

*SOLITARY TOY PLAY AND TIME OUT:
A FAMILY TREATMENT PACKAGE FOR CHILDREN WITH
AGGRESSIVE AND OPPOSITIONAL BEHAVIOR*

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The behavior of four boys, 5 to 8 years of age, who were referred for a number of oppositional, rule violating, and aggressive behaviors, was assessed by direct observation and parent reports. Following baseline measurement, several interventions were successively applied to each child's behavior. Use of a social play contract to reduce problem behaviors by teaching appropriate social behaviors resulted either in no improvement or in worsening of the problem behaviors in observations made when the contract was not in effect. Changing the contract behavior to solitary toy play resulted in reduced oppositional behavior during the observation sessions, fewer reports from the parents of low-rate problem behaviors, and improvements in the parents' attitudes toward the children. However, these changes during the observation sessions were short-lived, because the data on these measures began to show a reversal during later sessions. Inclusion of a time-out contingency with the solitary play contract recovered the earlier improvements in the children's behavior during observation sessions and the parents' reports. These results gave support to the view that for children whose behavior is severely oppositional and aggressive, a treatment approach emphasizing productive, solitary behaviors may be superior to one stressing appropriate social interaction. However, a combined strategy of reinforcement for solitary play and punishment for problem behaviors appears necessary to ensure more durable treatment effects.

DESCRIPTORS: response class, family treatment, solitary toy play, time out, oppositional children

Family-based treatment of aggressive and oppositional behavior in children follows a characteristic strategy from a social learning theory perspective. In essence, parents are viewed as the treatment mediators; through training these adults set new social and material contingencies for their children—contingencies designed to lessen opposition and aggression, and to increase the likelihood of some alternative behaviors.

A survey of the literature shows consistent agreement across researchers on the importance of teaching parents a direct means of weakening aggressive behaviors (Wahler, 1969; Budd, Green, & Baer, 1976). In fact, it may be that

parents cannot successfully initiate treatment for their child without some sort of procedure to suppress the child's aggressive behavior (Herbert, Pinkston, Hayden, Sajwaj, Pinkston, Cordua, & Jackson, 1973). In Herbert et al. (1973), the parents' efforts to strengthen their child's incompatible behavior through social approval alone proved ineffective.

Although it seems clear that the child's aggressive behavior must be a direct target of treatment contingencies administered by the parents, it is not so clear just which of the child's behaviors ought to constitute a target for strengthening. Because aggression is usually a social behavior, many clinical researchers have settled on a social behavior of the child that the parents value as the alternative to aggression. However, there have been no empirical studies of what would constitute a "best" alternative. Certainly one could argue that this

This study was supported by research grant MH 18516 from the National Institute of Mental Health, Center for Studies of Crime and Delinquency. Reprints may be obtained from Robert G. Wahler, Child Behavior Institute, 1720 Lake Avenue, University of Tennessee, Knoxville, Tennessee 37916.

choice should be left up to the people who must live with that alternative—the parents and the child. But, such a position still leaves the question unanswered from an empirical point of view.

One means of answering the above question would entail naturalistic study of children with aggressive behavior, including the assessment of behaviors that commonly appear incompatible with their aggressive actions. This behavior covariation strategy has been employed by Wahler (1975) and Wahler and Moore (Note 1) in family home settings. Their samples of troubled children were classified as oppositional in the sense that the parents reported that the children opposed most parental rules and instruction. In the Wahler and Moore (Note 1) sample of eight children, these oppositional actions usually involved aggressive behaviors such as fighting, property destruction, and temper tantrums. In the baseline phase of the present study, one behavior of the children was consistently negatively correlated with their parents' reports of aggressive actions: solitary play. On those days in which observers recorded relatively high frequencies of a child's solitary play, the parents were likely to report few instances of problem behavior. Thus, solitary play might possess some important functional properties in the home settings of children whose behavior is aggressively oppositional. Therefore, an experimental analysis of solitary play seems warranted in terms of its possible role as an alternative to aggression. The present study was conducted with this purpose in mind: to assess the therapeutic properties of solitary play in family-based treatment of children whose behavior is aggressive and oppositional.

