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AUTHOR Keogh, William J.; And Others
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ABSTRACT

This study analyzed the effect of (1) teacher priming and (2) the presence of novel gross motor play equipment on peer interaction. The subject was a 2 1/2-year-old boy who seldom interacted with his classmates in a toddler class. In the teacher priming condition, teachers verbally and nonverbally prompted the subject to interact with peers, while witholding praise or approval following interactions. In the play equipment condition, one of three novel pieces of gross motor equipment was placed in a special area of the classroom or playground. In a third condition, teachers prompted the subject to "try out" one of the pieces of gross motor equipment, again witholding praise or approval for interactions. Observations were conducted daily during a 20-minute inside free play period and during a 14-minute outside free play period. Behaviors were recorded in 10-second intervals. Results indicate that both the presence of novel play equipment and teacher primes increased the level and duration of appropriate social interaction. Eight pages of graphs and pictures are included. (SB)

THE EFFECTS OF ANTECEDENT STIMULI UPON A PRESCHOOL CHILD'S PEER INTERACTION

William J. Keogh, Regina M. Miller and Judith M. LeBlanc

Department of Human Development
The University of Kansas
Lawrence, Kansas 66044

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THE EFFECTS OF ANTECEDENT STIMULI UPON A PRESCHOOL CHILD'S PEER INTERACTION

William J. Keogh, Regina M. Miller and Judith M. LeBlanc
The University of Kansas

Within the past several years, a considerable body of research has been devoted to an experimental analysis of social interaction among preschool populations. Of particular interest here are those studies which have demonstrated the effectiveness of operant conditioning techniques to modify the isolate or anti-social behavior of 2 to 5 yr olds. In particular, teacher praise and attention, when presented as an immediate consequence of appropriate social interaction between young children, increases that behavior (Harris, Wolf and Baer, 1964; Allen, Hart, Buell, Harris and Wolf, 1964; Buell, Stoddard, Harris and Baer, 1968; Hart, Reynolds, Baer, Brawley and Harris, 1968; and Miller, Holmberg and LeBlanc, 1971). There seems to be a paucity of research, however, which systematically analyzes the role that antecedent stimuli might play in the development of social interaction among preschoolers.

This study was designed to assess the effects of two classes of antecedent stimuli in relation to the level of peer interaction of a preschool child. The purpose of this examination was to determine whether the implementation of these variables, in the absence of programmed positive reinforcement, would increase the subject's level of interaction. The two classes of antecedent stimuli analyzed were: (1) teacher behavior in the form of "primes" or suggestions to interact, and (2) the presence of novel, gross-motor play equipment.

The subject was a 2½-yr old boy who attended morning toddler classes at the Edna A. Hill Child Development Laboratories at the University of Kansas. He spent most of his time each day participating in various teacher directed activities, but did not often interact or play with his eight classmates.

Observations were conducted daily during a 20-min inside, free play period; and during a 14-min outside, free play period. A head teacher and two assistants supervised the activities of the children in both settings. During inside free play, a variety of materials were available including: wheel toys, manipulative toys, blocks, books, toy animals, art and dramatic play materials. Each teacher was assigned to a specific area of the classroom where activities were conducted such as cookie-baking, collage-pasting, finger-painting, house-play, etc. The subject was free to participate in any of the teacher directed activities, or play with any of the other available classroom materials (usually manipulative toys). During outside play, a climbing apparatus, trikes, a sandbox, pails and shovels, rubber balls, and a large wagon were available for use. Activities were not structured or teacher directed during outside play. A combination ABA-multiple Baseline design was used across and within the two settings.

An experienced observer, carrying a clipboard, stop watch, and data sheets marked off in 10-sec intervals, recorded data in both play settings. For all conditions, only the first occurrence of each behavior was scored per 10-sec interval. Behavioral definitions were classified and coded into two major headings: (1) teacher behavior, and (2) child behavior. Adult attention was considered

contingent when the teacher spok to or gestured to the subject while he was initiating or responding to a peer. Teacher primes were requests for the subject to interact with a peer, or which placed him in a situation where interaction was likely to occur. Child behavior included appropriate initiations and responses. An initiation included appropriate initiations and responses. An initiation included any words, gestures, or statements by one child to another; and, responses included words, gestures, or statements, following an initiation, in which the content of the action related to the content of the initiation. Because of the reciprocal nature of an interaction, the subject was scored as interacting if he was either the initiator or the responder. If the initiation or the response took the form of aggressive behavior, it was not scored as appropriate interaction. Aggressive behavior included kicking, pushing, slapping, biting, or grabbing objects from others.

In the first experimental condition, teachers were asked to verbally and nonverbally prime the subject in order to get him to interact with peers while teacher praise and approval following interactions was withheld. An example of this type of prime would be, "Billy, the game Sarah is playing looks like fun." For the second experimental condition, novel, gross-motor play equipment was placed in a special section of the classroom. SLIDE ONE shows the three kinds of apparatus used during inside play. Each day one piece of equipment was randomly selected and placed in the special area and teachers were asked to refrain from priming the subject or attending to episodes of social interaction. Some of these pieces

of equipment had been occasionally used prior to the start of this study when inclement weather forced the class to remain indoors during the normally scheduled outside play period. However, they had previously never been used during the regularly scheduled inside play period. SLIDE TWO shows the kinds of equipment used during the outside sessions. All of the equipment pieces shown in the foreground were present on each day of the condition and when the condition ended, they were all removed at the same time. For the third experimental condition (conducted inside only), teachers were instructed to prime the subject to "try out" one of the pieces of gross-motor equipment while continuing to withhold praise or approval for interactions.

SLIDE THREE shows the percent of 10-sec intervals observed in which social interaction occurred. As can be seen from the inside results (upper graph), on 13 days throughout the study the subject did not interact at all. Twelve of these days occurred during the "no treatment" or baseline conditions; the 14 day occurred during the condition when novel equipment was present. On day 15, during the "primes only" condition, the subject interacted in 37% of the intervals observed; and on day 43, when teachers were priming the subject to "try out" one of the pieces of equipment, the subject interacted in 38.3% of the intervals. The outside results (lower graph) show that the subject did not interact at all on 7 days of the study in this setting; all 7 were during the "no treatment" or baseline conditions. On day 47, the subject interacted in 43.9% of the intervals observed. However,

for 33.3% of those intervals a teacher was helping the subject to push other children around the play yard in a HOR-PLA. Since the teacher was interacting with the subject during this time, contingent attention was scored as having occurred during those intervals. Therefore, 15.6% of the intervals were observed on that day where interaction occurred independent of contingent attention.

