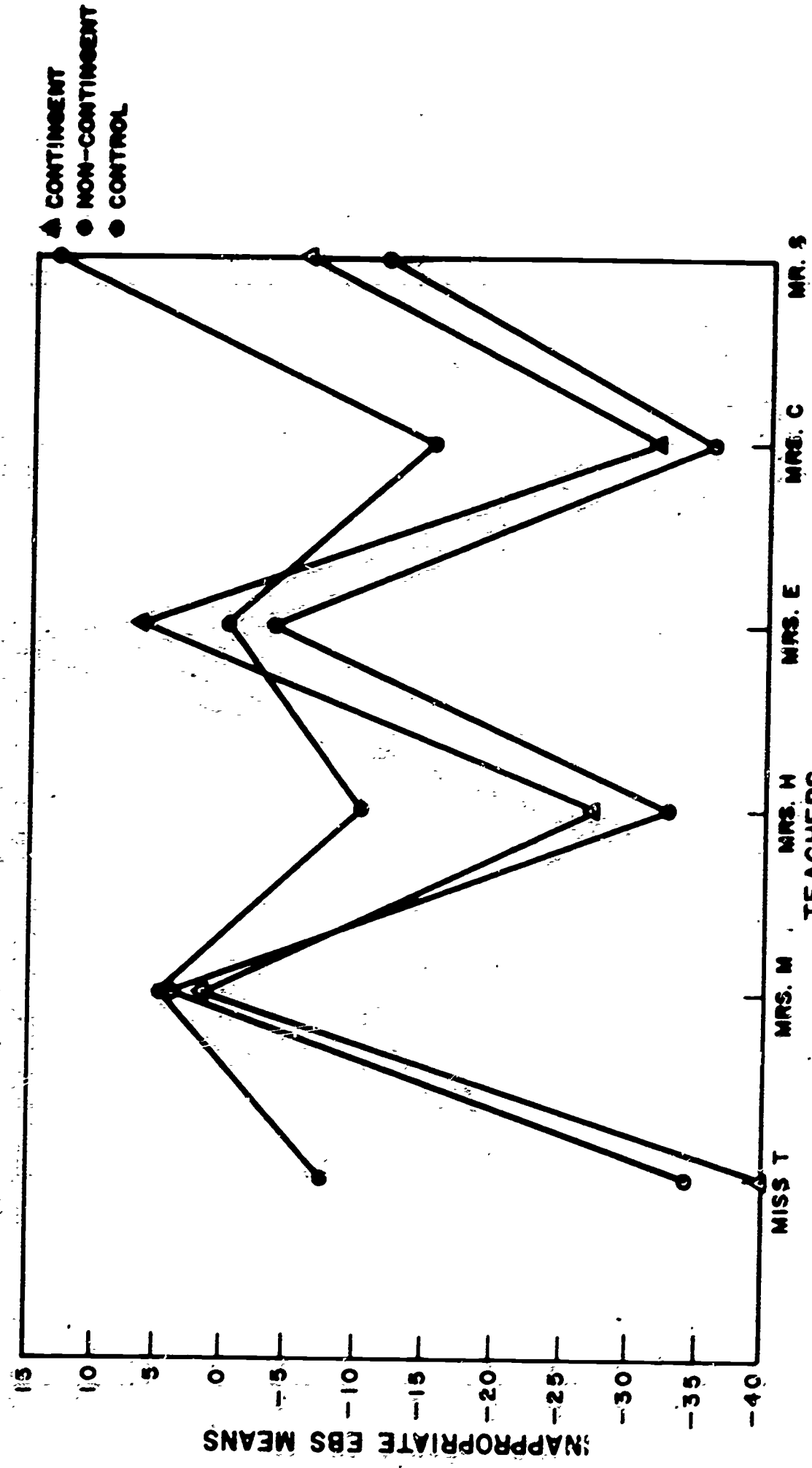

Figure 12. Inappropriate EBS means of non-target Ss for contingent, non-contingent, and control conditions as a function of each teacher.

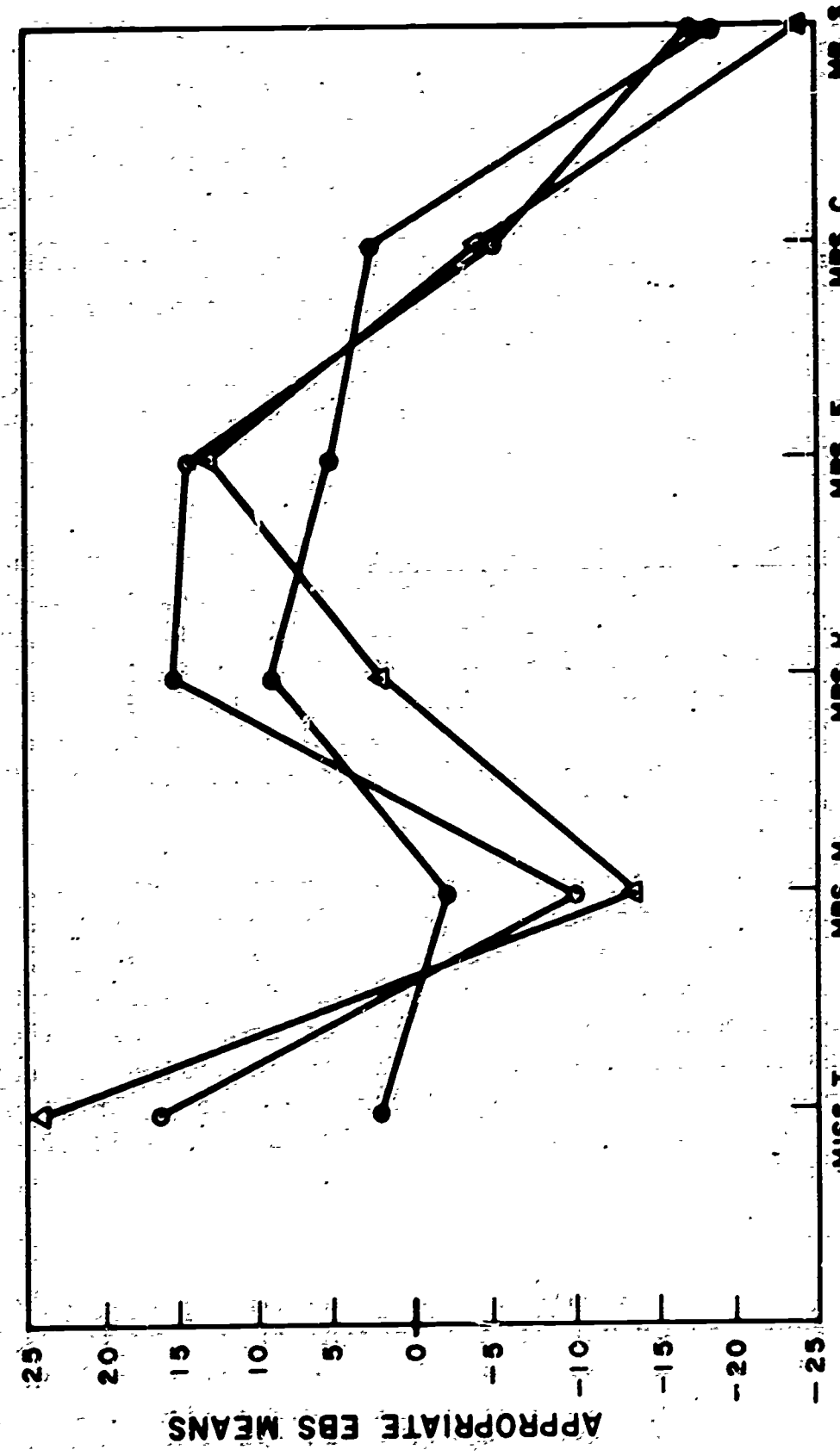

Figure 13. Appropriate EBS means of non-target Ss for contingent, non-contingent, and control conditions as a function of each teacher.

Semantic Differential and Tennessee Self Concept Scale

Semantic Differential (SD). Ss scores on each SD concept were obtained by noting the polarity of the paired adjectives (i.e., 1=bad, 7=good) and summing over the 11 seven-point scales. Therefore, to the extent that a S's total score approached 77, the upper limit, indicated a most favorable attitude for that concept.

Analysis of covariance with the pretest serving as its own covariate was computed for the 12 concepts for all Ss (see Table 11, Appendix F). English and the teacher's name were the only concepts in which there were significant adjusted mean differences between teachers. Using Scheffé's multiple comparison method (Winer, 1962, p. 88), an analysis indicated significant adjusted mean differences between two experimental classes (Miss T, $p < .01$; Mrs. C, $p < .05$) and the control class.[1] The Scheffé procedure indicated significantly greater adjusted mean differences between the experimental class and the control class (Miss T and Mrs. S, $p < .01$; Mrs. H, Mrs. E, and Mrs. C, $p < .05$). The adjusted mean differences were not found to be significant between any combination of experimental classes.

Tennessee Self Concept Scale (TSCS). To facilitate the analysis of TSCS data and to equate the raw scores for 14 different scales, all raw scale scores were transformed to T-scores. The analysis of covariance with the pretest serving as its own covariate was computed for 14 scales: Self Criticism, True-False Ratio, Self Esteem (Total P), Identify (what I am), Self Satisfaction, Behavior, Physical Self, Moral-Ethical Self, Personal Self, Family Self, Social Self, Total Variability, Distribution Score, and Disturbance (NDS).

The results of covariance analysis for the 14 scales appear in Table 12, Appendix F. Two scales were significant, Total Variability ($p < .05$) and True-False Ratio ($p < .01$). However, using the Scheffé procedure, analysis indicated no significant differences between adjusted means of the experimental classes and the control class. The significance for both scales is an artifact of relatively low adjusted means for Mrs. E's True-False Ratio ($\bar{X} = 40.11$) range of the other classes 59.82 to 65.78, and Total Variability ($\bar{X} = 42.07$) range was 53.32 - 57.11 for the other classes.

---

[1] One teacher, who had difficulty in executing the treatment conditions, was dropped because he presented a potential threat to the validity of the study. This teacher's class was used as a control for SD and TSCS data. SD and TSCS data were not obtained for the class that was added (Mr. S). Thus the analysis of covariance was computed for six teachers, five experimental and one control.

B. DISCUSSION

The present investigation provides a glimpse at the functional relationship of teacher and adolescent classroom behaviors. From experimental analysis of the effects of teacher behavior on the classroom behavior of adolescents, the importance of the principles of social reinforcement appear to be verified. The results show that the procedures used in the elementary school are also effective in a junior-senior high school environment. Such findings indicate that the behavior of a teacher exerts a great deal of influence over the classroom behavior of adolescents.

Baseline Conditions

Results of the baseline conditions reflected the same variability that existed in studies using elementary school Ss (Thomas et al., 1968; Madsen et al., 1968). Similarly, the relatively high percentage of attention to inappropriate behavior accompanied by the infrequent approval of relevant behavior was also observed in this investigation.

Less gross motor activities occurred for adolescents than for elementary school Ss (Madsen et al., 1968). A great deal of adolescent behavior consisted of sitting in his seat passively and quietly without any behavior that could be rated either inappropriate or relevant. ring this investigation appropriate behavior was a neutral category.

Contingent Praise and Attention

The results showed that contingent teacher praise and/or attention was effective in controlling the classroom behavior of target adolescents. Teacher praise or attention to relevant behavior in combination with ignoring disruptive behaviors increased relevant behaviors and concomitantly reduced inappropriate behaviors. These data corrobate results of studies using similar procedures in elementary school settings (Hall et al., 1968a, 1968b; Thomas et al., 1968; Madsen et al., 1968; Sibley et al., 1969; Ward and Baker, 1968). Also the percentage of relevant and inappropriate behaviors varied systematically for each experimental condition.

Contingent teacher praise or attention administered to target Ss generalized significantly to non-target adolescents. The increases in relevant behaviors and reduction in inappropriate behaviors that occurred for target Ss was also observed for non-target Ss. The results of this investigation corraborates reports of other studies that changes occur in the non-target pupils as a result of praising one or two target children contingently (Hall et al., 1968a; Madsen et al., 1968). Also

the data of this study support the hypothesis presented by Kanfer (1965) that vicarious reinforcement provides considerable learning experience in a classroom in which students observe the behavior and reinforcement of others. These results suggest also that target Ss might be models for non-target Ss. The behavior of models possibly functions as discriminative stimuli in facilitating the expression by others of similar behaviors (Bandura, 1969).

Non-Contingent Praise

Non-contingent praise increased the percentage of relevant behavior for target Ss but not to the extent of contingent praise and attention. The same effects also existed for decreases of inappropriate behavior. The results of this experimental condition for target Ss are contrary to other studies using non-contingent reinforcement to alter desired behavior (Bushell et al., 1968; Hart et al., 1968; Ayllon and Azrin, 1965). There are possibly two explanations for non-contingent praise increasing the frequency of relevant behavior of target Ss. One possibility might be that the teacher and his class have become associated with the positive social stimuli (praise). The frequent (approximately 10 to 14 per observational period in this study) pairing of praise with a "neutral or negative" attitude about the class setting and/or teacher might eventually elicit a positive attitude from the students about the class and/or teacher. Staats and Staats (1958) have demonstrated the formation of attitudes to verbal stimuli through classical conditioning. A similar study induced prestige suggestion through classical conditioning (Blandford and Sampson, 1964). It is very difficult to ascertain from this investigation whether or not the results of non-contingent praise were a result of a classical conditioning paradigm.

As previously presented another explanation might be the teacher's potential for acquiring positive discriminative cue properties. The process by which this occurs depends largely on the previous school experience that a student might have in receiving praise or attention from a teacher. If a student has received some positive social stimuli for some relevant classroom behavior, it is probable that a teacher could acquire positive discriminating cue properties under conditions in which praise and attention were administered non-contingently. During the baseline conditions of this investigation most teachers administered some praise or individual attention (see Table 10, Appendix B). This hypothesis might also be supported by a study using mental patients in which the high percentage of self-care behaviors under contingent conditions did not change appreciably when the reinforcers were administered non-contingently (Ayllon and Azrin, 1965).

Although the results of the non-contingent praise conditions were correlated with significant increases of relevant behaviors of non-target Ss, the results were less dramatic than for target Ss. A possible

cause for this effect might be that the average percentage of inappropriate behavior was greater for target Ss than for non-target Ss during the baseline conditions. In other classroom studies the degree of percentage decrease of inappropriate and increase of relevant behavior has been attributed to the relatively high or low percentage of inappropriate behavior that occurred during baseline (O'Leary and Becker, 1967; O'Leary, Becker, Evans, and Saudargas, 1969). These investigators suggest that the percentage of increase or decrease during treatment is directly related to the percentage of inappropriate or disruptive behavior that occurred during baseline.

Control Conditions

The sequence in which the control conditions occurred was different for each teacher. Control conditions for Miss T, Mrs. H, and Mrs. C were randomly selected to occur either at the beginning or end of the other four experimental conditions. For Miss T (CL and CS) and Mrs. C (CL), where the control conditions were at the end of the investigation, reversals occurred for all target and non-target Ss. The typical ABAB design found in applied behavior analysis existed for Mrs. M and Mr. S, again on the basis of random selection of the sequence. Reversals and reinstatement of relevant behaviors occurred for target and non-target Ss in Mr. S's class which demonstrates reliable control of the dependent variables. For Mrs. M, Stuart's relevant behavior (Figure 14, Appendix C) did not decrease (reverse with inappropriate behavior) during the control conditions which is probably a result of the two preceding contingent conditions and the high percentage increase of relevant behavior. Also, Barbara's relevant behavior (Figure 16, Appendix C) reversed during the control sessions but was not reinstated during NCS. Perhaps the non-contingent social stimuli were too weak as reinforcers to increase the relevant behavior.

The experimental sequence of Mrs. E's class presented a setting in which the effects of a double reversal technique could be observed. Baer et al. (1968) maintain that reversals may be detrimental to the Ss if pursued too often. On the other hand they hypothesize that repeated reversals in some settings may have a positive effect on the subject by contributing to the discrimination of revelant stimuli involved in the setting. George's relevant behavior (Figure 22, Appendix C) was reversed during both control conditions and in each case successfully reinstated by non-contingent praise. The double reversal did not appear to have an adverse effect on his relevant behavior. Jim's relevant behavior (Figure 23, Appendix C) was reversed during the first control condition but not during the second. Jim's behavior suggests a possible corollary to Baer's hypothesis that repeated reversals may be effective only if the desired behavior is not maintained at a high percentage during the initial reversal.

Reversals occurred for non-target Ss when a control condition was preceded by CTS, CTL, NCS, and NCL for five classes (Mrs. M was the exception). It is difficult to account for these reversals as an artifact of random fluctuations when considering that the experimental conditions were systematically executed.

Time Periods

The results of this investigation showed that the only significant difference between the experimental conditions for short and long time periods of target Ss occurred for appropriate behavior. No significant differences between time periods occurred for non-target Ss. Statistically these data support the results of other studies using adolescent subjects in which rapid and stable changes were reported using tokens and money as reinforcers (Phillips, 1968; Meichenbaum et al., 1968). However, a closer examination of the data revea' that there are individual classroom and subject differences. For example, analyses of EBS means for each class indicated that only one class had no significant differences between experimental conditions during the long periods for relevant and inappropriate behaviors. The results of relevant and inappropriate behaviors during short periods were not significant for five classes. Possibly for these five classes teacher praise and/or attention was too weak as a reinforcer to elicit rapid changes in a short time period. Thus, generalizations about the rapidity or amount of changes in classroom behavior occurring within a specified time period are tenuous. Perhaps the results of the time effect reaffirm one of the basic characteristics of the functional analysis paradigm, namely, the problem of inferences based on group data. If education is to provide more than tacit recognition of individual differences, researchers should not be deceived into concluding that the group type of research provides a more adequately controlled or more generalizable substitute for individual data.

Semantic Differential

SD data suggest that a significant change occurred in the attitude about a concept that described the environmental events being manipulated (the teacher's behavior). Similar results were obtained by Wahler and Pollio (1968) in a single S design in which behavior therapy techniques were used to change a patient's behavior and SD rated concepts, reflecting his behavior, indicated changes in the S's attitude.

The results of the SD in this investigation allow only ambiguous specification of the relationship between a student's attitude about a teacher and his social interaction with that teacher. However, as indicated by Wahler and Pollio (1968), this procedure does suggest a

single S method for assessing the effects of changes in classroom behavior and attitudes related to that behavior or environmental event.

Tennessee Self Concept Scale

The purpose of administering the TSCS was to assess attitudes about certain aspects of self from the Ss who participated in this investigation. There appears to be two points of view concerning the attitudes that disadvantaged children have about themselves. According to Witty (1967), the culturally disadvantaged seem to mirror negative attitudes of others which is also reflected in their negative self-images. On the other hand, Soares and Soares (1969) found that the disadvantaged do not necessarily reflect negative self perception or lower self-esteem. The T-scores of the 14 TSCS scales of this investigation were what Fitts (1965) has described as a "normal" response range which appears to support the above findings of Soares and Soares (1969).

The failure to provide evidence suggesting that teacher contingent and non-contingent praise and/or attention be reflected in significant changes in certain dimensions of self might be related to two factors. First, the relatively short time period (4 months) in which the dimensions of self were measured and, secondly, the "normal" ranges of response profiles for 14 scales. Wheat, Slaughter, and Frank (1967) have provided a possible explanation of why disadvantaged children do not necessarily suffer from low self concept. The authors suggest that the environment of individuals in disadvantaged areas, in terms of social agencies and models, serves to reinforce a "healthy" self concept and self acceptance. The environment segregates and insulates the individual from being able to discriminate or identify the "symbols of advantagement"--educational achievement and economic "efficiency." Thus self-perceptions acquired in this fashion are highly resistent to extinction and a "normal" degree of self satisfaction is indicative of a low motivation for change (Wheat et al., 1967).

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A. Summary

Purpose

The application of social reinforcement by the teacher to modify the classroom behavior of adolescents was the major purpose of this study. Experimental analysis of classroom behavior has demonstrated that the pre-school and primary teacher can create a more effective classroom for learning by applying social reinforcement. The primary aim of this investigation was to study the effects of teacher contingent and non-contingent (random) social reinforcement (praise and/or attention) on the classroom behavior of economically disadvantaged adolescents. Other purposes of the study were to explore the length of time necessary to demonstrate marked changes in behavior, and to ascertain the relationship between contingent social reinforcement on the non-target members of the classroom.

Design and Conduct of the Study

The study was conducted with six eighth-grade classes in a junior-senior high school. Six teachers volunteered to participate in the study and one class period for each teacher was selected. Each teacher identified three target adolescents in his class as being either disruptive or not motivated to do assigned work. All other members (non-target) of each class were numbered and the daily procedure for selecting the three non-target students consisted of using a table of random numbers with replacement. The teacher, three target, and three non-target adolescents were observed daily in each class.

After several weeks of observing and recording the most common classroom behaviors for the teachers and adolescents, the behaviors were grouped on the basis of similarity. Ten categories for adolescents and nine for the teachers were rated.

Observer reliabilities were computed weekly between six observers. Also, classroom reliabilities were obtained for pairs of observers during the initial phases of the study.

At the end of baseline period, teachers were instructed on the principles of social reinforcement. Instructions were given individually to each teacher on ignoring inappropriate behavior, contingent praise

and/or attention, and non-contingent praise. There were six experimental conditions: contingent short, contingent long, non-contingent short, non-contingent long, control short, and control long. The short time periods were four days and long eight days. During control conditions teachers were instructed to reinstate the baseline conditions. Assignment of teachers and the sequence of the six experimental conditions were random.

The Semantic Differential and the Tennessee Self Concept Scale were administered to all target and non-target Ss during baseline conditions (pre-test) and following the experimental conditions (post-test). The reliability of the SD was computed to be .93.

Analysis of Data

Line graphs were plotted to illustrate the percentage of relevant and inappropriate behaviors for target and non-target subjects as a function of baseline and each experimental condition.

Analyses of variance between experimental (contingent and non-contingent) and control conditions of target and non-target subjects showed significant increases of relevant and significant decreases in inappropriate behaviors.

No significant differences between contingent and non-contingent conditions were found for target and non-target subjects.

The effect of time periods was significant only for appropriate behavior of target subjects. Individual subject and classroom differences in favor of long time periods were found for target subjects.

Analyses of means between combinations of classes, experimental conditions, and time periods were provided.

Analysis of covariance for SD data revealed that only one concept (Teacher's name) was significant. The covariance analyses of 14 scales on the Tennessee Self Concept Scale were not significant.

Evaluation of the Findings

A teacher will increase his teaching efficiency by ignoring inappropriate and praising or attending to relevant classroom behaviors consistently.

Teacher contingent praise and/or attention to target adolescents will generalize and increase relevant behaviors for non-target students.

Teacher non-contingent praise is effective in increasing the relevant behavior of all students.

An increase in the teacher's reinforcing potential which is demonstrated by a significant change in the student's behavior will probably also reflect a favorable student attitude toward the teacher.

B. Conclusions

From this investigation it seems that the success of any training program dealing with contingency management depends largely on the success that the individual teacher has in increasing the desired behavior. A teacher can modify and control the behavior of his students only if he can control his own behavior. In order to facilitate teacher training in behavioral control, video-tape recordings could be used. The recordings could be made from a portable cubical placed unobstrusively in the classroom. One way glass windows could facilitate recording without influencing the behaviors of the students or teacher. Also, after baseline conditons were obtained, video recordings would alert the teacher of his actions on the behavior of students. The video tapes could be used for pre- and in-service training of teachers in the principles of contingency management.

This investigation is a further demonstration of the importance of specific teacher behaviors in influencing the classroom behavior of students. There are five major implications for teachers of adolescents that can be derived from this study.

1. The teacher who uses praise and attention as an immediate consequence for relevant behavior should find that the frequency and duration of the desired behaviors increase (at least for most students).

2. Teachers who consistently attend to disruptive or inappropriate classroom behavior will find an increase in those behaviors. By ignoring inappropriate and praising or attending to relevant behaviors consistently and at the same time, the teacher will increase his teaching efficiency, and possibly create a favorable attitude about him from his students.

3. Teacher contingent praise and/or attention to target adolescents will generalize and increase relevant behaviors for non-target students.

4. Teacher non-contingent praise is effective in increasing the relevant behavior of all students.

5. The results emphasize that the essential factors concerned with teaching are the functional interaction between a responding student and responsive teacher. Age and personality characteristics of the teacher do not appear to be significant variables in learning to use and to apply these procedures.

C. Recommendations

There are several empirical questions that have emerged from this investigation and which future studies should endeavor to answer.

1. A study should attempt to answer whether or not these data will generalize to middle class adolescents. It is quite possible that social reinforcement would be more effective in increasing desirable behavior with middle class adolescents.

2. The effects of this investigation have been remedial and a study should explore the permanency of the changes in behavior. It is possible that the adolescent with the teacher's help can develop self-contingencies (see Lovitt and Curtiss, 1969).

3. It is quite possible that the experimental conditions have confounded the effects of non-contingent praise. Further studies should attempt to explore non-contingent praise as a single independent variable.

4. Other studies should seek to develop other techniques that can be used simultaneously with contingent praise, for example, tokens or some classroom activity or event. Possibly tokens or a point system might be a stronger reinforcer for economically disadvantaged adolescents.

5. Modeling or vicarious reinforcement should be explored to determine the model's characteristics or attributes (age, sex, socio-economic status, peer prestige, or power) that will have the greatest response-facilitating effect in the classroom.

6. If desired behavior can be increased in one classroom situation, studies should attempt to answer under what settings will the desired behavior generalize to other settings such as another classroom, the home, or the peer group.

7. To assess and to determine the relationship between specific changes in behavior and changes in attitudes, future studies might use a single S's verbal associations or the Semantic Differential to a particular concept.

8. In order to provide for a criterion of reliability and possibly more powerful generality, this investigation should be replicated.

REFERENCES

Allen, K. E., Hart, B. M., Buell, J. S., Harris, F. R., and Wolf, M. M. Effects of social reinforcement on isolate behavior of a nursery school child. Child Development, 1964, 35, 511-518.

Allen, K. E., Henke, L. B., Harris, F. R., Baer, D. M., and Reynolds, N. J. Control of hyperactivity by social reinforcement of attending behavior. Journal of Educational Psychology, 1967, 58, 231-237.

Ausubel, D. P. Educational Psychology. New York: Holt, Rinehart, and Winston, 1968.

Ayllon, T., and Azrin, N. H. The measurement and reinforcement of behavior of psychotics. Journal of the Experimental Analysis of Behavior, 1965, 8, 357-383.

Baer, D. M., Wolf, M. M., and Risley, T. R. Some current dimensions of applied behavior analysis. Journal of Applied Behavior Analysis, 1968, 1, 91-97.

Bandura, A., and Walters, R. H. Social Learning and Personality Development. New York: Holt, Rinehart, and Winston, 1963.

Bandura, A. Principles of Behavior Modification. New York: Holt, Rinehart, and Winston, 1969.

Becker, W. C., Madsen, C. H., Jr., Arnold, C. R., and Thomas, D. R. The contingent use of teacher attention and praise in reducing classroom behavior problems. The Journal of Special Education, 1967, 1, 287-307.

Bijou, S. W., Peterson, R. F., and Ault, M. H. A method to integrate descriptive and experimental field studies at the level of data and empirical concepts. Journal of Applied Behavior Analysis, 1968, 1, 175-191.

Bijou, S. W., Peterson, R. F., Harris, F. R., Allen, K. E., and Johnston, M. S. Methodology for experimental studies of young children in natural settings. The Psychological Record, 1969, 19, 177-210.

Blandford, D. H., and Sampson, E. E. Induction of prestige suggestion through classical conditioning. Journal of Abnormal and Social Psychology, 1964, 69, 332-337.

Bradford, L. The teaching-learning transaction. Adult Education, 1958, 8, 135-145.

Brown, P., and Elliott, R. The control of aggression in a nursery school class. Journal of Experimental Child Psychology, 1965, 2, 103-107.

Burchard, J., and Tyler, V., Jr. The modification of delinquent behavior through operant conditioning. Behaviour Research and Therapy, 1965, 2, 245-250.

Bushell, D., Jr., Wrobel, P. A., and Michaelis, M. L. Applying "group" contingencies to the classroom study behavior of preschool children. Journal of Applied Behavior Analysis, 1968, 1, 55-61.

Campbell, D. T., and Stanley, J. C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally, 1963.

Clark, M., Lachowicz, J., and Wolf, M. A pilot basic education program for school dropouts incorporating a token reinforcement system. Behaviour Research and Therapy, 1968, 6, 183-188.

Dreikurs, R. Psychology in the Classroom. New York: Harper, 1959.

Fitts, W. H. Tennessee Self Concept Scale Manual. Nashville, Tenn.: Counselor Recordings and Tests, 1965.

Flanders, N. A. Personal-social anxiety as a factor in experimental learning situations. Journal of Educational Research, 1951, 45, 100-110.

Hall, R. V., Lund, D., and Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968a, 1, 1-12.

Hall, R. V., Panyan, M., Rabon, D., and Broden, M. Instructing beginning teachers in reinforcement procedures which improve classroom control. Journal of Applied Behavior Analysis, 1968b, 1, 315-322.

Hart, B. M., Allen, K. E., Buell, J. S., Harris, F. R., and Wolf, M. M. Effects of social reinforcement on operant crying. Journal of Experimental Child Psychology, 1964, 1, 145-153.

Hart, B. M., Reynolds, N. J., Baer, D. M., Brawley, E. R., and Harris, F. R. Effect of contingent and non-contingent social reinforcement on the cooperative play of a preschool child. Journal of Applied Behavior Analysis, 1968, 1, 73-76.

Johnston, M. S., Kelley, C. S., Harris, F. R., and Wolf, M. M. An Application of reinforcement principles to development of motor skills of a young child. Child Development, 1966, 37, 379-387.

Kanfer, F. H. Vicarious human reinforcement: A glimpse into the black box. In L. Krasner and L. P. Ullman (Eds.), Research in Behavior Modification. New York: Holt, Rinehart, and Winston, 1965, pp. 244-267.

Kennedy, J. J. The eta coefficient in complex ANOVA designs. Educational and Psychological Measurement, in press.

Kuhn, T. S. The Structure of Scientific Revolutions. Chicago: The University of Chicago Press, 1962.

Lovitt, T. C., and Curtiss, K. A. Academic response rate as a function of teacher- and self-imposed contingencies. Journal of Applied Behavior Analysis, 1969, 2, 49-53.

Madsen, C. H., Jr., Becker, W. C., Thomas, D. R., Koser, L., and Plager, E. An analysis of the reinforcing function of "sit down" commands. In R. K. Parker (Ed.), Readings in Educational Psychology. Boston: Allyn and Bacon, 1968, pp. 265-278.

Madsen, C. H., Jr., Becker, W. C., and Thomas, D. R. Rules, praise, and ignoring: Elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1, 139-150.

McKeachie, W. J. Student-centered vs. instructor-centered instruction. Journal of Educational Psychology, 1954, 45, 143-150.

Meichenbaum, D. H., Bowers, K. S., and Ross, R. R. Modification of classroom behavior of institutionized female adolescent offenders. Behaviour Research and Therapy, 1968, 6, 343-353.

Nolen, P. A., Kunzelmann, H. P., and Haring, N. G. Behavioral modification in a junior high learning disabilities classroom. Exceptional Children, 1967, 34, 163-168.

O'Leary, K. D., and Becker, W. C. Behavior modification in an adjustment class: A token reinforcement program. Exceptional Children, 1967, 33, 637-642.

O'Leary, K. D., Becker, W. C., Evans, M. B., and Saudargas, R. A. A token reinforcement program in a public school: A replication and systematic analysis. Journal of Applied Behavior Analysis, 1969, 2, 3-13.

Patterson, G. R. An application of conditioning techniques to the control of a hyperactive child. In L. P. Ullman and L. Krasner (Eds.), Case Studies in Behavior Modification. New York: Holt, Rinehart, and Winston, 1966, pp. 370-375.

Patterson, G. R., and Gullion, M. E. Living with Children. Champaign, Illinois: Research Press, 1968.

Phillips, E. L. Achievement place: Token reinforcement procedures in a home-style rehabilitation setting for "pre-delinquent" boys. Journal of Applied Behavior Analysis, 1968, 1, 213-223.

Prescott, D. A. The Child in the Educative Process. New York: McGraw-Hill, 1957.

Schutz, R. E., and Baker, R. L. "The experimental analysis of behavior" in educational research. Psychology in the Schools, 1968, 5, 240-247.

Schwitzgebel, R., and Kolb, D. A. Inducing behaviour change in adolescent delinquents. Behaviour Research and Therapy, 1964, 1, 297-304.

Scott, W. A. Reliability of content analysis: The case of nominal scale coding. Public Opinion Quarterly, 1955, 19, 321-325.

Scott, P. M., Burton, R. V., and Yarrow, M. R. Social reinforcement under natural conditions. Child Development, 1967, 38, 53-63.

Sibley, S. A., Abbott, M. S., and Cooper, B. P. Modification of the classroom behavior of a disadvantaged kindergarten boy by social reinforcement and isolation. Journal of Experimental Child Psychology, 1969, 7, 203-219.

Sidman, M. Tactics of Scientific Research. New York: Basic Books, 1960.

Snygg, D., and Combs, A. W. Individual Behavior. New York: Harper, 1949.

Soares, A. T., and Soares, L. M. Self-perceptions of culturally disadvantaged children. American Educational Research Journal, 1969, 6, 31-45.

Staats, A. W., and Staats, C. K. Attitudes established by classical conditioning. Journal of Abnormal and Social Psychology, 1958, 57, 37-40.

Staats, A. W., and Butterfield, W. H. Treatment of nonreading in a culturally-deprived juvenile delinquent: An application of reinforcement principles. Child Development, 1965, 36, 925-942.

Staats, A. W., Minke, K. A., Goodwin, W., and Landeen, J. Cognitive behavior modification: 'Motivated learning' reading treatment with subprofessional therapy-technicians. Behaviour Research and Therapy, 1967, 5, 283-299.

Thomas, D. R., Becker, W. C., and Armstrong, M. Production and elimination of disruptive classroom behavior by systematically varying teacher's behavior. Journal of Applied Behavior Analysis, 1968, 1, 35-45.

Wahler, R. G., and Pollio, H. R. Behavior and insight: A case study in behavior therapy. Journal of Experimental Research in Personality, 1968, 3, 45-56.

Wallen, N. E., and Travers, R. M. W. Analysis and investigation of teaching methods. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, pp. 448-505.

Ward, M. H., and Baker, B. L. Reinforcement therapy in the classroom. Journal of Applied Behavior Analysis, 1968, 1, 323-328.

Wheat, W. D., Slaughter, R., and Frank, J. D. Rehabilitation of chronically ill psychiatric patients. Final report, Project No. 155, Johns Hopkins University, 1967.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1962.

Witty, P. A. (Ed.). The Educationally Retarded and Disadvantaged. Sixty-sixth yearbook, Part I. Chicago, Ill.: National Society for the Study of Education, 1967.

Zimmerman, E. H., and Zimmerman, J. The alteration of behavior in a special classroom situation. Journal of the Experimental Analysis of Behavior, 1962, 5, 59-60.

APPENDIX A

TABLE 6

EIGHT WEEK AVERAGES OF PI COEFFICIENTS FOR SIX OBSERVERS

Observers	OBSERVERS 1	2	3	4	5	6
1	—	.89	.94	.86	.78	.89
2		—	.96	.93	.90	.86
3			—	.93	.92	.86
4				—	.87	.94
5					—	.97
6						—

TABLE 7

CLASSROOM PI COEFFICIENTS FOR PAIRS OF OBSERVERS

Classroom Sessions[a]	OBSERVERS					
	1	2	3	4	5	6
1	.74	.86	.88	.91	.87	.96
2	.91	.95	.96	.96	.98	.94
3		.97	.92	.94		.95
4			.93			.97

[a]The classroom sessions for reliability checks were held almost weekly during the initial phases of the study.