SLIDE FOUR shows the mean percent of 10-sec intervals in which appropriate social interaction occurred for each condition. As can be seen, each treatment condition shows significant increases from baseline or "no treatment" conditions. During inside play (upper graph), the subject interacted, on the average, in 15.7% of the intervals when the primes only condition was in effect; in 13.9% during the equipment-only condition; in 21.1% during the first primes plus equipment condition and in 13.6% for the second. The lower graph shows the subject's averages during outside play. As can be seen, the subject interacted in 21% of the intervals when teacher primes were in effect; in 26.7% of the intervals during the first equipment-only condition, and in 20.1% for the second.

The average length of the subject's episodes of social interaction for each condition is shown in SLIDE FIVE. An episode of interaction continued until one 10-sec interval elapsed in which neither the subject nor the peer met the initiation/response criterion, or when the nature of the interaction was aggressive. The inside results (upper graph) show that the duration of play was greater when treatment conditions were in effect than during

"no treatment" or baseline conditions. The longest mean duration was 5.0 intervals which occurred during the inside equipment-only condition. The longest durations in the outside setting occurred during the first and second equipment-only conditions; they were 4.6 and 3.1 intervals respectively. As can be seen, the 2.5 average duration during the primes-only condition was less than 2.6 intervals during the initial baseline. This effect might have occurred because the wagon, which had been present until midway through the first treatment condition, was removed for repair and never returned.

The final slide (SLIDE SIX) shows the percent of 10-sec intervals observed in which the subject was attended to by his teachers. The squares indicate contingent teacher attention, and the dots represent total teacher attention. As can be seen, teacher attention was frequent in both settings, but very little was contingent upon social interaction.

The results we have just seen show that the systematic presentation and removal of certain antecedent stimuli altered both the level and duration of appropriate social interaction in a preschool child. The changes occurred even though a procedure designed to deliver praise or approval contingent upon each episode of interaction was not employed. It would seem, therefore, that carefully selected preschool materials and certain kinds of statements from teachers, (i.e., primes or suggestions) would enhance an environment designed to promote interaction among preschool children. The results further suggest that an episode of interaction lasts longer when novel, gross-motor play equipment is present, than when teacher primes alone are used. Whether such stimuli are

potent enough to maintain interaction is another research question worthy of further consideration. It is possible that a "novelty effect" might have occurred which aroused the curiosity of the children and once satisfied, the fun or novelty of the play equipment might have worn off. Longer experimental conditions than those used in this study would help to answer this question. Nevertheless, these findings do show that appropriate interaction increased when certain antecedent stimuli were present. Skillful manipulation and rotation of preschool materials throughout the course of the school term might help to maintain an "enhanced environment effect" for interaction, and thus provide the preschool teacher with greater opportunities to offer praise and approval for appropriate social interaction.