APPENDIX B

TABLE 8

PERCENTAGES OF RATED CATEGORIES FOR THE EXPERIMENTAL CONDITIONS OF EACH TARGET SUBJECT

Ss	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
BASELINE										
Miss T										
Roger	0.0	33.1	0.0	2.5	6.9	0.7	18.7	7.5	12.5	18.1
Louis	0.0	15.4	0.0	13.9	2.8	1.4	12.6	4.9	18.2	30.8
Stan	0.0	0.9	0.9	1.9	0.9	2.9	24.0	11.5	6.7	50.0
Mrs. M										
Stuart	3.6	3.6	0.0	7.1	9.5	2.4	17.9	13.1	14.3	28.6
Fred	0.0	1.4	0.0	10.4	6.9	1.4	15.9	19.4	14.6	29.9
Barbara	0.0	12.0	0.0	11.4	3.0	6.8	5.3	8.3	21.9	31.1
Mrs. H										
Donald	0.0	0.0	0.0	33.3	0.0	5.6	0.0	5.6	0.0	55.6
Tim	3.2	2.4	1.6	0.8	1.6	5.6	14.3	6.3	14.3	50.0
Jim	0.0	2.6	0.0	10.9	7.7	1.9	22.6	14.2	10.9	29.0
Mrs. E										
George	9.0	0.0	0	1.3	6.4	8.4	7.1	13.6	27.1	27.1
Jim	0.0	11.8	0.0	4.9	7.6	5.6	13.9	8.3	33.3	14.6
Bobby	0.0	9.7	0.0	4.9	3.5	6.2	9.7	12.5	35.4	18.1
Mrs. C										
Mark	0.0	7.4	0.0	8.3	9.3	5.6	14.8	4.6	30.6	19.4
Danny	0.0	44.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6
Sherry	0.0	2.2	0.0	7.2	0.7	0.0	5.8	2.2	33.3	48.6
Mr. S										
Gary	0.0	4.0	0.0	3.2	0.0	32.0	19.2	4.8	23.2	13.6
Brenda	0.0	2.2	1.1	4.5	4.5	3.4	12.4	13.5	42.7	15.7
Jerry	0.0	0.0	0.0	6.0	1.2	2.4	34.9	3.6	10.8	40.9

TABLE 8 (continued)

Ss	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
CONTINGENT SHORT (CTS)										
Miss T										
Roger	12.7	32.4	5.6	19.7	0.0	0.0	5.6	2.8	1.4	19.7
Louis	4.3	14.3	10.0	20.0	0.0	1.4	7.1	1.4	2.9	38.6
Stan	13.9	22.2	11.1	18.1	0.0	0.0	6.9	1.4	6.9	19.4
Mrs. M										
Stuart	2.9	25.0	0.0	0.0	0.0	0.0	4.2	1.4	0.0	66.7
Fred	0.0	12.5	0.0	4.2	4.2	0.0	18.1	11.1	0.0	50.0
Barbara	0.0	22.2	0.0	22.2	0.0	1.4	6.9	0.0	18.1	29.2
Mrs. H										
Donald	2.7	21.6	2.7	18.9	0.0	0.0	2.7	1.3	18.9	31.1
Tim	3.8	9.4	1.9	18.9	0.0	0.0	3.8	0.0	1.9	60.4
Jim	5.0	42.5	2.5	37.5	0.0	0.0	2.5	0.0	0.0	10.0
Mrs. E										
George	0.0	23.6	1.4	4.2	5.6	1.4	8.3	9.7	2.8	43.1
Jim	0.0	54.2	5.6	6.9	4.2	2.8	11.1	5.6	4.2	5.6
Bobby	4.2	1.4	0.0	1.4	6.9	5.6	38.9	18.1	16.7	6.9
Mrs. C										
Mark	4.6	25.0	0.0	18.2	2.3	0.0	9.1	0.0	0.0	40.9
Danny	3.8	5.7	7.6	37.8	0.0	0.0	1.9	0.0	3.8	39.6
Sherry	0.0	27.8	1.8	16.7	0.0	0.0	0.0	0.0	3.7	50.0
Mr. S										
Gary	0.0	19.4	0.0	11.1	2.8	0.0	2.8	0.0	13.9	50.0
Brenda	0.0	2.8	0.0	44.4	0.0	0.0	5.6	0.0	11.1	36.1
Jerry	2.8	30.6	0.0	2.8	0.0	0.0	0.0	16.7	0.0	47.2

TABLE 8 (continued)

Ss	Relevant VR	W	H	R	Inappropriate M	ON	V	T	BI	App.
				CONTINGENT LONG (CTL)						
Miss T										
Roger	16.7	31.2	4.2	25.7	1.4	1.4	0.0	0.7	0.7	18.1
Louis	7.0	42.7	3.5	27.3	0.0	0.0	4.2	0.7	0.0	14.7
Stan	10.4	31.3	1.5	22.4	0.0	3.7	3.7	0.0	0.0	26.9
Mrs. M										
Stuart	3.5	42.4	3.5	21.5	0.0	0.0	5.6	0.7	1.4	21.5
Fred	7.2	27.0	3.4	8.0	2.1	0.0	6.7	2.1	2.1	41.3
Barbara	2.1	30.6	0.7	5.6	0.0	6.9	0.0	0.0	20.8	33.3
Mrs. H										
Donald	4.8	17.5	3.2	19.8	0.8	2.4	0.8	0.0	17.5	33.3
Tim	3.0	9.8	4.5	27.1	0.0	0.0	1.5	2.3	13.5	38.3
Jim	4.2	63.2	1.4	5.6	0.0	0.0	4.2	0.0	0.0	21.5
Mrs. E										
George	2.8	28.5	0.0	36.8	4.2	0.0	0.0	6.2	0.7	20.8
Jim	4.9	36.1	0.0	43.7	2.8	0.0	3.5	1.4	1.4	6.2
Bobby	0.8	30.1	1.6	0.0	7.9	0.8	11.9	3.9	9.5	33.3
Mrs. C										
Mark	1.4	15.6	4.1	16.3	4.1	1.4	3.4	4.1	10.2	39.5
Danny	0.0	19.4	0.0	36.8	0.0	0.0	2.8	0.0	5.6	35.4
Sherry	0.0	6.94	0.0	38.2	0.0	0.0	0.0	1.4	3.5	50.0
Mr. S										
Gary	3.3	17.8	7.8	26.7	0.0	0.0	1.1	0.0	4.4	38.9
Brenda	5.6	18.9	4.4	28.9	0.0	0.0	3.3	0.0	4.4	34.4
Jerry	11.1	44.4	5.6	16.7	0.0	0.0	5.6	0.0	0.0	16.7

TABLE 8 (continued)

Ss	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
NON-CONTINGENT SHORT (NCS)										
Miss T										
Roger	2.6	23.7	0.0	31.6	0.0	0.0	9.2	3.9	0.0	28.9
Louis	3.0	30.3	5.0	11.1	0.0	20.2	14.1	4.0	1.0	11.1
Stan	11.4	2.9	0.0	30.0	0.0	0.0	1.4	5.7	10.0	38.6
Mrs. M										
Stuart	2.8	12.5	1.4	48.6	0.0	0.0	1.4	0.0	0.0	33.3
Fred	2.8	29.2	0.0	1.4	2.8	0.0	18.1	13.9	8.3	23.6
Barbara	0.0	12.5	0.0	13.9	4.2	6.9	2.8	0.0	16.7	43.1
Mrs. H										
Donald	0.0	15.3	0.0	11.1	6.9	4.2	18.1	0.0	2.8	41.7
Tim	1.6	14.3	0.0	0.0	0.0	0.0	19.0	14.3	6.3	44.4
Jim	1.5	3.0	0.0	13.4	4.5	0.0	10.4	14.9	23.9	28.4
Mrs. E										
George	0.0	23.6	0.0	6.9	15.3	0.0	8.3	5.6	5.6	34.7
Jim	5.6	27.8	4.2	11.1	0.0	0.0	11.1	6.9	0.0	33.3
Bobby	0.0	23.6	0.0	9.7	11.1	0.0	12.5	8.3	12.5	22.2
Mrs. C										
Mark	5.6	20.4	9.3	20.4	1.8	0.0	9.3	1.8	5.6	25.9
Danny	0.0	12.9	0.0	35.2	1.8	0.0	12.9	3.7	0.0	33.3
Sherry	0.0	26.5	0.0	0.0	2.0	0.0	2.0	0.0	20.4	48.9
Mr. S										
Gary	0.0	13.9	2.8	30.6	0.0	0.0	2.8	0.0	8.3	41.7
Brenda	0.0	25.0	0.0	2.8	0.0	0.0	2.8	2.8	36.1	30.6
Jerry	0.0	28.6	0.0	0.0	0.0	0.0	0.0	17.1	2.9	51.4

TABLE 8 (continued)

Ss	Relevant VR	W	H	R	Inappropriate M	ON	V	T	BI	App.
NON-CONTINGENT LONG (NCL)										
Miss T										
Roger	3.5	34.3	0.7	24.5	2.8	2.8	5.6	2.8	0.0	23.1
Louis	26.7	0.0	0.0	0.0	4.4	2.2	15.6	2.2	0.0	48.9
Stan	6.0	16.4	0.0	14.7	4.3	0.9	10.3	6.0	0.0	41.4
Mrs. M										
Stuart	5.54	0.6	31.1	20.8	0.3	0.0	2.8	1.7	17.9	19.03
Fred	0.0	6.7	0.0	8.0	6.7	2.0	20.1	16.8	21.5	18.1
Barbara	0.0	20.1	0.0	2.1	0.7	0.0	0.7	2.8	35.4	38.2
Mrs. H										
Donald	0.0	11.1	3.9	21.4	3.2	0.0	9.5	7.9	16.7	26.2
Tim	2.0	5.4	0.0	15.6	9.5	0.0	16.3	4.8	20.4	25.8
Jim	2.9	25.8	1.5	61.5	0.0	0.0	1.9	0.5	0.0	5.8
Mrs. E										
George	3.5	31.9	2.1	13.9	5.6	0.0	0.0	0.0	6.2	36.8
Jim	9.1	23.1	4.9	20.3	4.9	0.7	7.7	2.1	1.4	25.9
Bobby	2.0	23.9	2.0	5.5	8.2	9.6	13.0	7.5	13.7	14.4
Mrs. C										
Mark	0.9	12.1	0.0	39.2	0.9	0.0	7.5	3.7	13.1	22.4
Danny	0.0	15.7	0.9	23.1	0.0	0.0	6.5	0.9	18.5	34.3
Sherry	0.9	19.4	0.0	19.4	0.9	0.0	2.8	2.8	17.6	36.1
Mr. S										
Gary	1.1	12.2	0.0	16.7	2.2	0.0	3.3	4.4	24.4	35.6
Brenda	0.0	16.7	1.1	21.1	1.1	0.0	22.2	2.2	5.6	30.0
Jerry	2.2	18.9	8.9	7.8	0.0	2.2	0.0	18.9	0.0	41.1

TABLE 8 (continued)

Ss	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
CONTROL SHORT (CS)										
Miss T										
Roger	4.2	0.0	0.0	5.6	13.9	4.2	20.8	9.7	11.1	30.6
Louis	12.9	3.7	5.6	0.0	7.4	0.0	18.5	7.4	5.6	38.9
Stan	0.0	0.0	1.4	4.2	2.8	4.2	12.5	4.2	26.4	44.4
Mrs. M										
Stuart	9.6	16.4	4.1	38.4	0.0	0.0	0.0	0.0	2.7	28.8
Fred	21.1	12.9	0.0	14.1	1.4	2.8	5.6	19.7	0.0	22.54
Barbara	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	34.1	63.6
Mrs. H										
Donald	0.0	0.0	0.0	0.0	1.5	0.0	18.5	9.2	29.2	41.5
Tim	0.0	6.3	1.6	0.0	0.0	2.4	12.7	3.2	12.7	61.1
Jim	0.0	0.0	0.0	0.0	0.0	0.0	12.5	5.6	55.6	26.4
Mrs. E										
George	1.4	16.7	1.4	6.9	12.5	2.8	11.1	9.7	8.3	29.2
Jim	5.5	35.6	1.4	24.7	5.5	0.0	5.5	2.7	2.7	16.4
Bobby	0.0	7.4	0.0	0.0	16.7	18.5	29.6	16.7	3.7	7.4
Mrs. C										
Mark	0.0	0.0	0.0	0.0	6.1	2.0	16.3	14.3	34.7	26.5
Danny	0.0	22.2	0.0	0.0	3.7	3.7	18.5	3.7	24.1	24.1
Sherry	0.0	8.8	0.0	0.0	1.5	2.9	1.5	0.0	22.1	63.2
Mr. S										
Gary	0.0	0.0	0.0	27.8	5.6	2.8	16.7	13.9	16.7	16.7
Brenda	0.0	11.4	0.0	17.1	0.0	0.0	17.1	2.9	42.9	8.6
Jerry	2.9	5.7	0.0	20.0	5.7	0.0	0.0	28.6	11.4	25.7

TABLE 8 (continued)

Ss	Relevant VR	W	H	R	Inappropriate M	ON	V	T	BI	App.
CONTROL LONG (CL)										
Miss T										
Roger	2.1	12.5	0.0	2.8	13.2	1.4	20.1	4.9	10.4	32.6
Louis	0.0	9.7	0.0	5.6	4.2	2.8	22.9	15.9	9.7	29.2
Stan	2.1	5.4	4.3	1.1	4.3	1.1	15.1	8.6	4.3	53.8
Mrs. M										
Stuart	2.7	15.4	1.3	30.2	0.0	0.0	4.0	0.7	10.1	35.6
Fred	2.8	18.1	0.0	1.4	9.7	0.0	15.3	12.5	27.8	12.5
Barbara	0.0	12.9	0.0	9.7	0.8	0.0	8.9	0.0	54.0	13.7
Mrs. H										
Donald	0.0	2.8	0.0	2.8	8.3	2.8	19.4	12.0	25	26.8
Tim	0.0	0.0	11.1	0.0	0.0	0.0	5.6	0.0	5.6	77.8
Jim	0.7	0.0	0.0	4.3	5.7	2.1	24.1	5.7	21.9	35.5
Mrs. E										
George	5.6	6.3	3.9	1.6	11.1	0.8	21.4	21.4	9.5	18.2
Jim	3.2	17.5	3.9	0.0	1.6	1.6	17.5	7.9	13.5	33.3
Bobby	0.0	17.1	0.8	2.4	9.8	7.3	23.6	14.6	4.1	20.3
Mrs. C										
Mark	0.0	4.7	0.0	6.6	5.7	0.9	10.4	11.3	46.2	14.1
Danny	0.0	6.5	0.0	8.3	2.8	0.0	21.3	6.5	32.4	22.2
Sherry	0.0	4.0	0.0	15.0	0.0	0.0	1.01	0.0	45.0	35.0
Mr. S										
Gary	0.0	8.9	0.0	6.3	7.6	3.8	12.7	5.1	36.7	18.9
Brenda	0.0	1.1	0.0	11.4	5.7	1.1	20.4	10.2	34.1	15.9
Jerry	0.0	4.6	0.0	11.5	3.4	0.0	37.9	1.2	12.6	28.7

TABLE 9

PERCENTAGES OF RATED CATEGORIES FOR THE EXPERIMENTAL CONDITIONS OF NON-TARGET SUBJECTS

Teacher	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
BASELINE										
Miss T	0.0	11.9	1.9	10.9	2.6	1.6	9.5	16.3	21.6	23.7
Mrs. M	0.0	7.8	0.0	10.2	3.5	1.1	9.0	9.0	18.7	40.7
Mrs. H	0.3	4.4	2.2	7.6	1.3	2.2	15.1	10.1	10.1	46.7
Mrs. E	5.1	4.2	0.9	6.7	5.6	0.7	10.6	11.3	16.4	38.4
Mrs. C	0.3	4.8	2.3	4.1	4.8	1.8	14.5	2.5	21.2	43.6
Mr. S	0.0	8.4	0.0	10.1	7.1	0.8	13.4	10.1	9.2	40.8
CONTINGENT SHORT (CTS)										
Miss T	1.4	28.1	3.8	7.1	1.9	0.5	3.3	4.8	1.9	47.1
Mrs. M	1.7	1.7	0.0	10.0	1.7	0.0	7.2	7.2	37.8	32.8
Mrs. H	0.0	13.4	1.4	20.8	2.8	1.8	6.9	5.6	8.3	38.9
Mrs. E	0.0	13.4	1.8	16.1	5.1	1.8	13.8	8.3	11.9	27.6
Mrs. C	0.6	11.1	3.1	24.1	0.0	0.0	4.9	0.6	16.7	38.9
Mr. S	0.0	0.0	0.0	0.0	7.3	0.0	12.7	5.4	12.7	61.8
CONTINGENT LONG (CTL)										
Miss T	2.1	21.6	1.4	16.4	1.8	0.0	4.1	2.1	4.3	46.4
Mrs. M	4.4	13.1	1.6	19.4	5.8	2.1	11.5	2.6	9.4	30.1
Mrs. H	2.2	18.4	0.7	23.8	1.8	0.9	4.7	1.8	8.9	36.9
Mrs. E	1.9	21.8	2.1	16.9	3.4	5.0	4.6	2.9	20.8	20.6
Mrs. C	2.1	22.8	2.3	24.6	2.3	0.2	2.3	4.8	5.5	33.1
Mr. S	4.4	17.7	2.9	13.6	1.5	1.8	8.9	7.4	17.3	24.3
NON-CONTINGENT SHORT (NCS)										
Miss T	0.9	13.4	0.0	22.2	0.5	0.0	3.7	2.8	10.6	45.8
Mrs. M	2.8	13.9	4.2	5.1	2.8	9.3	12.9	5.1	18.5	25.5
Mrs. H	0.0	11.6	2.3	21.8	1.8	0.0	4.6	0.5	4.2	53.2

TABLE 9 (continued)

Teacher	Relevant				Inappropriate					App.
	VR	W	H	R	M	ON	V	T	BI	
Mrs. E	3.2	16.7	0.0	26.4	5.6	0.0	7.4	3.2	8.8	28.7
Mrs. C	0.5	16.6	0.0	46.7	0.0	0.0	2.5	0.0	4.5	29.1
Mr. S	1.8	4.6	2.8	30.6	0.0	0.0	12.0	1.8	6.5	39.8
NON-CONTINGENT LONG (NCL)										
Miss T	4.5	8.9	3.3	25.5	1.6	0.5	7.1	2.1	5.7	40.7
Mrs. M	2.8	9.7	3.5	8.6	0.9	1.6	8.1	3.3	24.8	36.7
Mrs. H	2.9	23.1	3.6	15.9	0.9	0.2	8.3	0.9	9.4	34.7
Mrs. E	2.8	14.5	1.6	23.5	2.4	1.6	15.0	0.7	11.0	26.8
Mrs. C	2.9	18.2	2.9	20.3	0.9	0.6	8.2	0.6	10.9	34.4
Mr. S	0.0	0.0	0.0	0.0	5.8	0.0	16.1	2.9	14.6	60.6
CONTROL SHORT (CS)										
Miss T	3.7	10.6	3.2	10.6	6.9	1.8	8.3	4.2	22.7	27.8
Mrs. M	0.9	8.1	4.7	8.1	3.8	0.0	2.8	8.5	24.6	38.4
Mrs. H	0.5	10.3	4.9	1.6	1.6	0.0	7.1	4.3	2.7	66.8
Mrs. E	1.9	9.9	0.9	2.8	7.1	0.0	19.3	4.3	15.1	38.7
Mrs. C	0.0	3.7	1.5	5.9	2.9	0.0	10.3	2.6	34.7	38.4
Mr. S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
CONTROL LONG (CL)										
Miss T	2.1	14.8	1.8	12.7	6.0	6.7	10.6	6.9	14.3	23.8
Mrs. M	0.5	4.7	0.9	2.6	4.7	5.2	13.6	7.1	21.2	39.5
Mrs. H	0.5	2.1	4.3	4.6	6.4	0.8	14.9	10.8	13.1	44.8
Mrs. E	0.5	29.4	4.3	1.3	2.7	0.8	9.9	7.5	16.3	27.3
Mrs. C	0.0	4.7	0.0	5.7	1.2	0.0	22.4	2.9	23.6	39.4
Mr. S	2.1	5.5	1.7	14.4	3.8	3.8	8.5	5.1	25.8	29.2

TABLE 10

PERCENTAGES OF RATED CATEGORIES FOR THE EXPERIMENTAL CONDITIONS OF EACH TEACHER

	Target						Non-Target						Non-Cont.			Other		
	A	P	R	F	NA	IA	A	P	R	F	NA	IA	A	P	R	TO	I	C
BASELINE																		
Miss T	5.2	0.0	0.7	0.4	1.21	4.1	9.4	0.4	4.1	3.3	0.7	12.6	3.5	0.3	0.6	29.0	24.2	0.0
Mrs. M	13.2	0.1	0.4	0.0	0.1	0.3	5.7	0.7	0.9	1.3	1.2	9.7	4.1	0.0	0.2	9.4	52.7	0.0
Mrs. H	1.4	0.0	0.0	0.0	1.8	0.0	3.1	0.0	0.7	0.4	2.0	9.2	2.8	0.0	0.2	22.9	55.5	0.0
Mrs. E	5.6	0.1	0.3	0.0	1.5	1.0	11.5	1.3	4.3	0.3	3.8	27.1	3.8	0.1	6.6	13.0	19.5	0.0
Mrs. C	3.2	0.0	2.3	0.6	1.6	1.8	4.6	0.0	2.5	0.3	2.5	6.0	6.3	0.1	0.0	28.4	39.8	0.0
Mr. S	4.1	0.0	0.0	0.0	0.0	5.2	2.8	0.0	0.8	1.5	0.0	5.4	4.5	0.0	0.6	34.8	40.9	0.0
CONTINGENT LONG (CTL)																		
Miss T	1.0	14.8	2.4	1.2	1.2	8.9	1.0	3.2	5.0	1.0	1.0	12.9	0.7	1.6	0.6	17.5	23.5	2.5
Mrs. M	0.2	9.1	0.0	2.5	0.0	1.9	0.1	10.1	2.1	0.0	0.0	13.0	0.6	0.3	1.0	12.1	46.8	0.0
Mrs. H	0.8	2.7	0.7	0.9	0.0	2.4	0.3	6.1	7.1	1.8	1.0	19.5	0.7	1.8	0.6	8.5	44.9	0.0
Mrs. E	1.6	12.2	1.8	0.0	1.3	3.11	0.9	5.1	4.6	0.0	0.0	29.3	0.6	0.3	0.6	12.3	26.2	0.0
Mrs. C	1.0	8.8	1.9	2.0	2.8	10.8	1.5	6.1	12.0	4.1	0.9	10.8	0.4	2.3	0.2	13.8	20.5	0.0
Mr. S	0.2	14.6	0.2	0.9	0.0	20.0	0.9	2.2	1.2	1.2	0.0	27.1	0.4	0.0	0.0	14.1	17.3	0.0
CONTINGENT SHORT (CTS)																		
Miss T	1.9	7.1	5.0	1.0	1.4	17.8	0.7	8.1	7.4	1.9	0.2	18.3	0.2	0.0	0.0	8.6	20.4	0.0
Mrs. M	1.4	0.0	0.3	0.8	2.2	0.0	4.9	0.3	3.9	0.8	0.6	3.4	7.3	0.0	0.0	14.3	59.6	0.3
Mrs. H	0.7	4.6	1.6	0.0	0.0	2.6	0.7	5.8	3.2	2.1	0.7	12.5	0.2	0.5	0.0	15.1	49.6	0.0

TABLE 10 (continued)

	Target						Non-Target						Non-Cont.			Other		
	A	P	R	F	NA	IA	A	P	R	F	NA	IA	A	P	R	TO	I	C
Mrs. E	2.0	3.8	2.3	0.7	0.2	8.6	10.4	2.5	6.6	1.4	2.0	34.4	1.6	0.0	0.2	6.6	16.3	0.4
Mrs. C	1.9	10.9	0.0	0.6	1.2	14.3	0.6	9.7	6.8	0.9	3.4	17.4	0.3	0.0	0.0	20.6	11.2	0.0
Mr. S	0.0	12.0	0.0	0.9	0.0	25.9	0.5	1.4	2.3	3.7	0.0	38.4	0.0	3.2	0.0	6.9	4.6	0.0
NON-CONTINGENT LONG (NCL)																		
Miss T	0.9	1.4	5.7	0.6	0.5	11.8	0.7	3.5	8.7	1.2	1.1	16.6	0.2	8.5	0.0	11.5	27.3	0.0
Mrs. M	0.4	0.1	1.9	0.2	0.4	7.3	2.4	1.7	4.3	1.9	4.4	7.8	0.1	5.6	1.7	10.7	49.2	0.0
Mrs. H	0.4	0.1	2.2	0.0	0.0	3.5	0.7	3.2	10.2	1.0	1.7	18.3	0.2	8.9	0.5	17.5	31.5	0.0
Mrs. E	1.9	0.0	2.1	3.1	1.5	4.1	2.3	0.5	16.3	0.0	1.6	26.9	0.2	7.3	0.5	9.7	21.9	0.0
Mrs. C	1.9	1.2	6.9	0.6	1.4	9.0	0.4	5.1	7.9	1.2	1.0	16.3	0.1	5.9	0.0	22.7	18.2	0.0
Mr. S	0.0	0.4	0.4	0.0	0.0	7.5	0.9	0.7	0.0	0.9	0.4	17.8	1.8	8.1	0.0	26.6	34.6	0.0
NON-CONTINGENT SHORT (NCS)																		
Miss T	1.4	1.1	9.0	0.2	0.2	16.5	2.6	0.7	3.2	1.4	0.2	6.3	0.7	5.8	0.9	28.1	21.8	0.0
Mrs. M	1.3	0.0	1.3	6.5	0.2	2.8	2.2	1.9	0.0	0.0	1.1	13.5	0.4	7.4	0.6	9.6	50.9	0.0
Mrs. H	1.1	0.0	2.4	0.0	1.9	0.0	2.1	0.0	8.3	0.9	11.1	0.0	0.7	4.3	0.7	15.2	51.2	0.0
Mrs. E	2.1	0.0	6.2	0.0	1.4	7.4	3.7	0.5	16.6	0.9	1.4	27.6	0.7	7.1	2.1	7.4	15.1	0.0
Mrs. C	1.6	1.6	1.9	0.0	0.0	21.2	2.6	0.6	1.6	1.6	0.0	2.6	0.0	7.4	1.3	35.3	20.9	0.0
Mr. S	0.0	0.9	0.0	0.0	0.5	13.9	0.5	0.0	0.0	2.3	0.0	14.9	0.0	2.8	0.5	25.6	38.1	0.0

TABLE 10 (continued)

	Target						Non-Target						Non-Cont.			Other		
	A	P	R	F	NA	IA	A	P	R	F	NA	IA	A	P	R	TO	I	C
CONTROL LONG (CL)																		
Miss T	6.0	0.1	0.7	0.0	1.8	8.4	13.1	0.6	8.3	0.0	3.2	13.4	3.1	0.1	0.9	14.3	25.7	0.0
Mrs. M	2.8	0.0	0.4	0.0	0.0	2.4	9.8	0.9	0.0	1.3	3.0	0.0	4.8	0.0	0.1	11.9	62.5	0.0
Mrs. H	2.1	0.0	0.5	0.9	0.3	0.5	4.3	0.0	3.5	6.5	0.7	7.8	5.7	0.0	0.3	13.7	53.0	0.0
Mrs. E	7.8	0.5	2.3	0.3	0.8	8.7	15.3	1.1	10.8	0.8	0.9	19.5	3.3	0.0	0.0	7.5	20.4	0.0
Mrs. C	4.0	0.3	1.2	0.3	1.2	3.9	8.2	0.0	5.2	3.6	1.9	9.1	3.3	8.9	0.0	27.5	21.3	0.0
Mr. S	3.9	0.0	0.0	0.0	1.1	9.8	2.4	0.0	0.0	0.0	1.5	20.2	1.1	0.0	0.2	18.7	41.0	0.0
CONTROL SHORT (CS)																		
Miss T	6.5	0.4	0.5	0.2	3.6	9.3	10.5	0.2	4.2	0.8	2.4	14.5	4.7	0.5	0.7	13.8	27.2	0.0
Mrs. M	3.2	0.0	0.0	0.0	0.0	1.6	5.1	0.0	3.6	0.5	7.4	3.9	6.7	0.0	0.2	13.3	54.7	0.0
Mrs. H	1.8	0.0	1.6	0.0	0.2	1.5	3.2	1.5	5.8	0.0	2.3	10.2	9.0	0.2	0.5	5.3	57.4	0.0
Mrs. E	6.5	0.0	0.0	0.0	4.4	3.5	12.3	1.2	10.7	0.0	0.5	17.6	3.2	0.2	0.2	1.6	38.1	0.0
Mrs. C	1.6	0.0	0.0	0.0	0.0	6.6	7.1	0.5	1.8	1.6	1.1	16.9	0.3	0.0	0.0	29.6	32.9	0.0
Mr. S	1.9	0.0	0.0	0.0	1.9	8.3	2.6	0.0	1.1	0.0	1.9	12.1	18.9	0.0	0.4	36.2	14.7	0.0

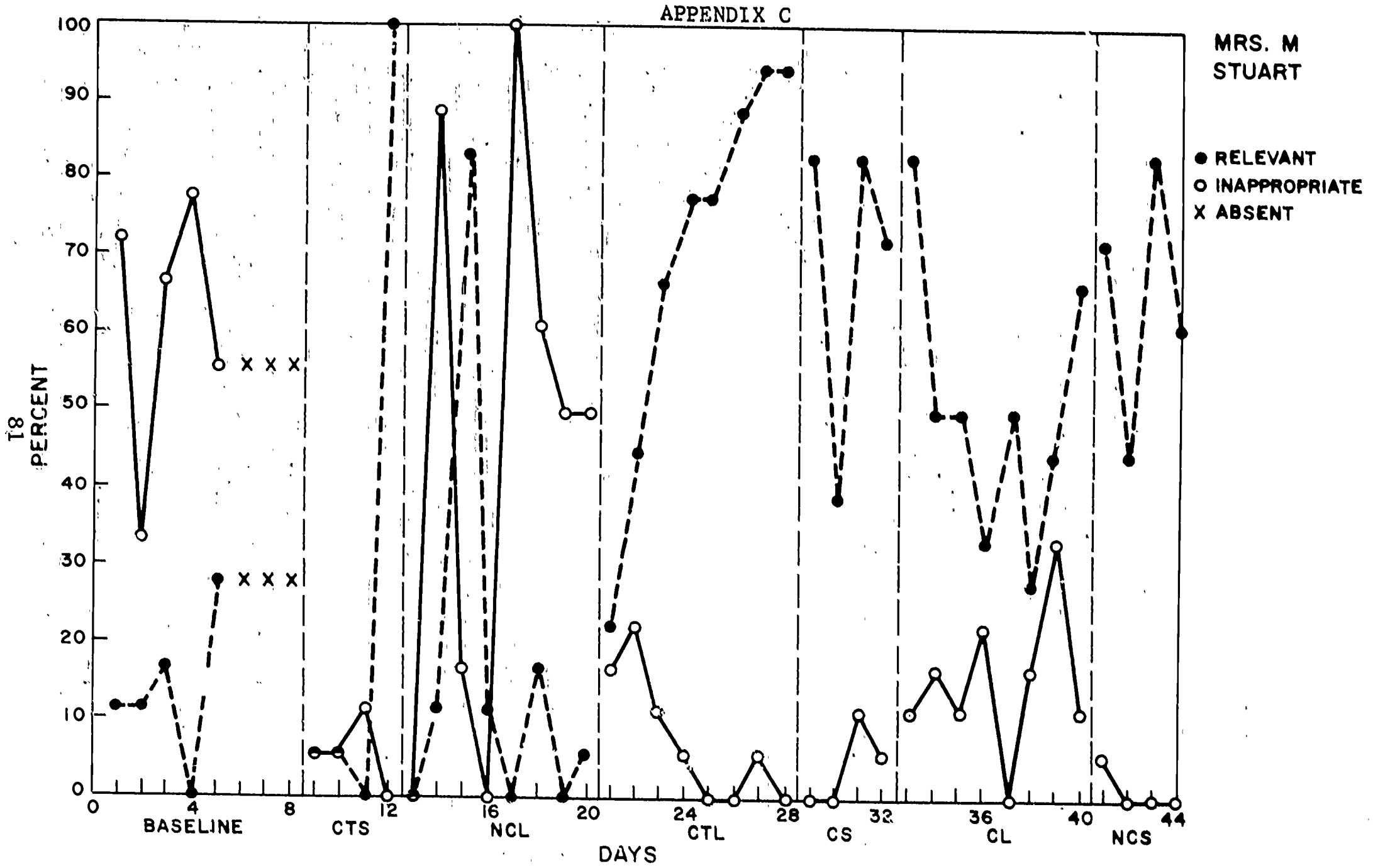

Figure 14. Stuart: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. M's class.

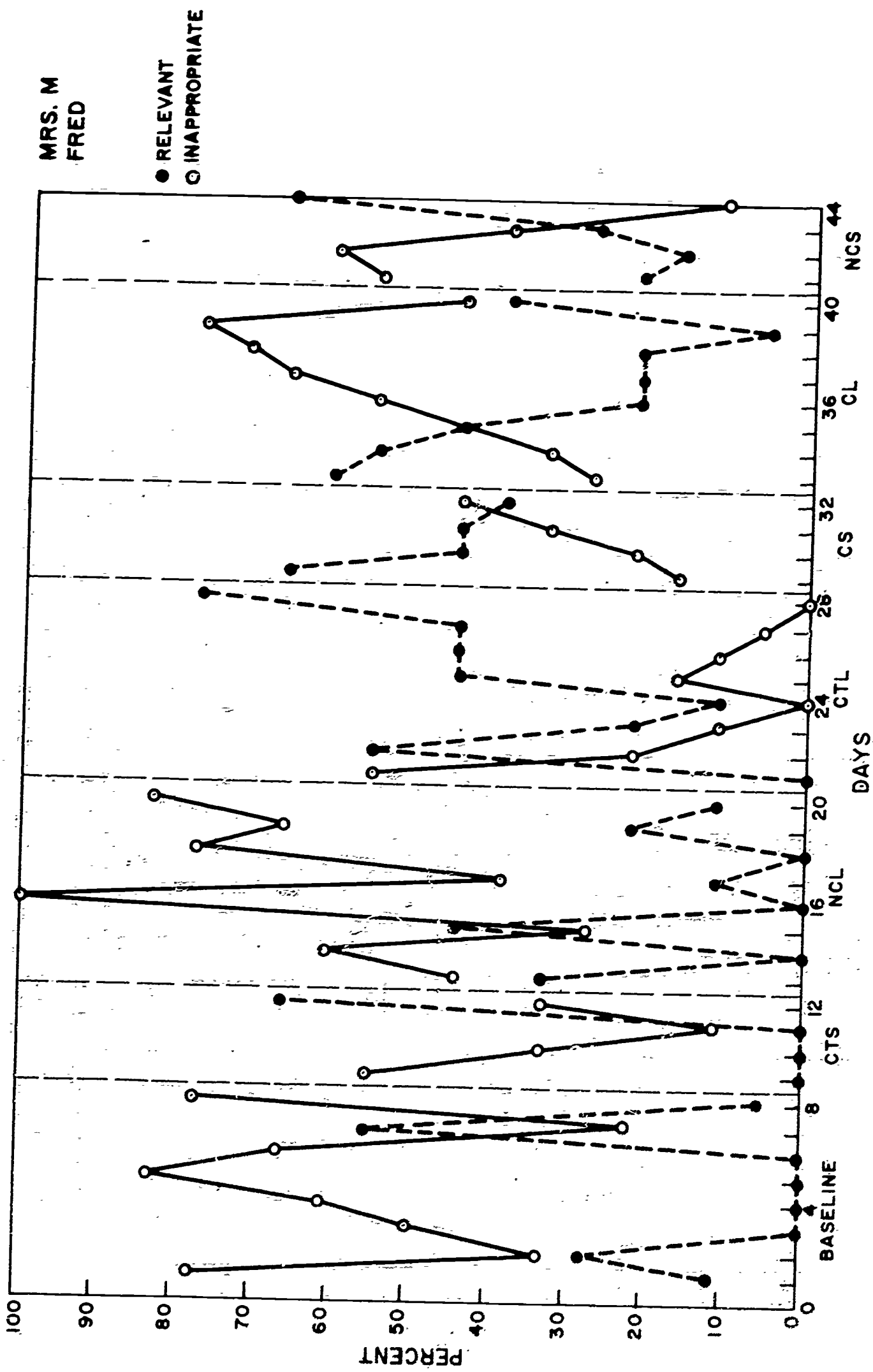

Figure 15. Fred: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. M's class.

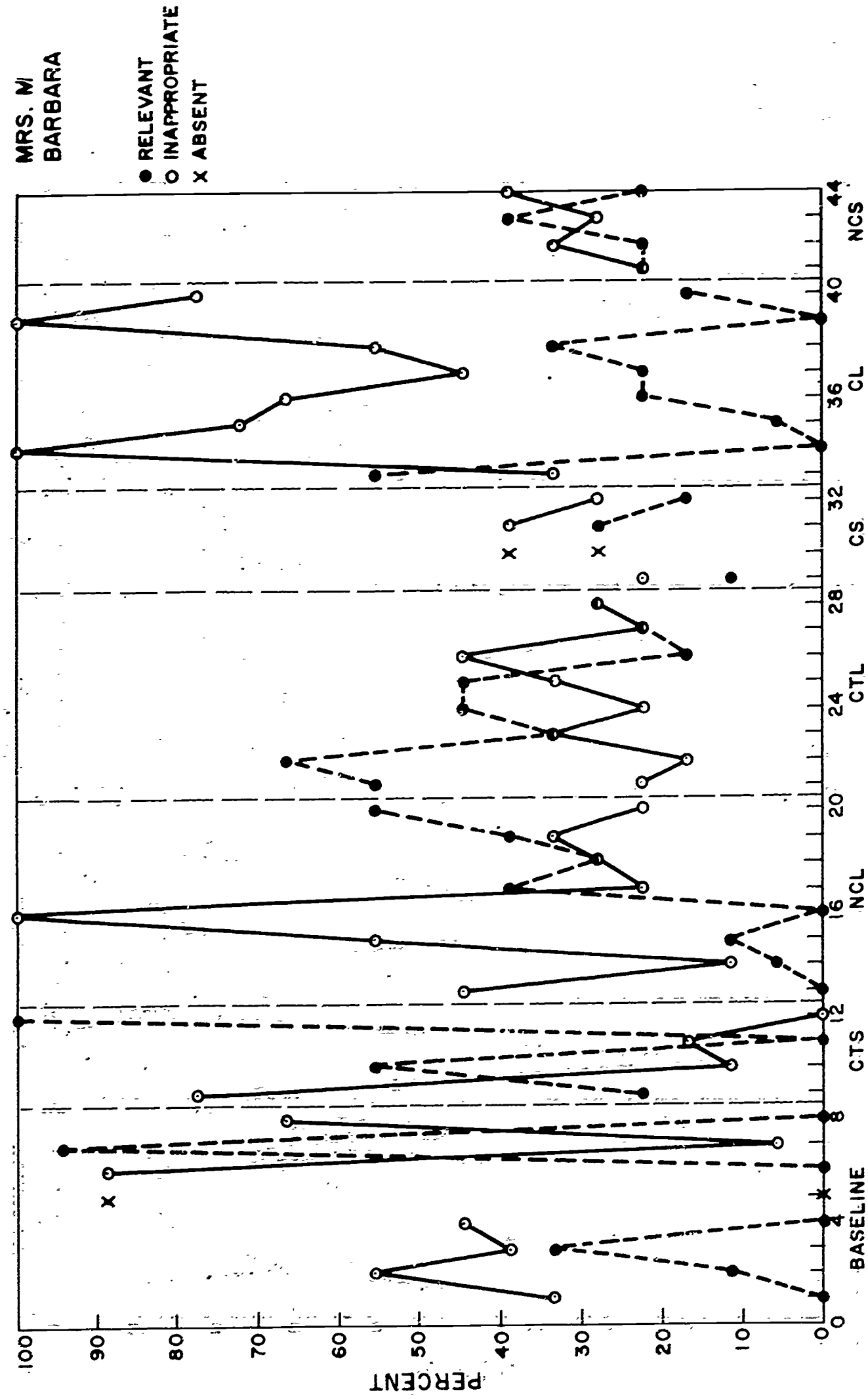

Figure 16. Barbara: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. M's class.