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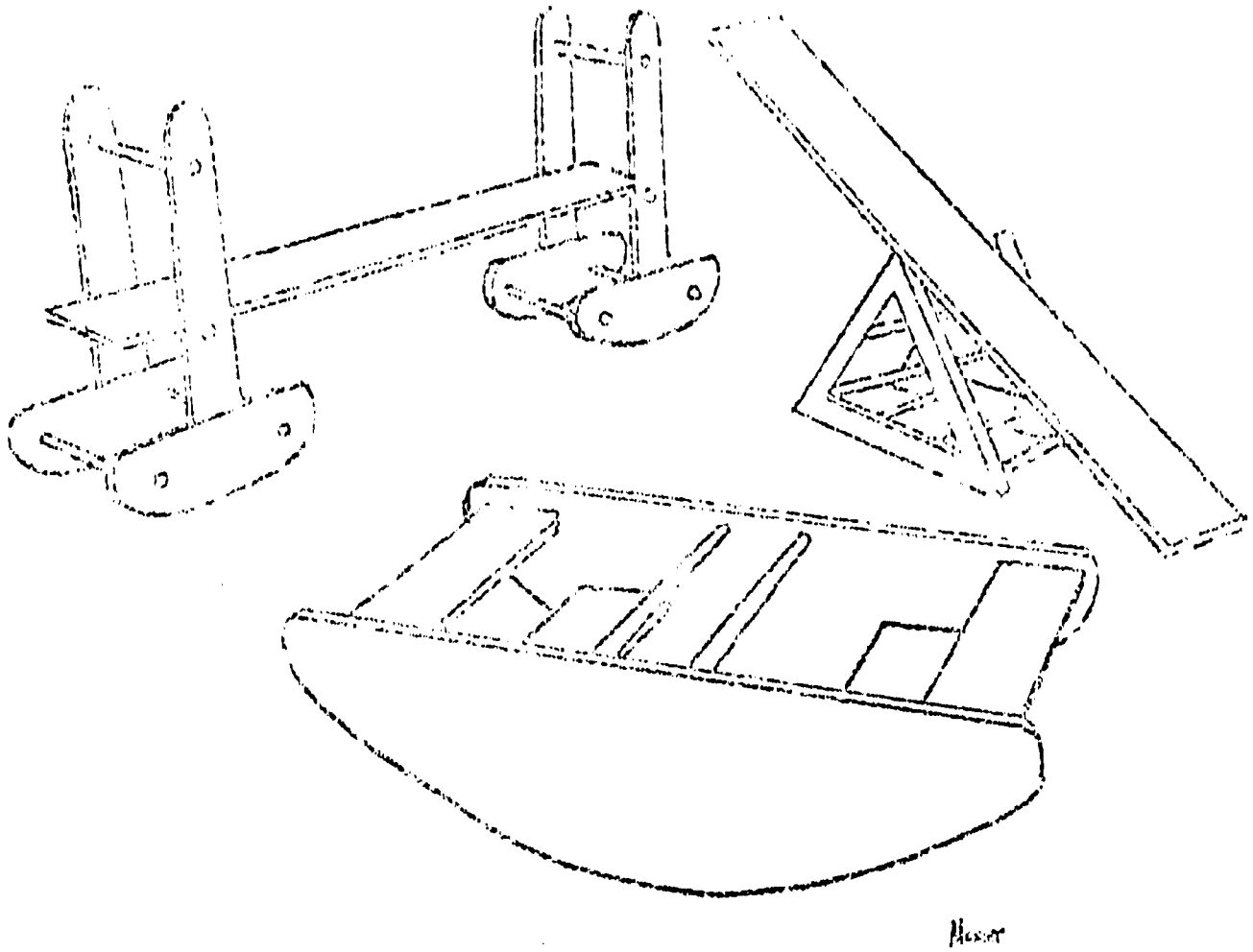
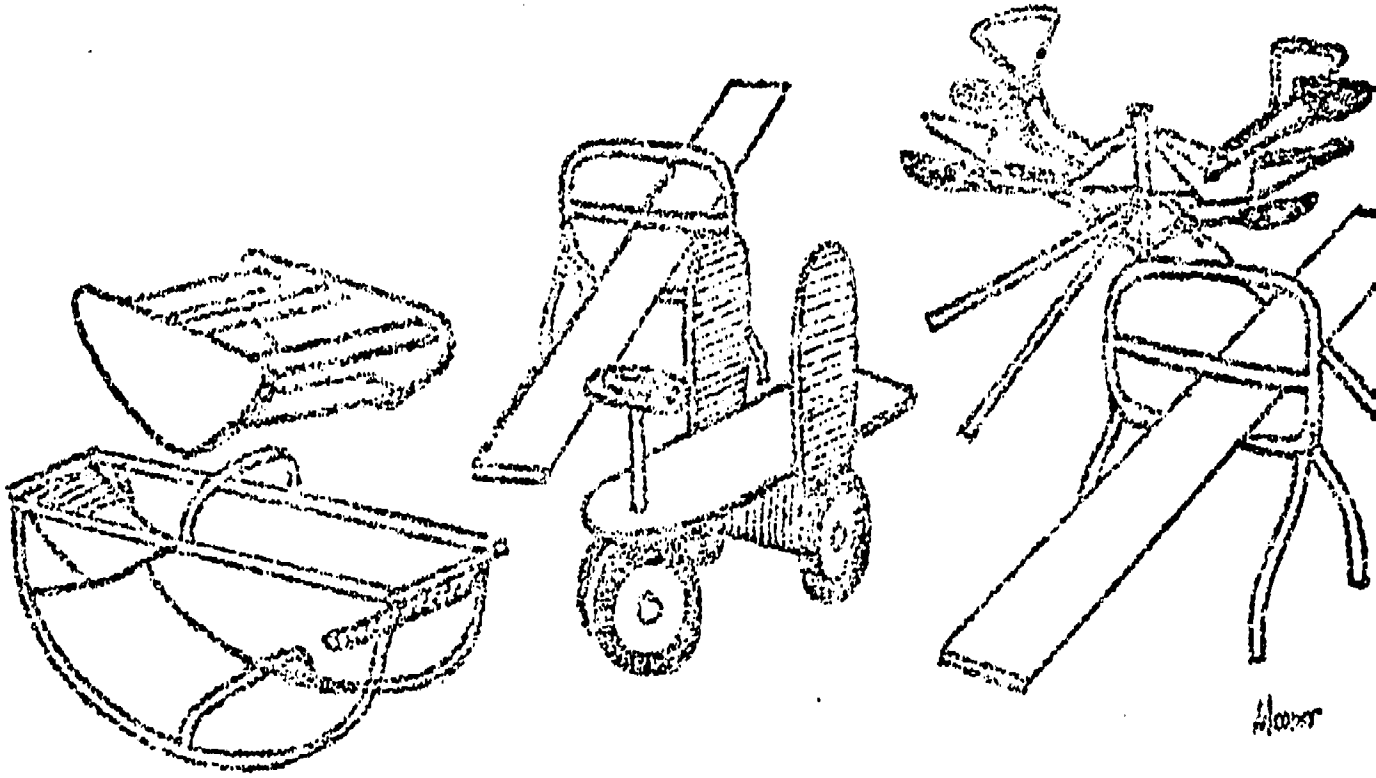
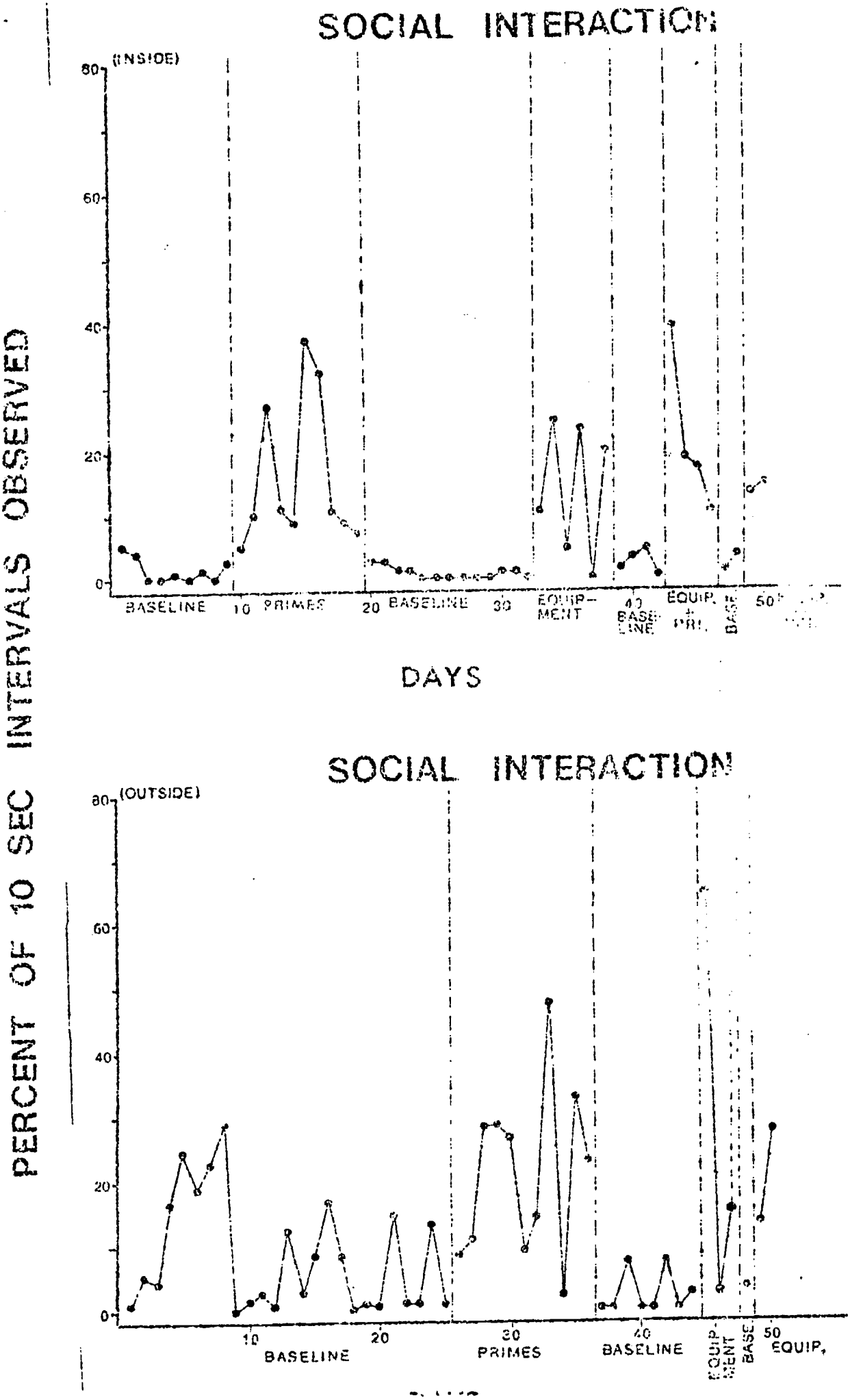
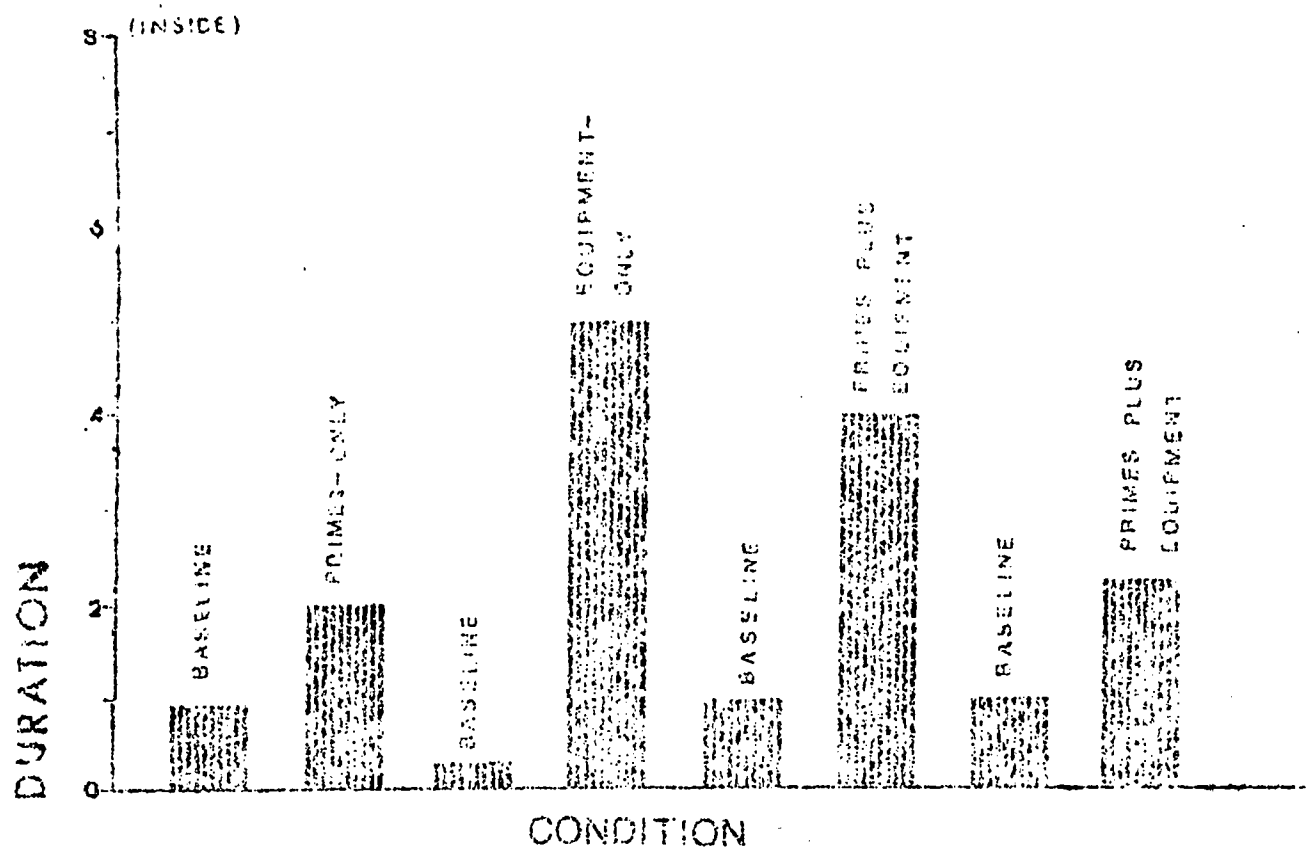