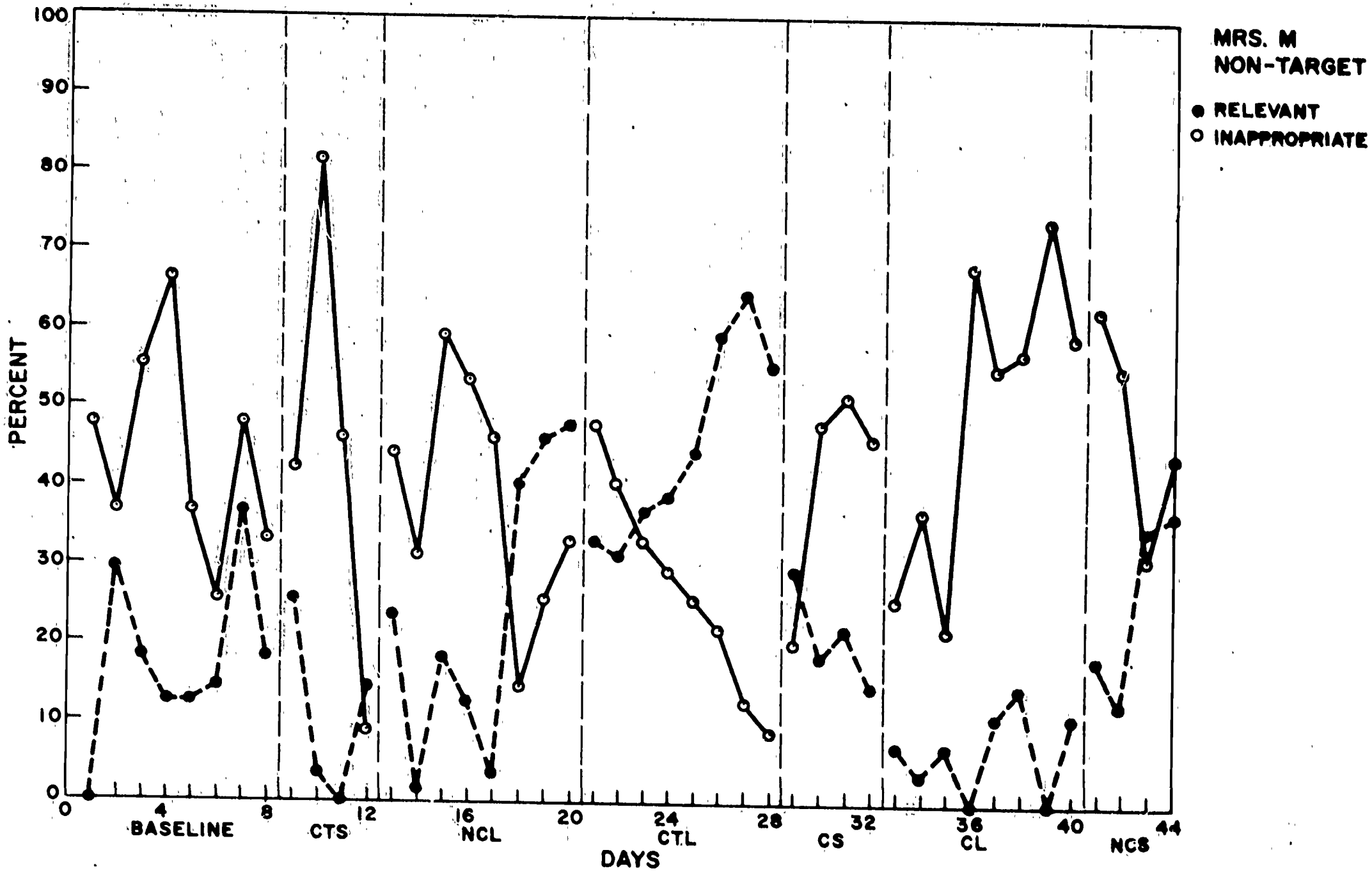

Figure 17. Non-target: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. M's class.

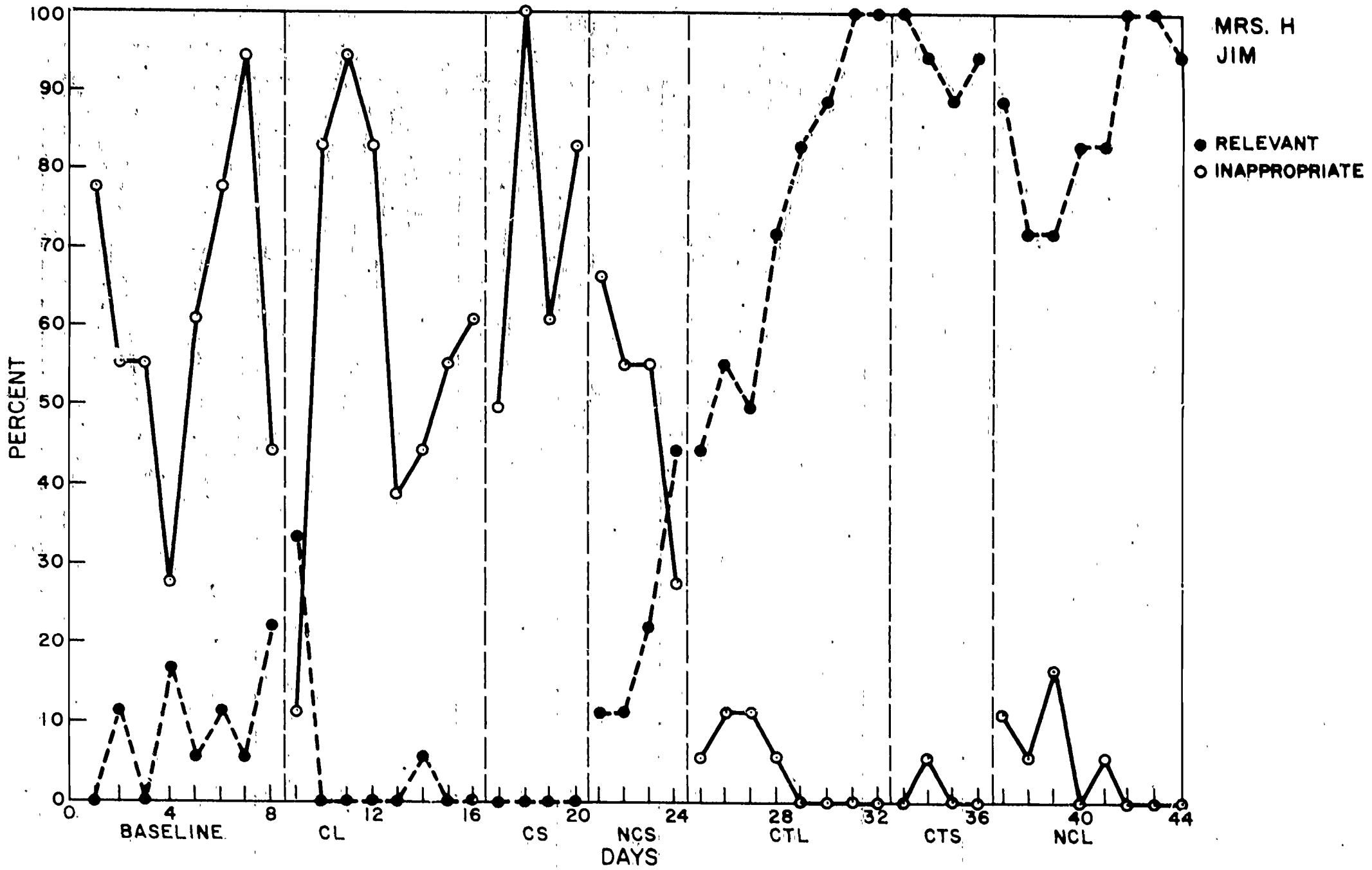

Figure 18. Jim: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. H's class.

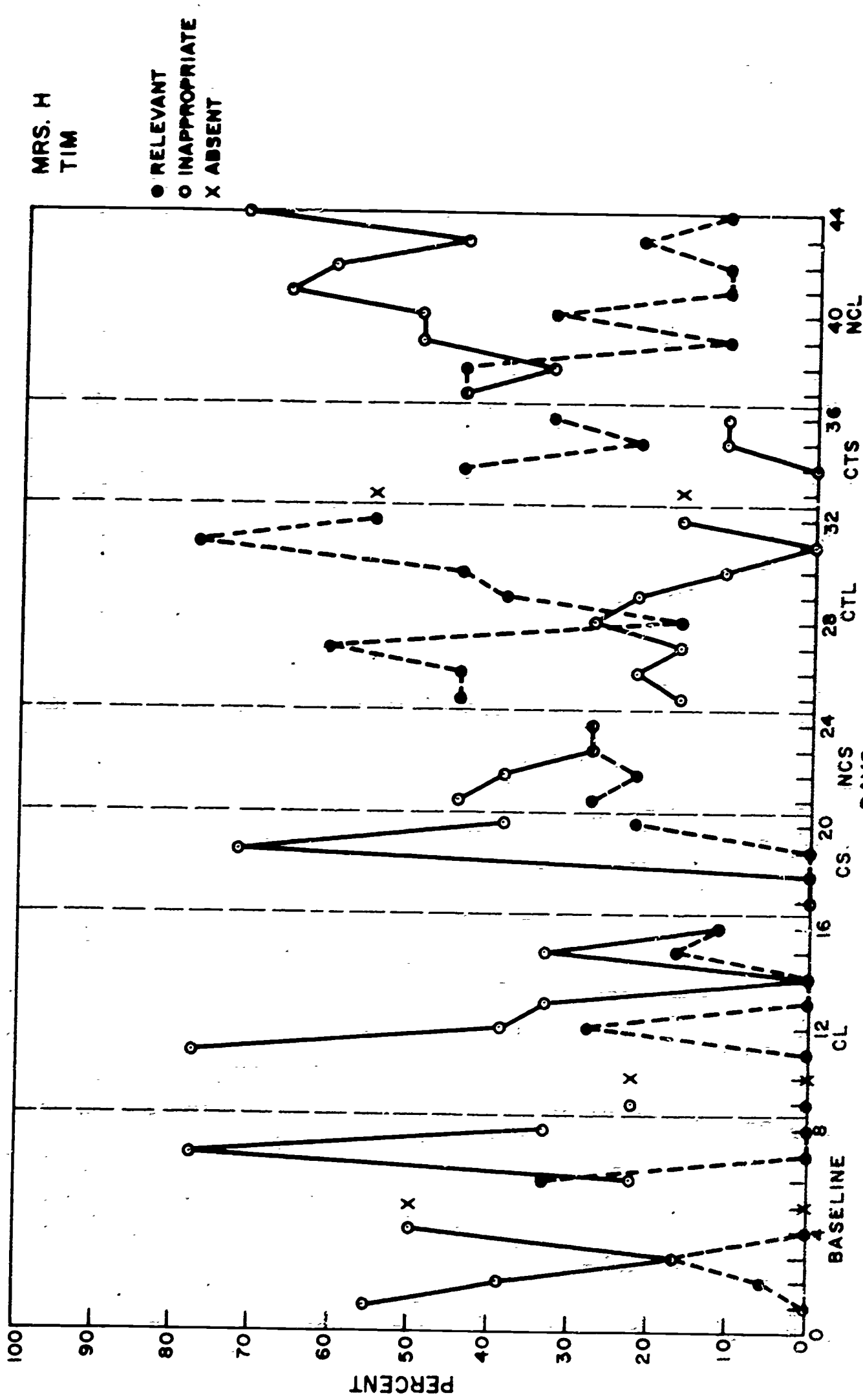

Figure 19. Tim: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. H's class.

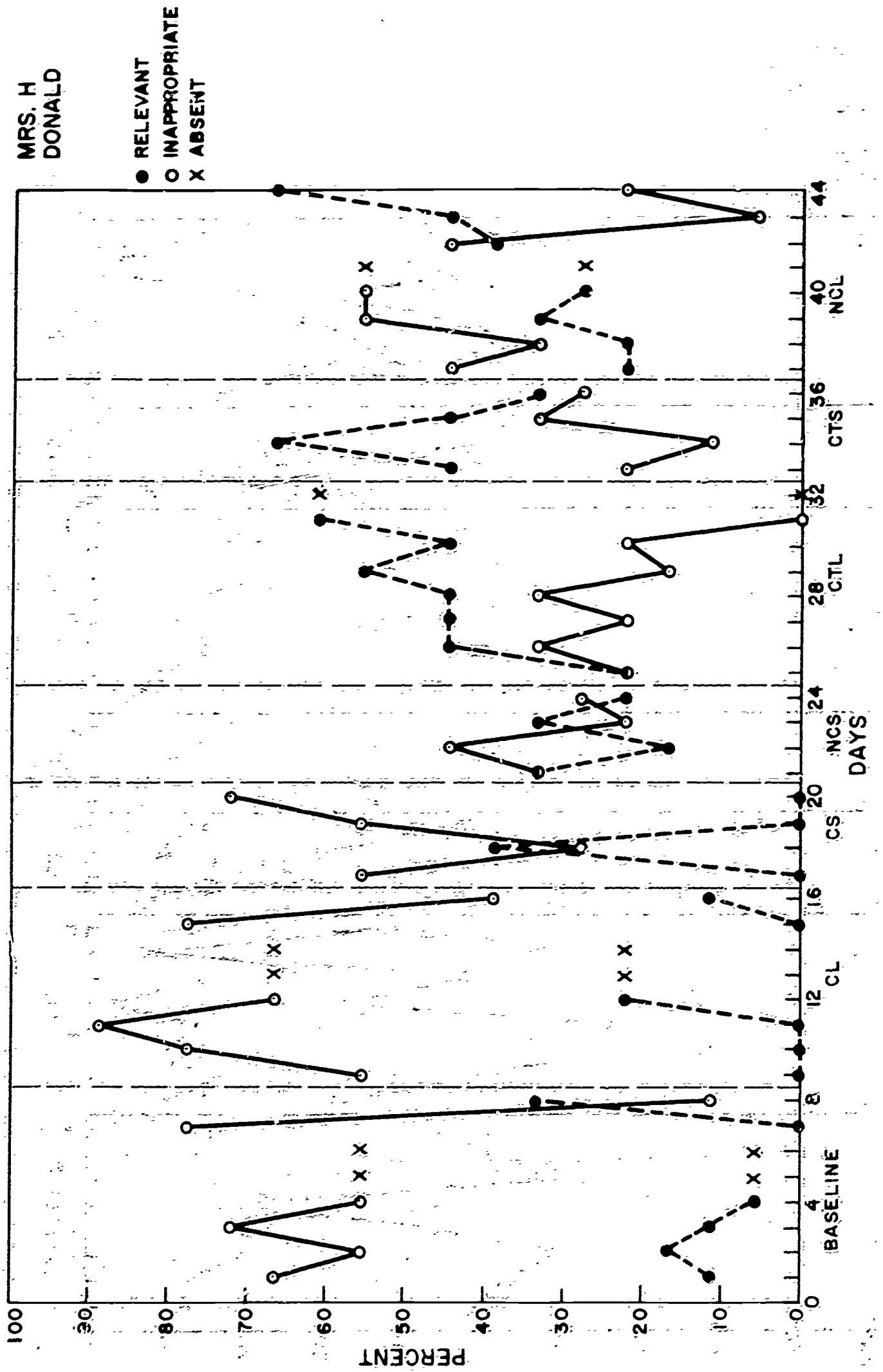

Figure 20. Donald: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. H's class.

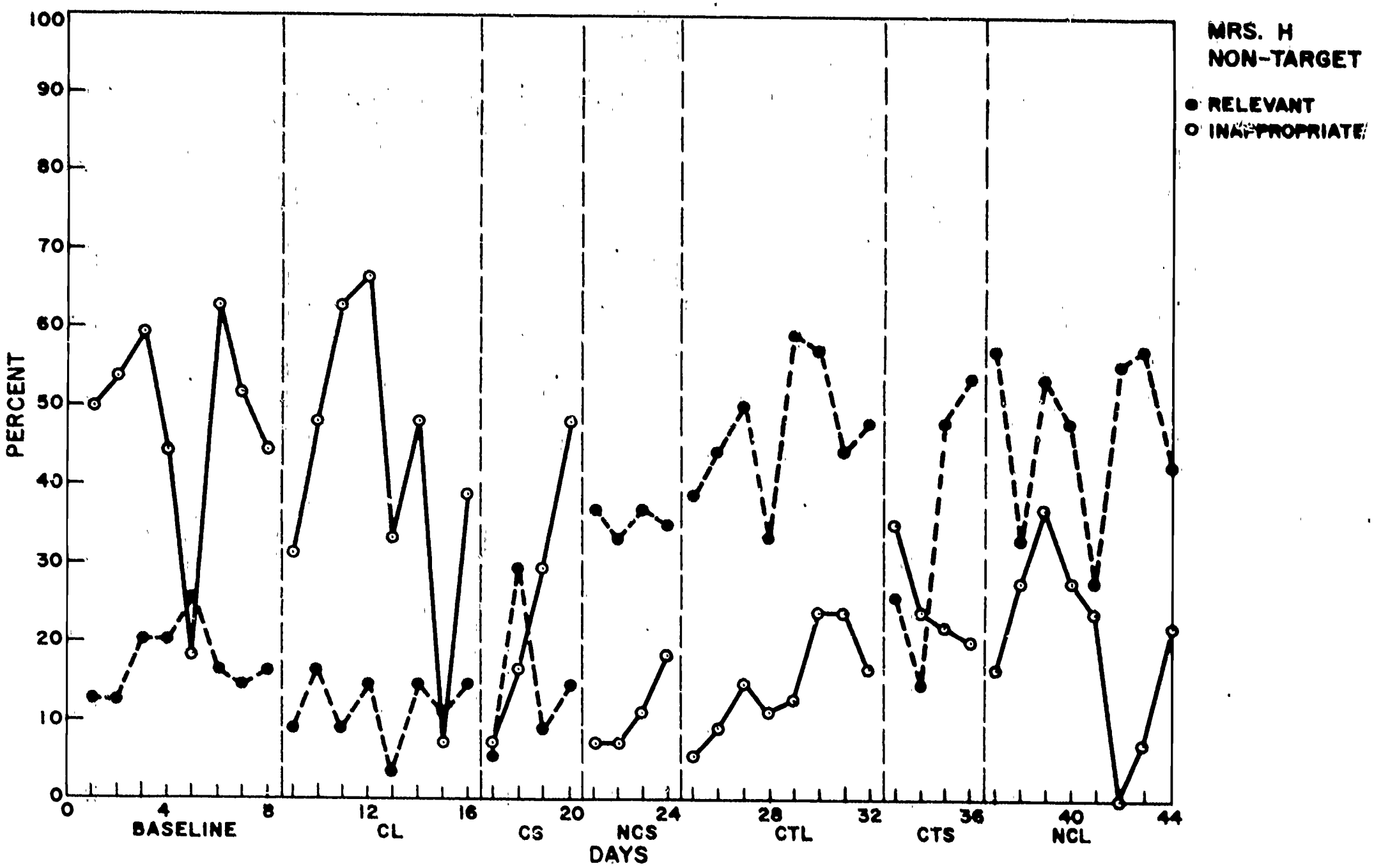

Figure 21. Non-target: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. H's class.