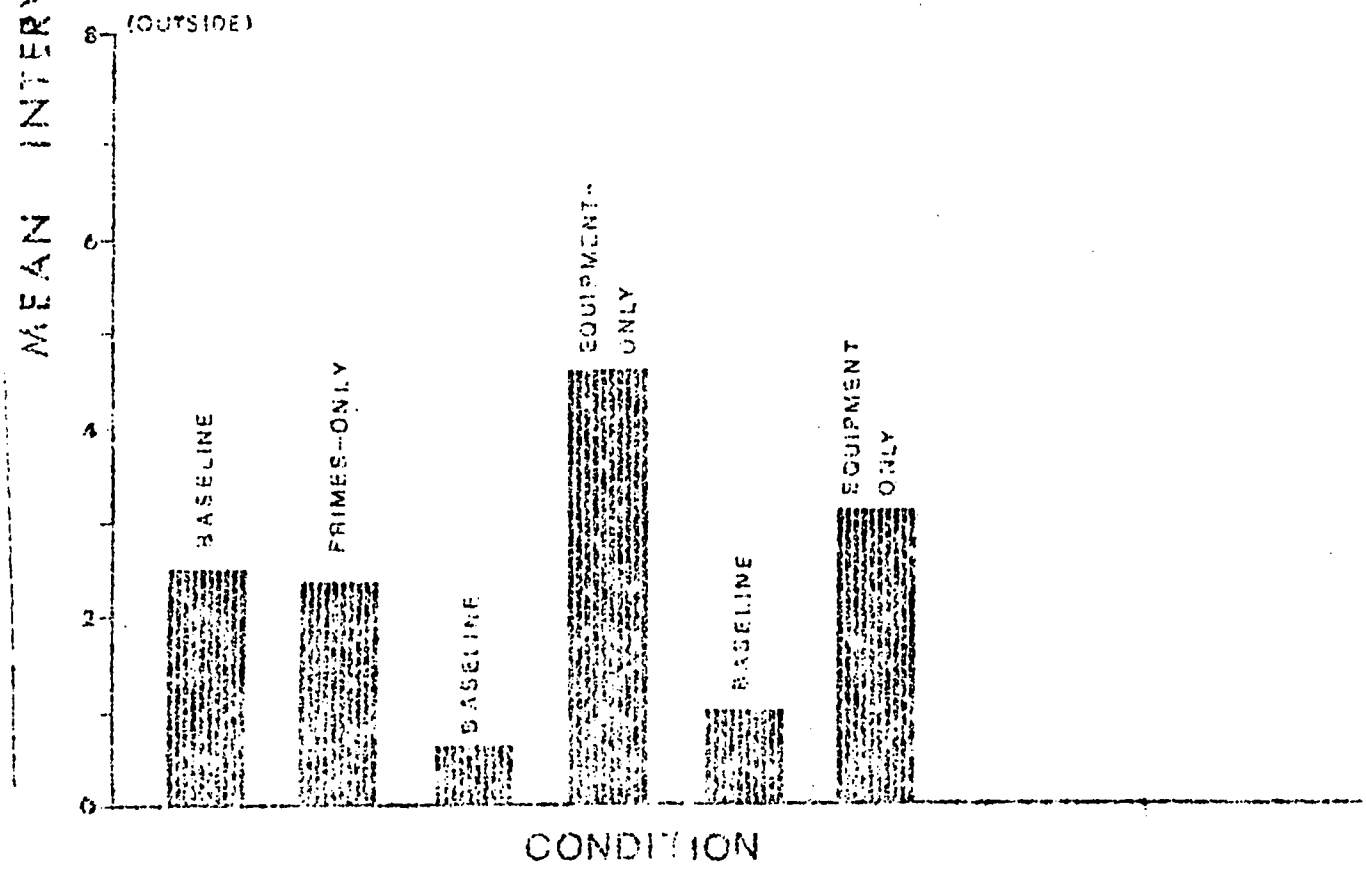
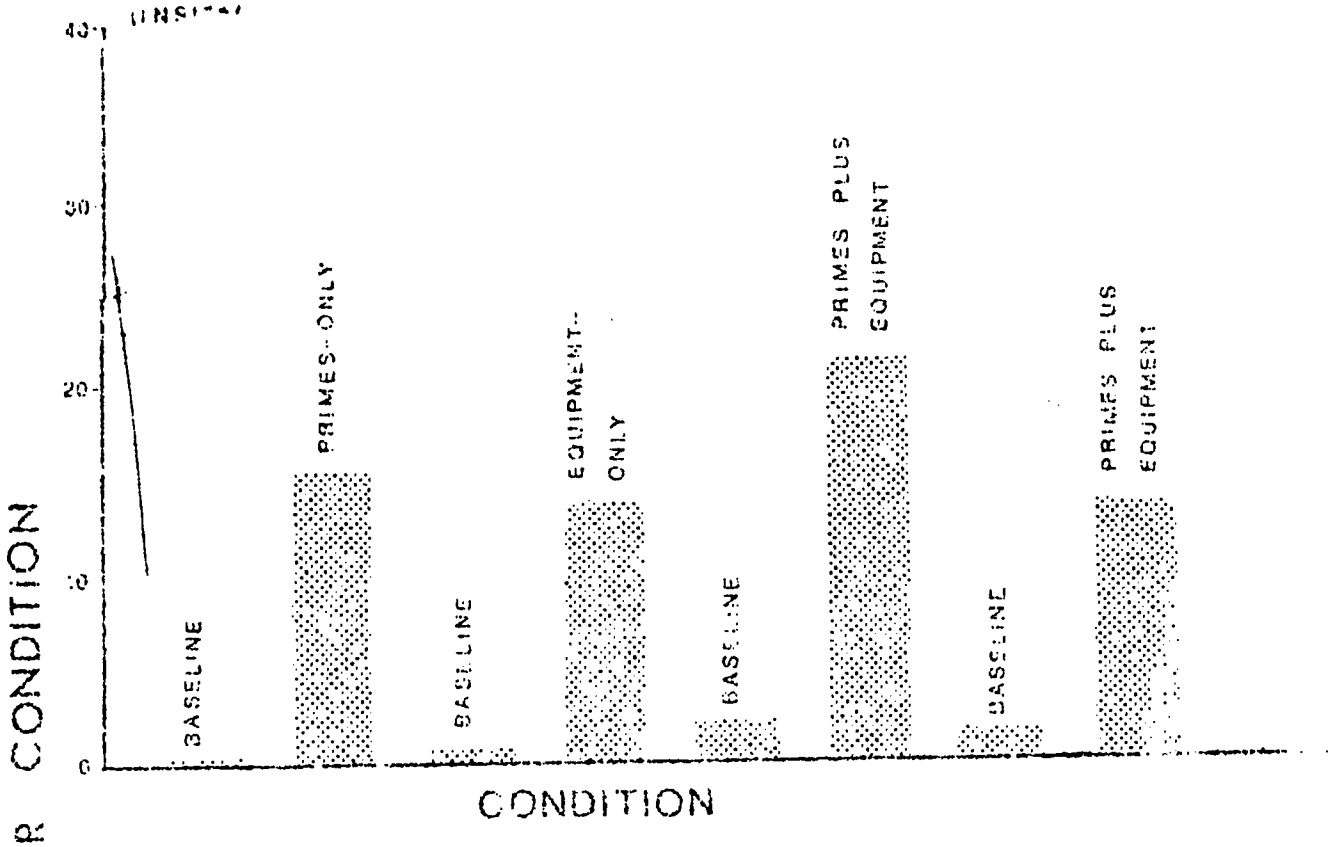


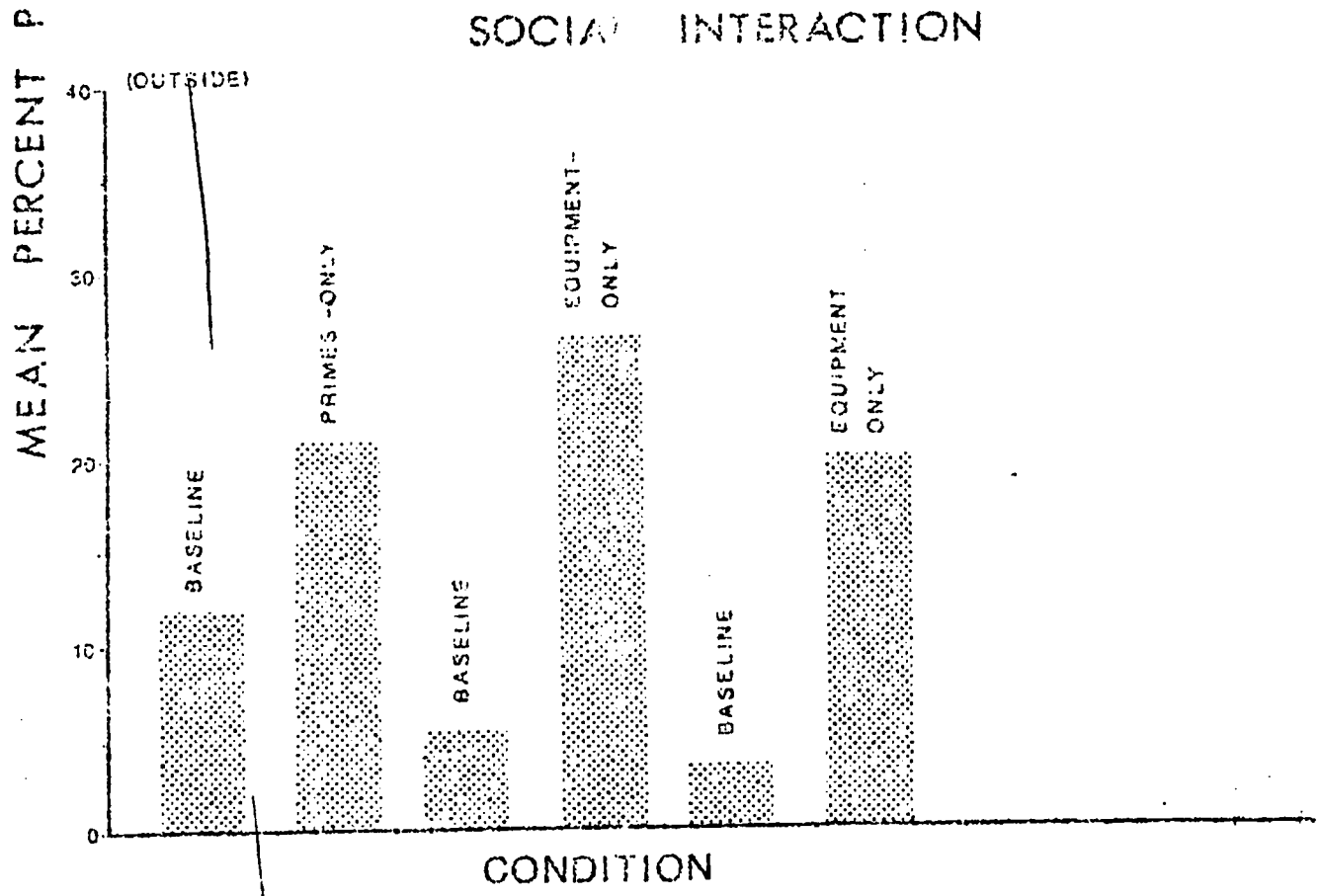


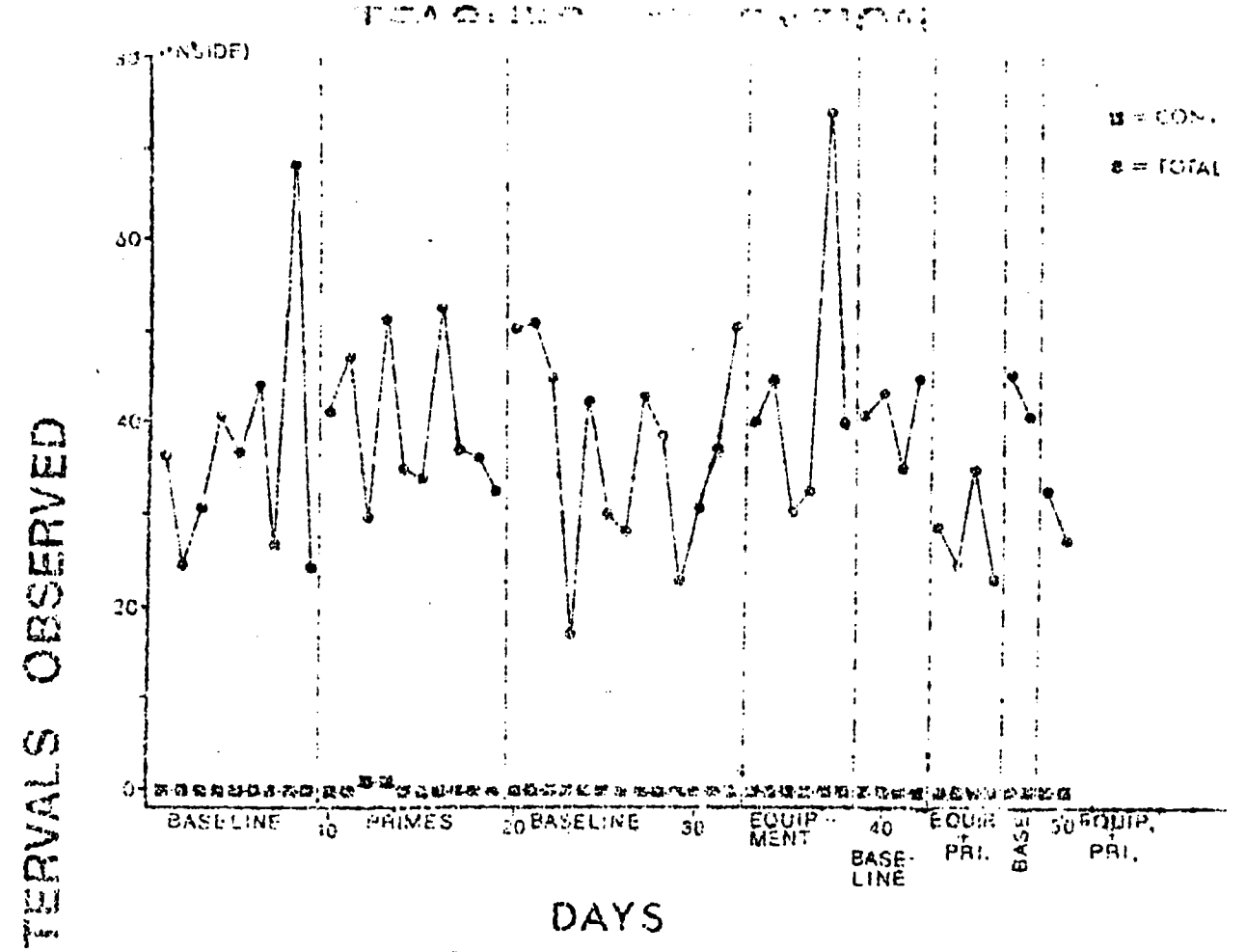

SOCIAL INTERACTION
(INSIDE)
80
60
40
20
0
BASELINE
10
PRIMES
20
BASELINE
30
EQUIP-
MENT
40
BASE-
LINE
EQUIP.
+
PRI.
BASE
50
PERCENT OF 10 SEC INTERVALS OBSERVED
DAYS
SOCIAL INTERACTION
(OUTSIDE)
80
60
40
20
0
10
BASELINE
20
30
PRIMES
40
BASELINE
EQUIP-
MENT
BASE
50
EQUIP.