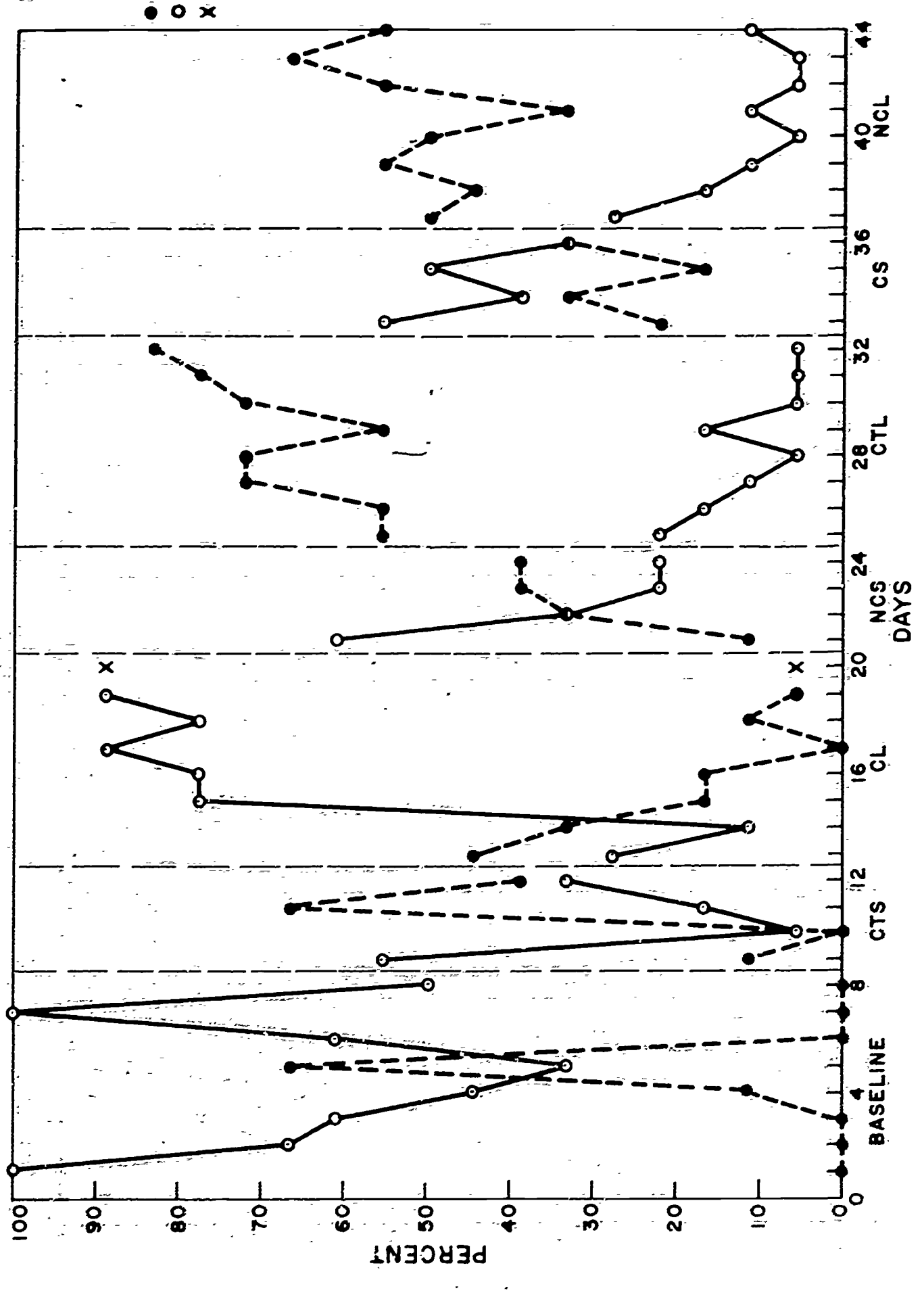

Figure 22. George: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. E's class.

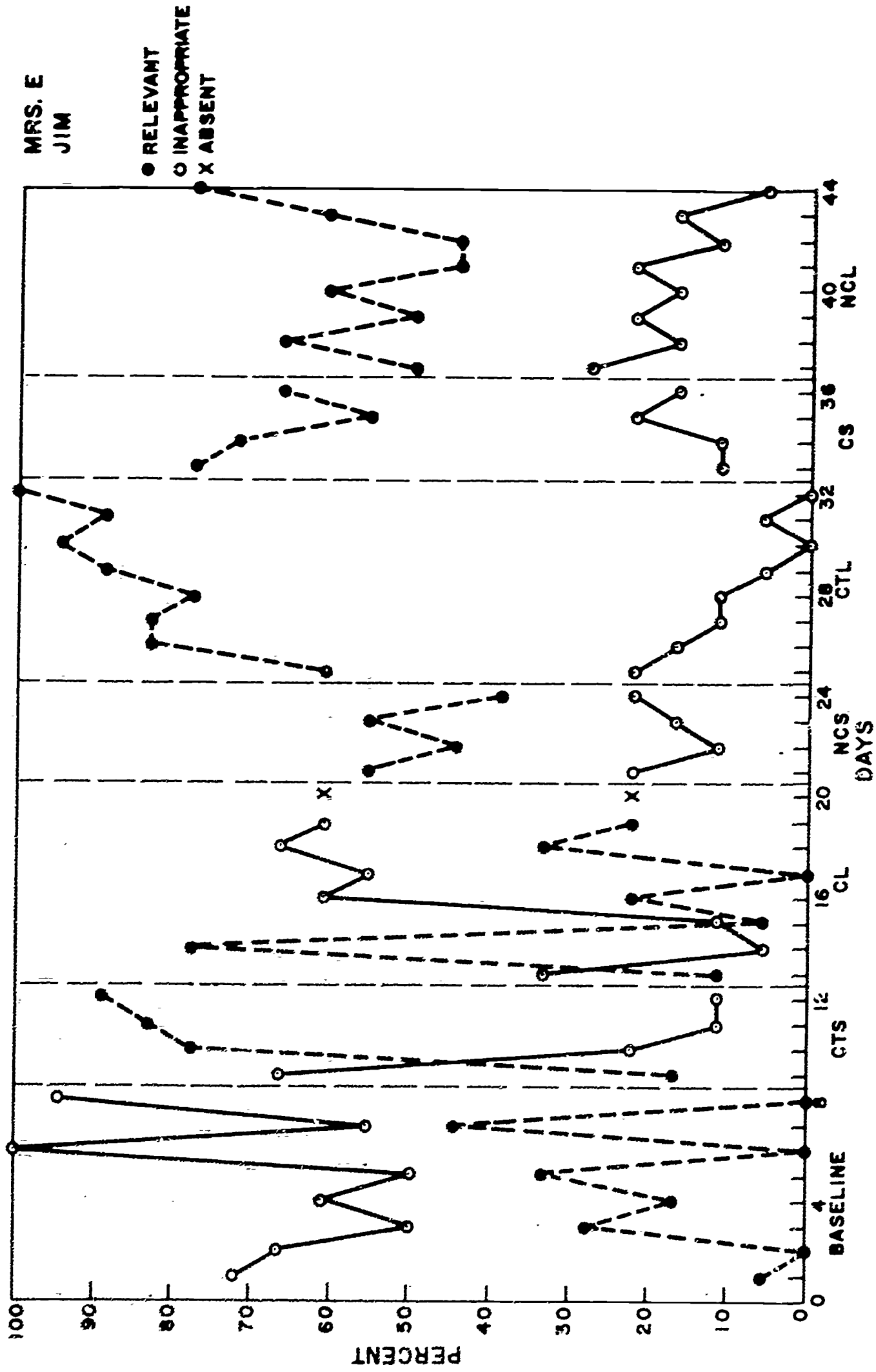

Figure 23. Jim: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. E's class.

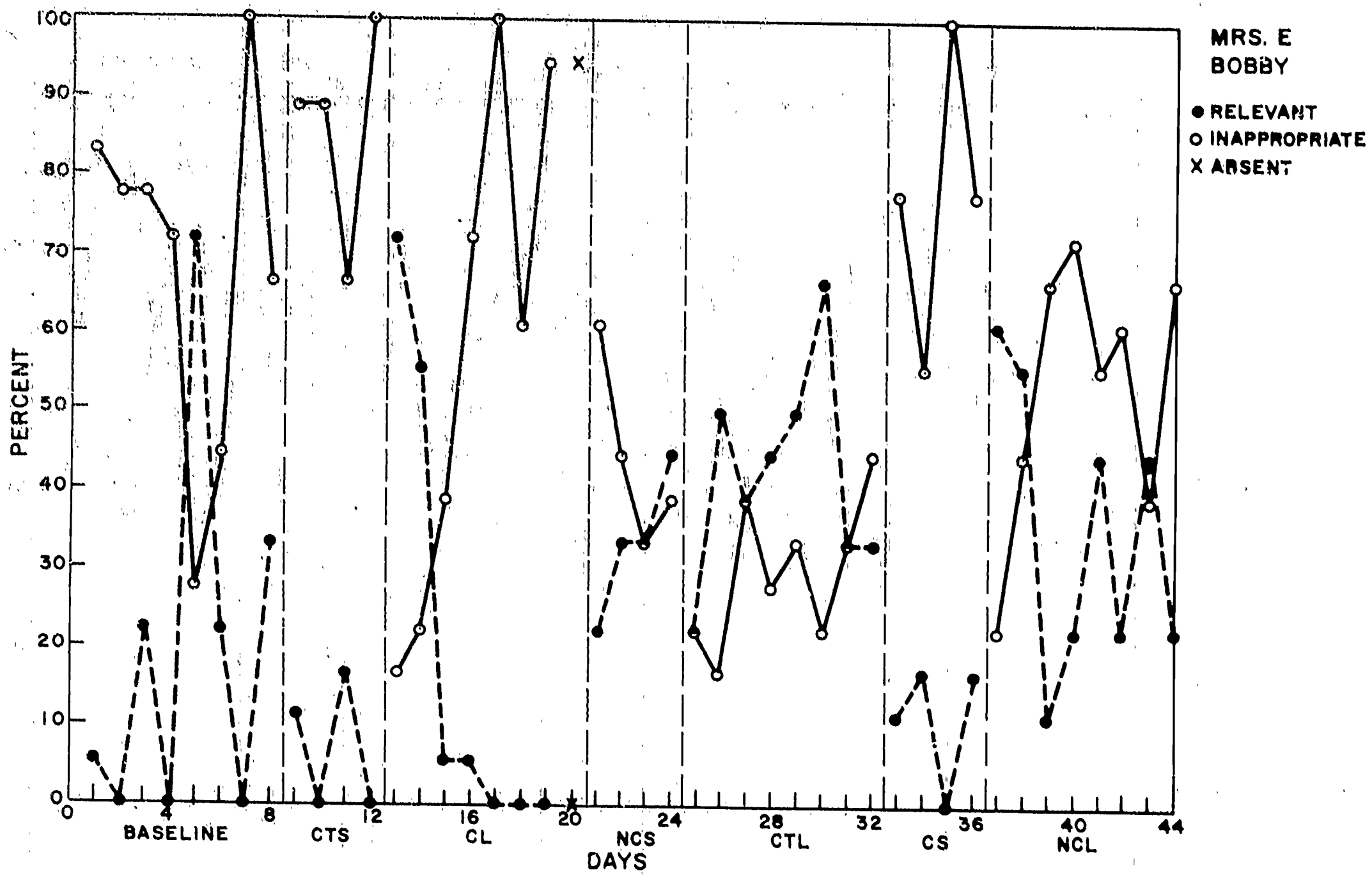

Figure 24. Bobby: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. E's class.

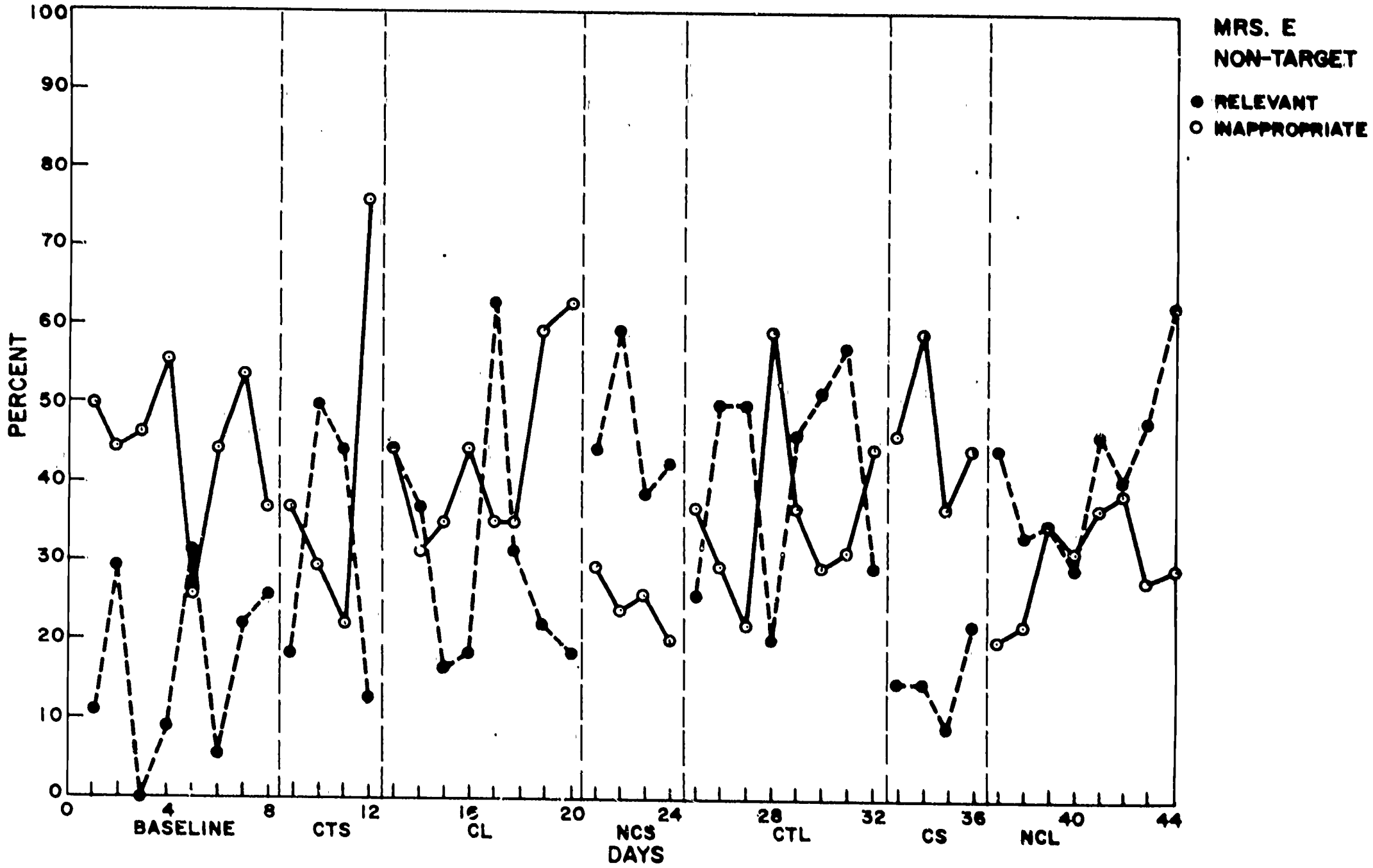

Figure 25. Non-target: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. E's class.

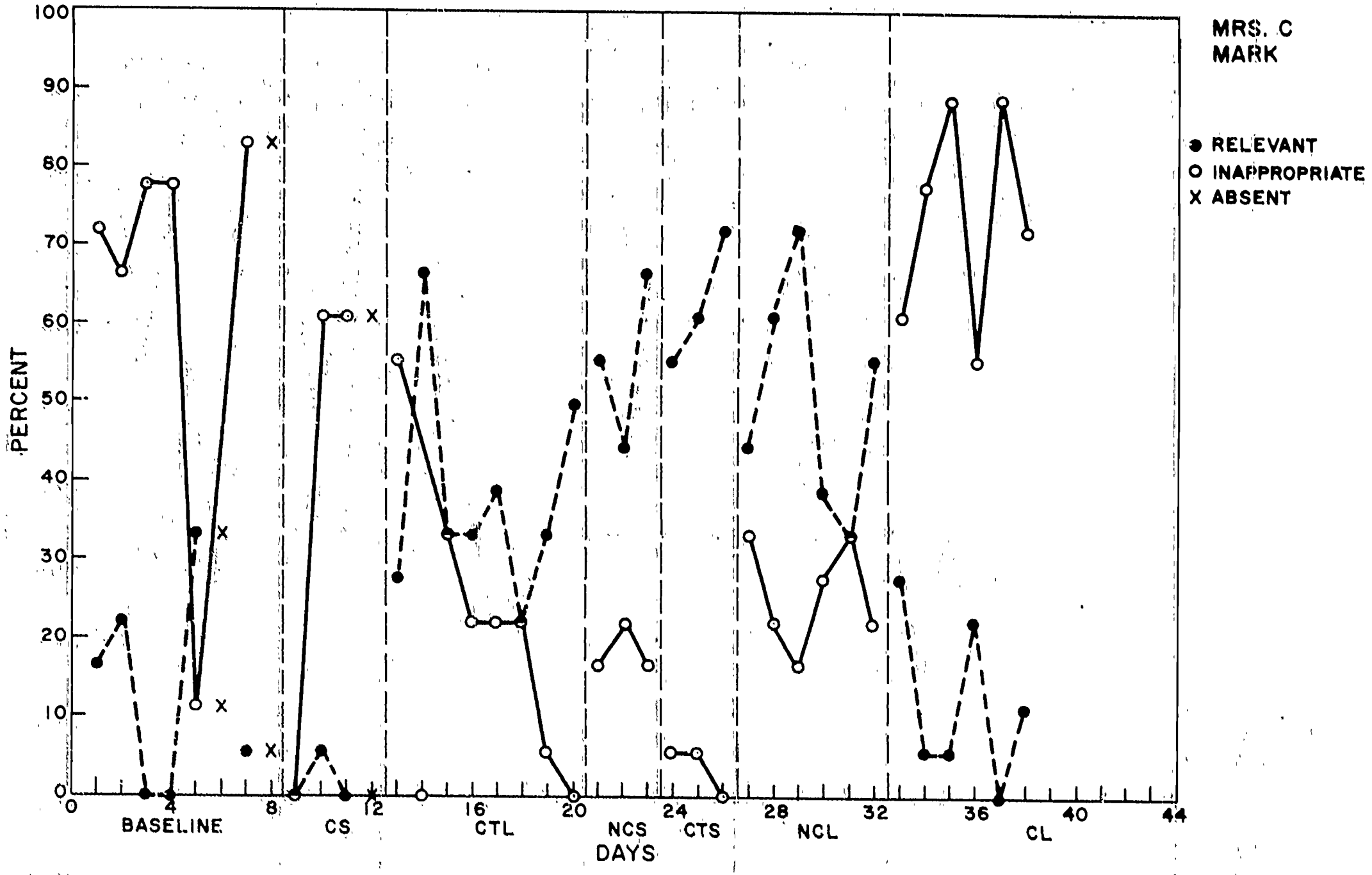

Figure 26. Mark: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. C's class.

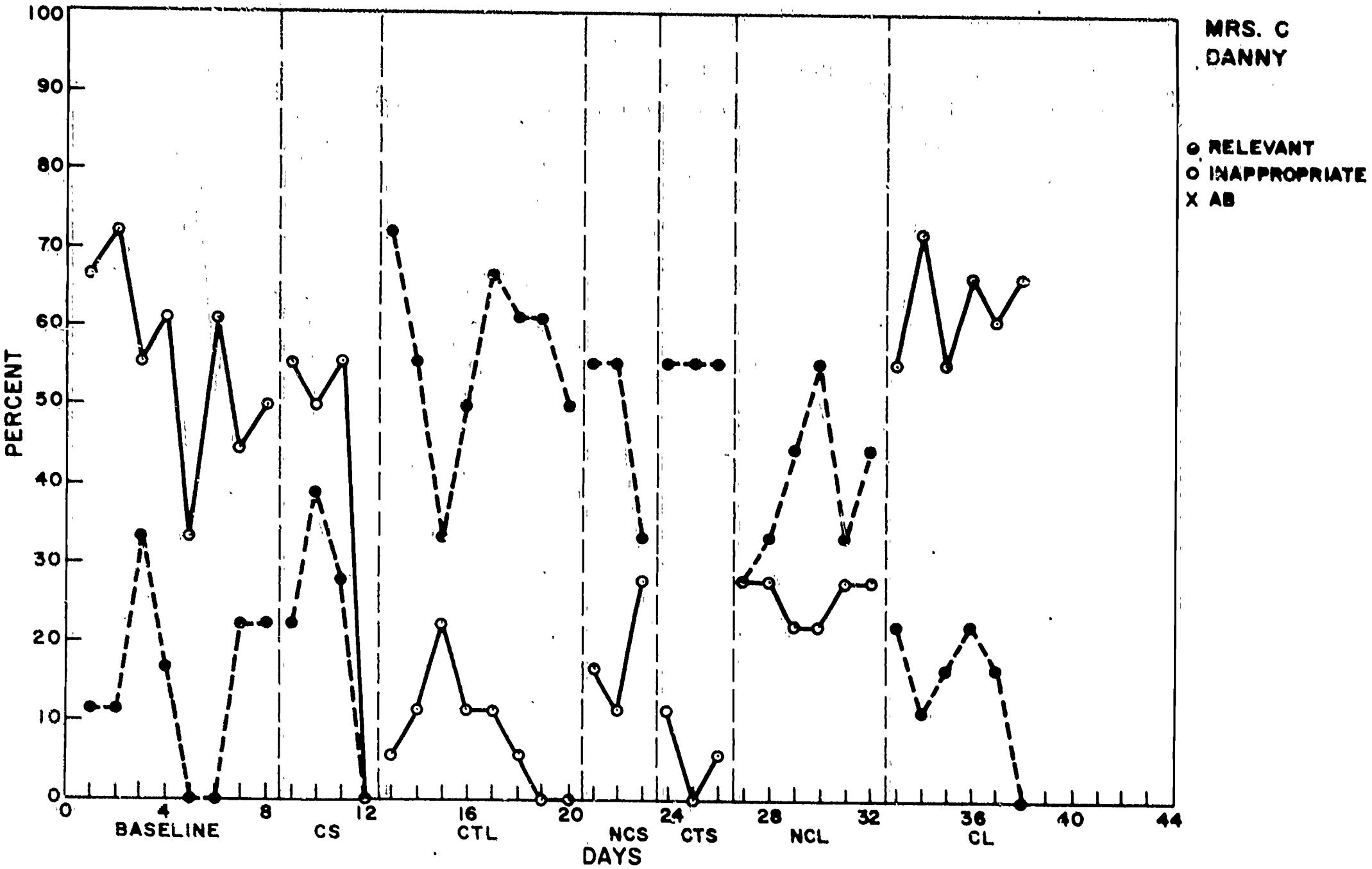

Figure 27. Danny: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. C's class.

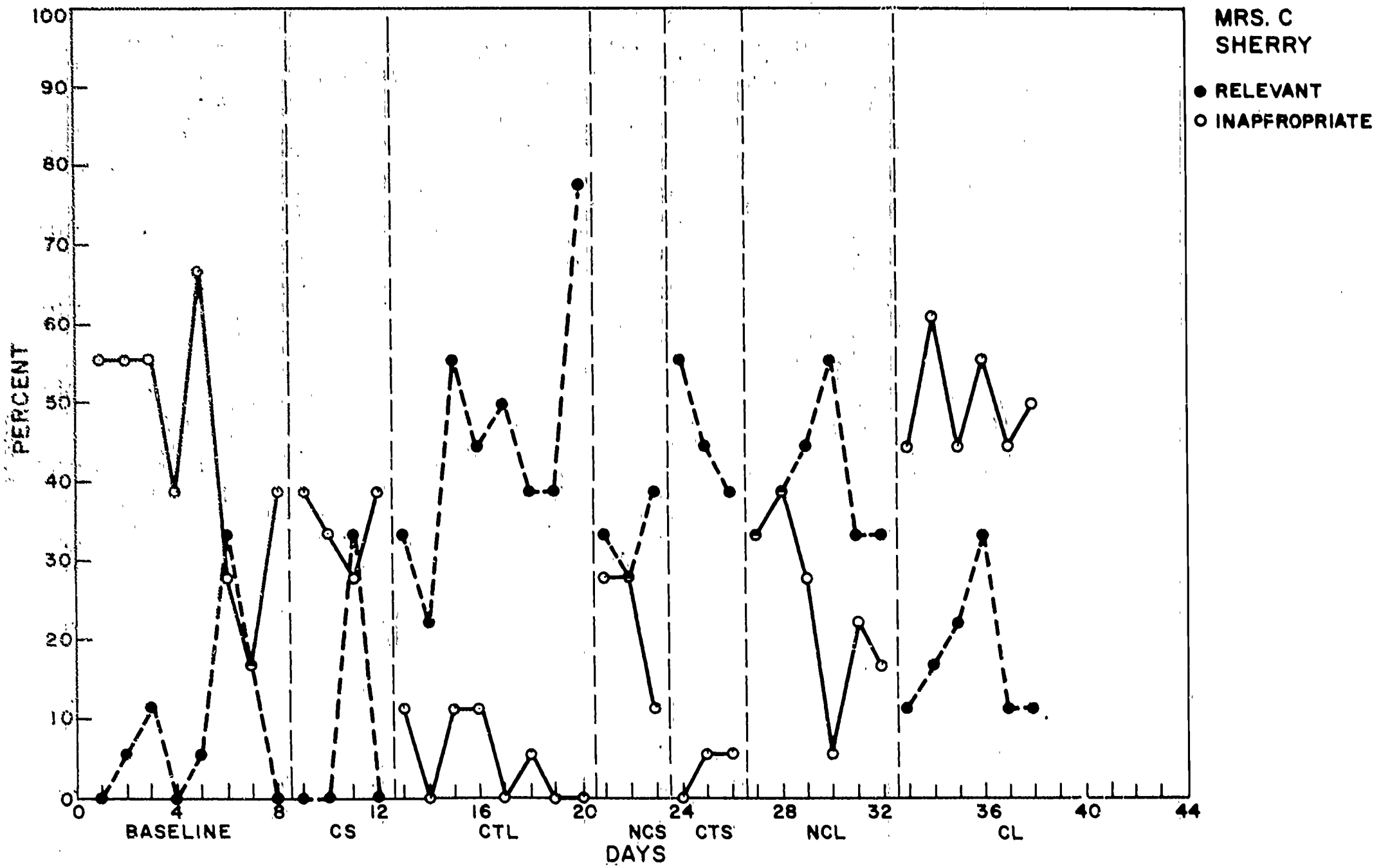

Figure 28. Sherry: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. C's class.

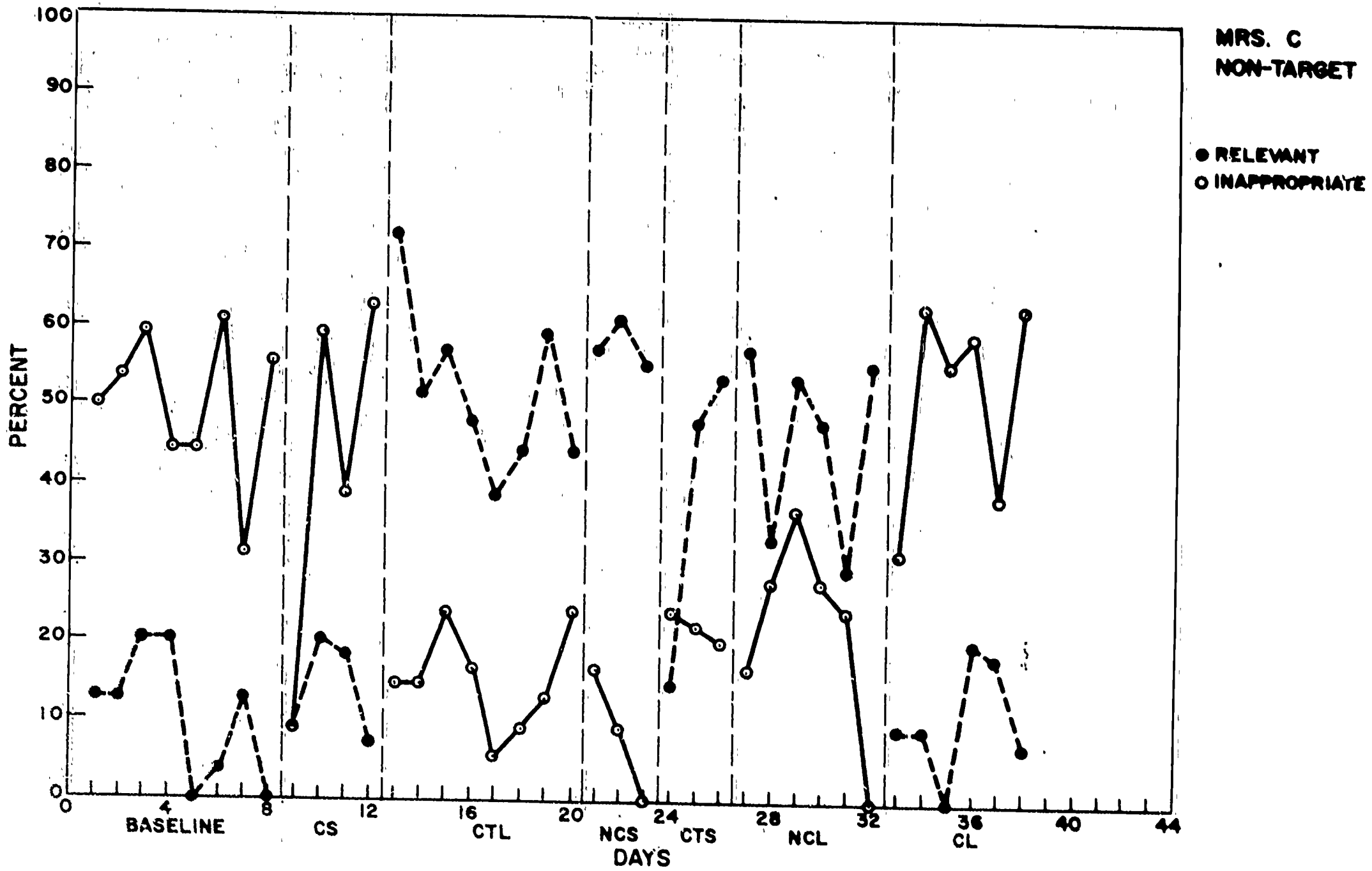

Figure 29. Non-target: relevant and inappropriate behaviors as a function of experimental conditions in Mrs. C's class.

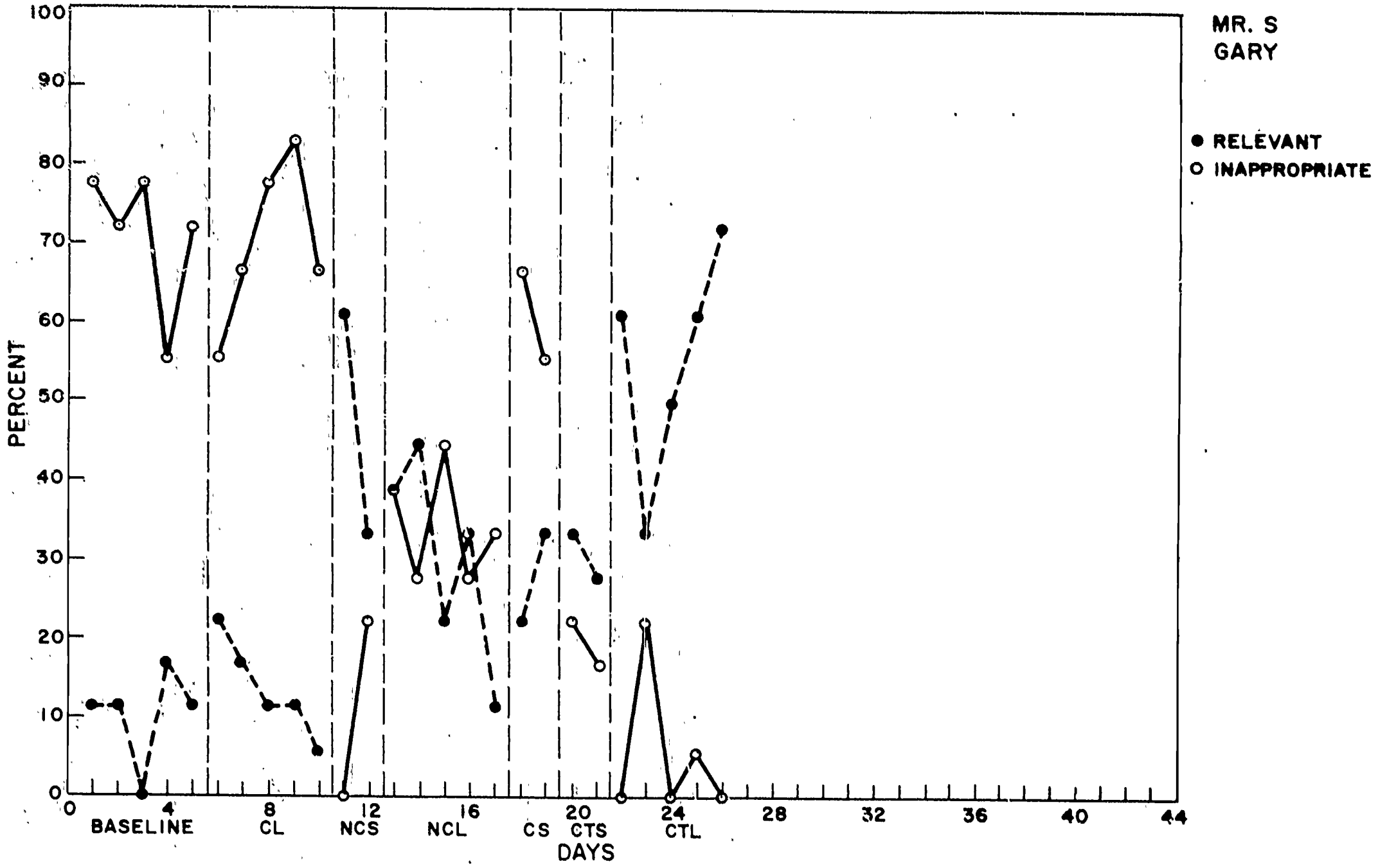

Figure 30. Gary: relevant and inappropriate behaviors as a function of experimental conditions in Mr. S's class.