SOCIAL INTERACTION
(INSIDE)
MEAN INTERVAL DURATION
0
2
4
6
8
BASELINE
PRIMES-ONLY
BASELINE
EQUIPMENT-ONLY
BASELINE
PRIMES PLUS EQUIPMENT
BASELINE
PRIMES PLUS EQUIPMENT
CONDITION


SOCIAL INTERACTION
(OUTSIDE)
MEAN INTERVAL DURATION
0
2
4
6
8
BASELINE
PRIMES-ONLY
BASELINE
EQUIPMENT-ONLY
BASELINE
EQUIPMENT ONLY
CONDITION


SOCIAL INTERACTION
(INSIDE)
40
30
20
10
0
MEAN PERCENT PER CONDITION
BASELINE
PRIMES-ONLY
BASELINE
EQUIPMENT-ONLY
BASELINE
PRIMES PLUS EQUIPMENT
BASELINE
PRIMES PLUS EQUIPMENT
CONDITION

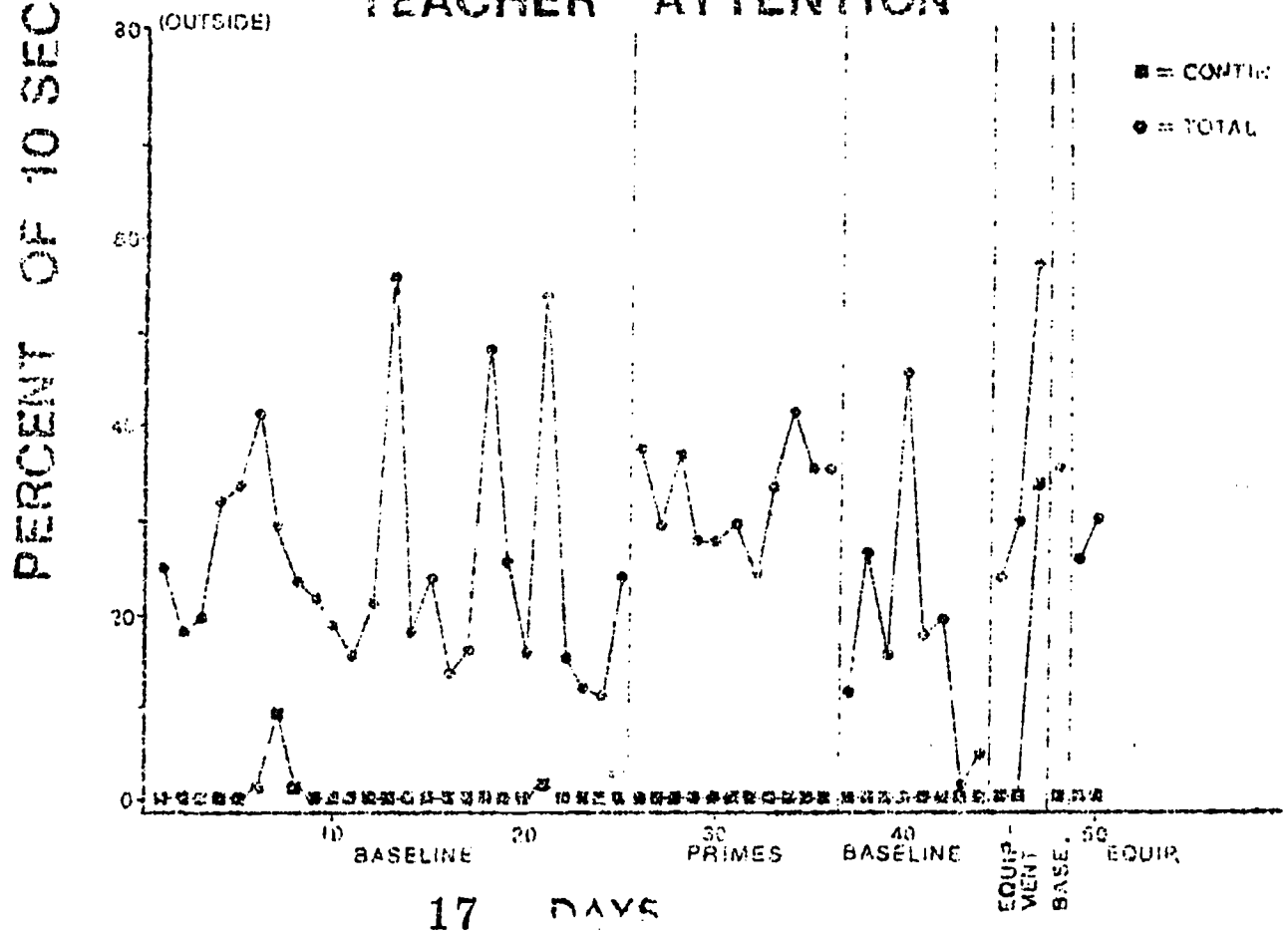

SOCIAL INTERACTION
(OUTSIDE)
40
30
20
10
0
MEAN PERCENT PER CONDITION
BASELINE
PRIMES-ONLY
BASELINE
EQUIPMENT-ONLY
BASELINE
EQUIPMENT ONLY
CONDITION



PERCENT OF 10 SEC INTERVALS OBSERVED

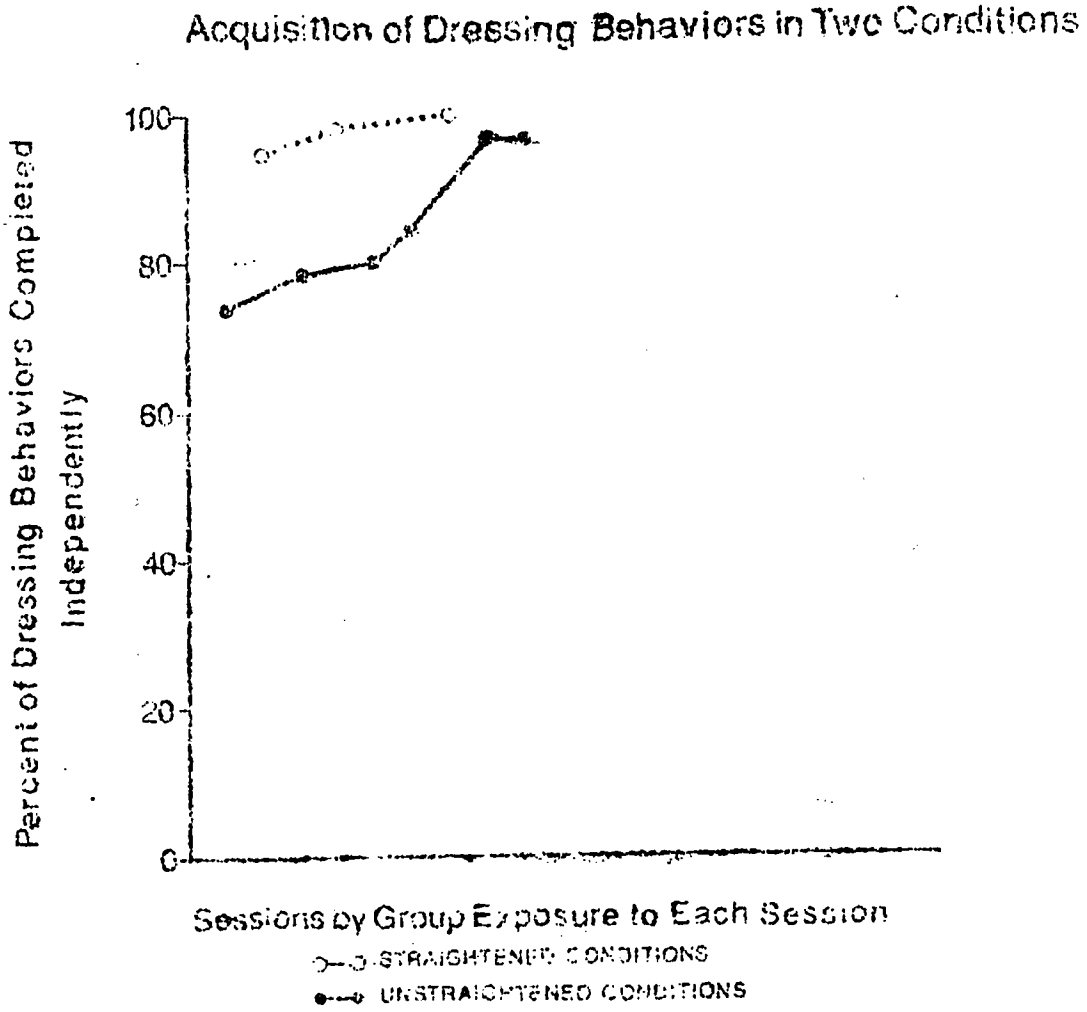
DAYS

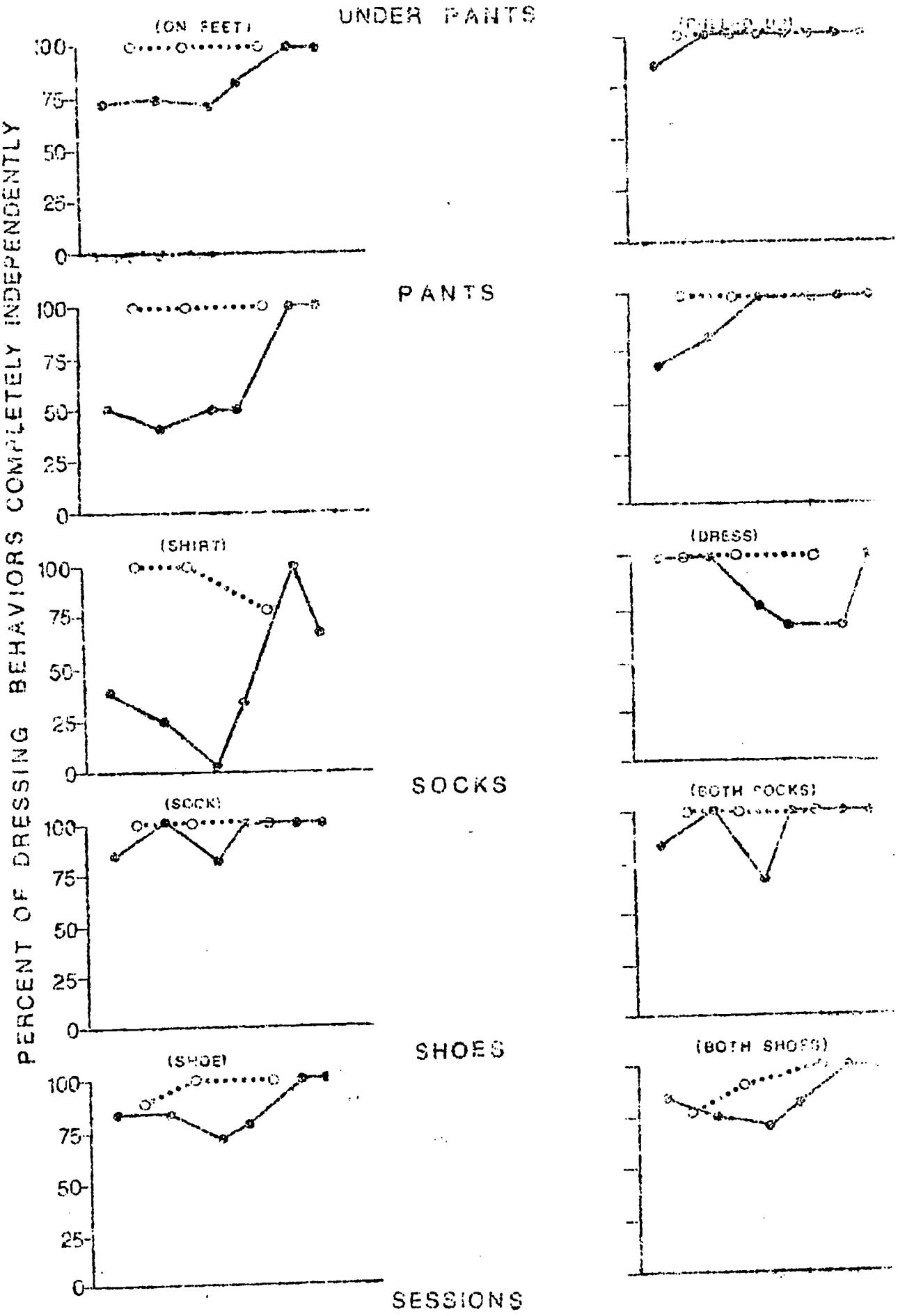
TEACHER ATTENTION



PERCENT OF 10 SEC INTERVALS OBSERVED

DAYS


Acquisition of Dressing Behaviors in Two Conditions
Percent of Dressing Behaviors Completed Independently
100
80
60
40
20
0
Sessions by Group Exposure to Each Session
STRAIGHTENED CONDITIONS
UNSTRAIGHTENED CONDITIONS


UNDER PANTS
PANTS
SOCKS
SHOES
SESSIONS
PERCENT OF DRESSING BEHAVIORS COMPLETELY INDEPENDENTLY
(ON FEET)
(SHIRT)
(DRESS)
(SOCK)
(BOTH SOCKS)
(SHOE)
(BOTH SHOES)
100
75
50
25
0
STRAIGHTENED CONDITIONS
UNSTRAIGHTENED CONDITIONS