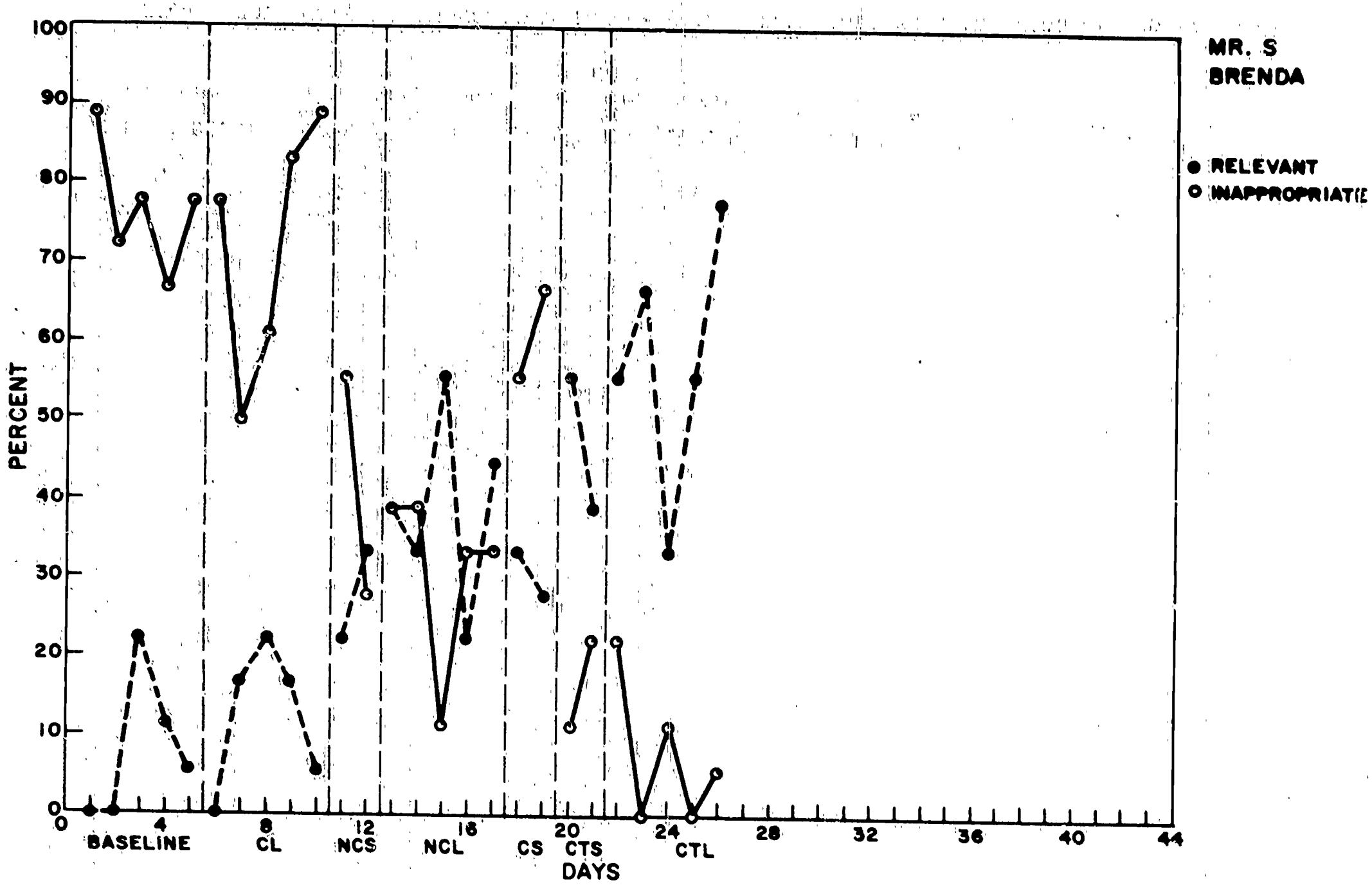

Figure 31. Brenda: relevant and inappropriate behaviors as a function of experimental conditions in Mr. S's class.

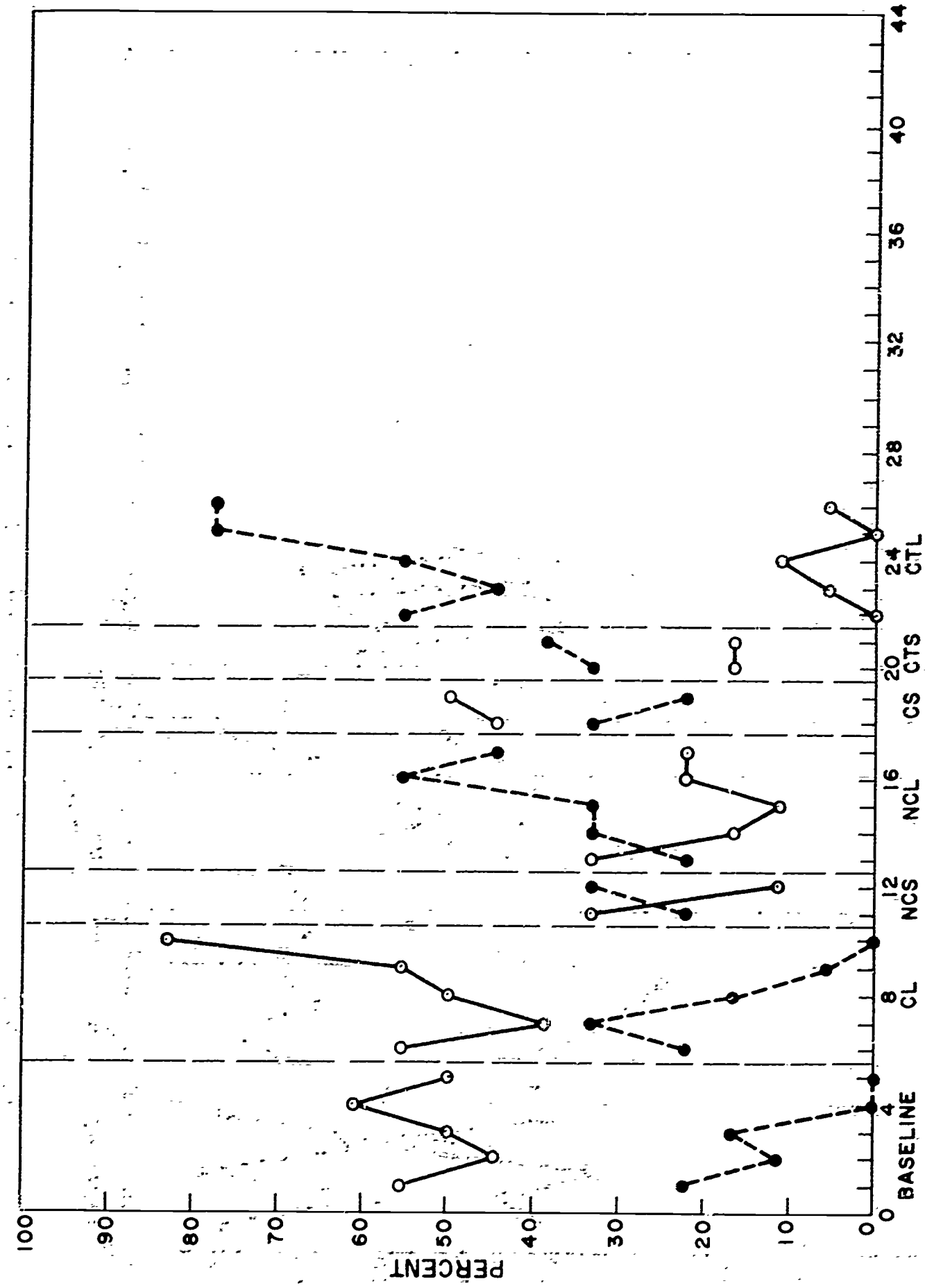

Figure 32. Jerry: relevant and inappropriate behaviors as a function of experimental conditions in Mr. S's class.

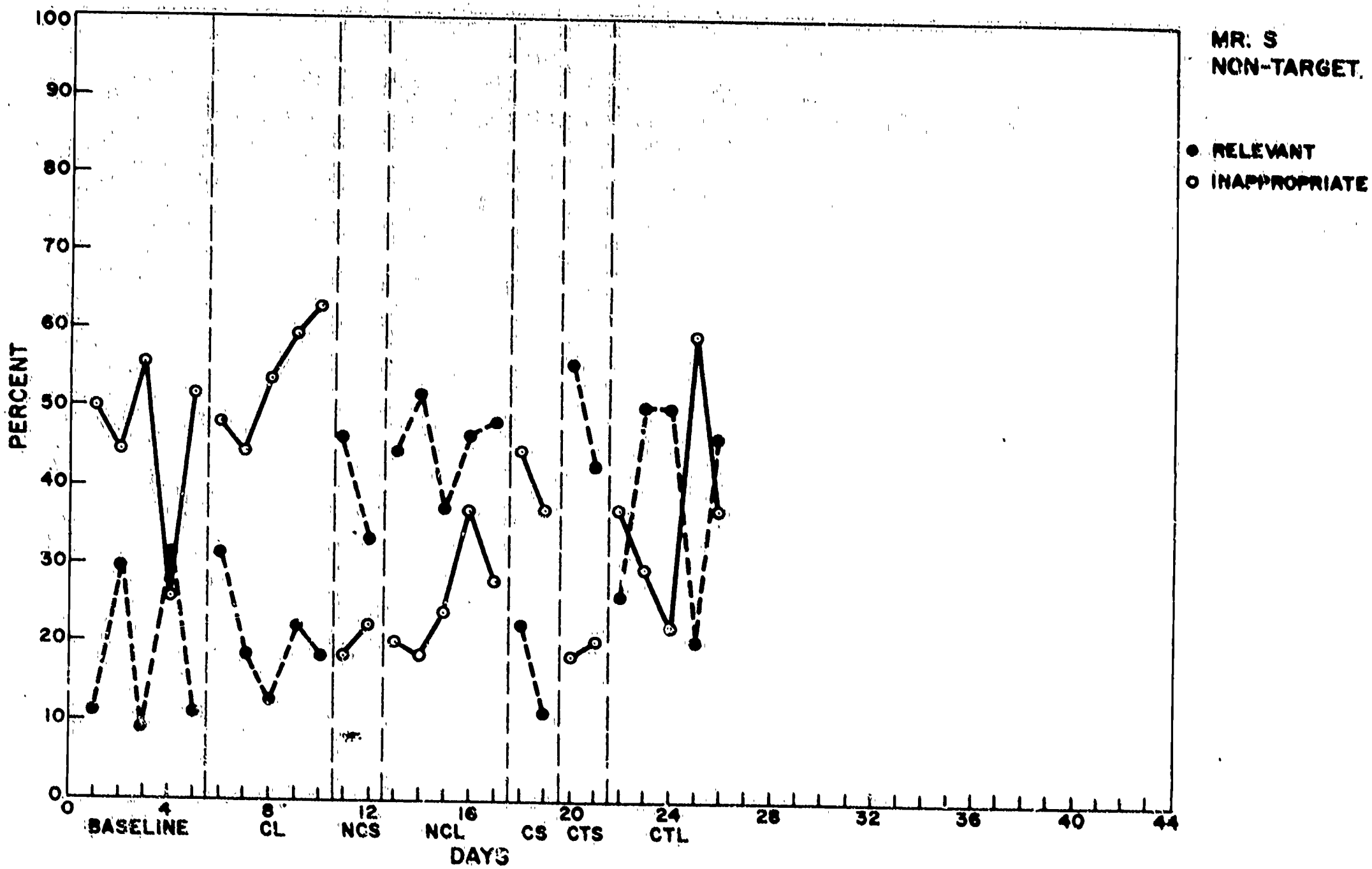

Figure 33. Non-target: relevant and inappropriate behaviors as a function of experimental conditions in Mr. S's class.

APPENDIX D

Date: _____ Teacher: _____ Observer: _____ Subject: _____ Order: 1 2 3 4 5 6

Random/Target

S	Relevant	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R
	Inappropriate	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI
	Non-Contingent	20 A P R	40 A P R	1 min A P R	20 A P R	40 A P R	2min A P R
	Other	I C TO	I C TO	I C TO	I C TO	I C TO	I C TO
T	Contingent-Random	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA
	Contingent-Target (Identify)	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA

Remarks:

S	Relevant	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R
	Inappropriate	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI
	Non-Contingent	20 A P R	40 A P R	3 min A P R	20 A P R	40 A P R	4min A P R
	Other	I C TO	I C TO	I C TO	I C TO	I C TO	I C TO
T	Contingent-Random	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA
	Contingent-Target (Identify)	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA

Remarks:

S	Relevant	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R	10 RB VR W H R	30 RB VR W H R	50 RB VR W H R
	Inappropriate	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI	M ON V T BI
	Non-Contingent	20 A P R	40 A P R	5 min A P R	20 A P R	40 A P R	6 min A P R
	Other	I C TO	I C TO	I C TO	I C TO	I C TO	I C TO
T	Contingent-Random	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA
	Contingent-Target (Identify)	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA	A P R F NA IA

Remarks:

APPENDIX E

INSTRUCTIONS

Say--Read the instructions to yourself while I read them aloud.

The purpose of this booklet is to find out how Junior High students feel about certain concepts like subjects, classroom activities, or a particular teacher. This test has no right or wrong answers. The best answer to give is exactly how you feel about each activity, subject, or teacher. On each page you will find a concept to be judged and beneath these concepts, a set of scales (for example, good-bad, ugly-beautiful). You will rate how you feel about these concepts on the scales.

Here is how you are to use these scales. Suppose that you are rating a concept on the ugly-beautiful scale. If you feel that the concept is very beautiful, you should place your check mark in the space closest to beautiful.

Ugly ____ ____ ____ ____ ____ ____ ✓ Beautiful

However, if you feel the concept is very ugly you should place your check mark in the space closest to ugly.

Ugly ✓ ____ ____ ____ ____ ____ ____ Beautiful

But, if you feel the concept is neither very beautiful or ugly, you should place your check mark in the middle space.

Ugly ____ ____ ____ ✓ ____ ____ ____ Beautiful

If you feel the concept is not extremely beautiful, but is more beautiful than ugly, you should place your check mark in a space between the middle space and the space closest to beautiful.

Ugly ____ ____ ____ ____ ✓ ____ ____ Beautiful

On the other hand, if you feel that the concept is not extremely ugly, but is more ugly than beautiful, you should place your check mark in a space between the middle space and the space closest to ugly.

Ugly ____ ✓ ____ ____ ____ ____ ____ Beautiful

You should follow exactly the same procedure in indicating your feelings about the concept on all the other scales. You should place a check mark in only one space for each of the scales (e.g., bad-good, ugly-beautiful), but that check mark may be placed in any one of seven spaces.

Turn to the next page. Let me read the scales to you. Passive-Active, Ugly-Beautiful, Fast-Slow, Good-Bad, Weak-Strong, Dull-Sharp, Deep-Shallow, Dark-Bright, Soft-Hard, Pleasant-Unpleasant. Are there any questions? You may begin. Work quickly . . . be careful to mark the space which correctly indicates how you feel.

Each of the following concepts were centered at the top of separate pages: Teacher's name, School, Math, English, Health, History, Homework, Tests, Grades, Class Participation, Books, Teacher Speaking.

passive	____	____	____	____	____	____	____ active
ugly	____	____	____	____	____	____	____ beautiful
fast	____	____	____	____	____	____	____ slow
good	____	____	____	____	____	____	____ bad
weak	____	____	____	____	____	____	____ strong
dull	____	____	____	____	____	____	____ sharp
deep	____	____	____	____	____	____	____ shallow
dark	____	____	____	____	____	____	____ bright
soft	____	____	____	____	____	____	____ hard
pleasant	____	____	____	____	____	____	____ unpleasant

The sequence and the polarity (i.e., good-bad or bad-good) of the above list of paired adjectives were presented randomly for each concept.

APPENDIX F

TABLE 11

ANALYSIS OF COVARIANCE FOR SEMANTIC DIFFERENTIAL CONCEPTS

Concepts	SS			MS		df				
	Between	Within	Total	Within	Between	Between	Within	Total	F	p
Tests	253.17	10496.19	10749.36	128.00	50.63	5	82	87	0.40	NS
Books	229.61	9538.96	9768.58	116.32	45.92	5	82	87	0.39	NS
School	1372.73	10173.12	11545.86	124.06	274.54	5	82	87	2.21	NS
Homework	926.04	11398.26	12324.30	139.00	185.21	5	82	87	1.33	NS
Grades	57.18	10598.08	10655.26	129.24	11.43	5	82	87	0.09	NS
Class Participation	833.93	11220.80	12054.74	136.83	166.7871	5	82	87	1.22	NS
Teacher Speaking	1192.44	14177.96	12985.51	158.36	238.48	5	82	87	1.51	NS
Math	1177.10	16523.86	17699.97	201.49	235.42	5	82	87	1.17	NS
English	2452.79	15261.30	17714.10	186.11	490.55	5	82	87	2.64	.05
History	986.75	13832.03	14818.79	168.68	197.35	5	82	87	1.17	NS
Health	896.83	15373.86	16270.70	187.48	179.36	5	82	87	0.96	NS
Teacher	1998.75	11346.28	13345.03	138.36	399.75	5	82	87	2.89	.05

TABLE 12

ANALYSIS OF COVARIANCE FOR FOURTEEN TENNESSEE SELF CONCEPT SCALES

Concepts	SS			MS		df			F	p
	Between	Within	Total	Within	Between	Between	Within	Total		
Self-Criticism	569.53	7233.86	7803.40	79.49	13.90	5	91	96	1.43	NS
True-False Ratio	5579.55	26390.31	31969.86	290.00	1115.91	5	91	96	3.85	.01
Self-Esteem	319.3284	5894.72	6214.05	64.77	63.86	5	91	96	0.99	NS
What I am (identify)	400.17	12098.23	12498.41	132.94	80.03	5	91	96	0.60	NS
Self-Satisfaction	412.86	6161.98	6574.84	67.71	82.57	5	91	96	1.22	NS
Behavior	387.35	7867.94	8255.30	86.46	77.47	5	91	96	0.90	NS
Physical Self	1137.43	11002.86	12140.29	120.91	227.48	5	91	96	1.88	NS
Moral-Ethical Self	698.95	7084.55	7783.50	77.85	139.79	5	91	96	1.80	NS
Personal Self	732.68	7217.10	7949.78	79.30	146.53	5	91	96	1.85	NS
Family Self	278.92	9390.67	9669.60	103.194	55.78	5	91	96	0.54	NS
Social Self	245.51	6817.07	7062.59	74.91	49.10	5	91	96	0.66	NS
Total Variability	1944.71	14603.76	16548.47	160.48	388.94	5	91	96	2.42	.05
Distribution Score	402.66	13419.30	13821.96	147.46	80.53	5	91	96	0.55	NS
Disturbance	125.10	13766.74	13891.85	151.28	25.02	5	91	96	0.17	NS

ABSTRACT

The present study investigated the effects of teacher contingent and non-contingent (random) social reinforcement on the classroom behavior of economically disadvantaged adolescents. Other purposes of the study explored the length of time needed t. demonstrate marked changes in behavior, and examined the effects of contingent social reinforcement on non-target members of the class. Six eighth-grade teachers in a junior-senior high school volunteered for the study and one class period for each teacher was selected. Each teacher identified three target adolescents in his class as being either disruptive or not motivated to do the assigned work. The teacher, three target, and randomly selected other members of the class (non-target) were observed daily in each class Inappropriate, relevant, and appropriate (neutral) adolescent behaviors were rated by classroom observers. Observer reliability was computed. At the end of baseline, there were six experimental conditions: contingent short (four days), contingent long (eight days), non-contingent short, non-contingent long, control short, and control long. Assignment of teachers and the sequence of the six experimental conditions were random. The Semantic Differential and the Tennessee Self Concept Scale were administered to all subjects during baseline and following the experimental conditions. Analyses of variance between experimental conditions (contingent and non-contingent) and control conditions of target and non-target adolescents showed significant increases in relevant and significant decreases in inappropriate behaviors. No significant differences between contingent and non-contingent conditions were found for target and non-target subjects. Individual subject and classroom differences in favor of long time periods were found for target subjects. The effect of length of time was not significant for non-target subjects. Analysis of covariance for the Semantic Differential showed only one concept to be significant (teacher's name). The 14 scales on the Tennessee Self Concept Scale were not significant.