METHOD

Subjects

Subjects were four young children referred for psychological help for their oppositional behaviors, most of which involved aggression toward other people. In all four cases, the home

setting was reported to be a principal location of the child's problems, although school settings were also cited for three of the children.

Table 1 describes the children as well as their parents and siblings. In terms of the children's specific classifications as "aggressive," referral problems reported by the parents and listed under high- and low-rate problem behaviors indicate that all four children were considered to be disturbed because of aggressive verbal and nonverbal actions.

Measurement Techniques

Three sets of measures were employed to assess various aspects of the children's behavior.

Table 2 presents brief definitions of categories used to obtain direct observations of the children. These observations, taken in 30-min samples in the children's home settings, were set during those times of day in which parents reported their children most likely to produce high-rate problem behaviors. Typically, these sessions occurred 3 times per week throughout the course of this study. During a session, the following "observational rules" were in effect: All family members who would normally be home at that time must remain in the house; the child was allowed to go into any typically permissible area of the house; nonfamily members could not be present; and all television sets must be turned off. When these conditions were met, the observer began the observation by starting a portable tape player that signaled 10-sec observe and 5-sec record intervals via earphone to the observer. Observers were not restricted to a particular area of the house; rather, they followed the child at a discreet distance.

Following completion of each observation session, the observer briefly interviewed each parent separately on two other measures. One of these, Episode Report Data (ERD), asked the parents to recall their child's low-rate problems (listed in Table 1) for the past 24 hr; this required only a yes-no judgment by the parent for each problem. The second measure was a

Table 1
 Descriptors for Children and Their Families

Family characteristics		Characteristics of subject child	
		High-rate problems	Low-rate problems
Bob (Male, age 5 yr)	Divorced mother living with her father. Educational level of both is Jr. high school. Family members unemployed and receiving welfare. No other family members living at home.	Noncompliance Cursing Whining Teasing	Temper tantrums Property destruction Fighting Hitting mother
Jim (Male, age 8 yr)	Divorced mother living alone with Jim and his sister (age 6 yr). Mother with elementary school education. Mother employed but receiving food stamps. Boyfriend visits home frequently.	Noncompliance Teasing Shouting and yelling	Fighting Stealing Temper tantrums Running away Property destruction
Glen (Male, age 7 yr)	Mother and father living with Glen and his 2 brothers (age 2 and 4 yr). Mother completed 1 yr High School. Father completed 5th grade. Father employed but receiving disability payments and food stamps.	Noncompliance Whining Teasing	Fighting Stealing Property destruction Hitting father and mother
Joe (Male, age 6 yr)	Mother and father living with Joe and his sister (age 4 yr). Mother completed 1 yr college. Father completed college. Father employed and supports family with job.	Noncompliance Teasing Demanding	Fighting Property destruction Temper tantrums Hitting

more global "consumer satisfaction" report, the Attitude Scale Rating (ASR), that asked for a 7-point rating in which 7 represented "bad," and 1, "good." Prior to all observations, all parents had provided a global term (e.g., mean, ugly) describing their overall impression of their

child's problem. In obtaining the ratings, the observer reminded the parents of that term and asked them to provide a number from 1 to 7 that best represented their impression of the severity of the problem during the 30-min observation session.

Table 2

At left are 4 categories reported later in Results. These were calculated from the occurrences of the 7 categories at the right (taken from a 24-category coding system by Wahler, House, and Stambaugh [1976]).

OPPOSITION	<i>Opposition (O).</i>	Scored for a full interval (10 sec) of noncompliance with the parent's instruction or any instance of violation of a parent's role.
	<i>Aversive Opposition (O-).</i>	Scored like the preceding category, but also accompanied by aggressive verbal or nonverbal action.
	<i>Complaint (CP).</i>	Scored for any instance of verbal or nonverbal protest.
SOCIAL INTERACTION	<i>Social Interaction Adults (SIa).</i>	Scored for any instance of a verbal or nonverbal interchange between child and adult.
	<i>Social Interaction Child (SIc).</i>	Scored for any instance of a verbal or nonverbal interchange between child and another child.
TOY PLAY	<i>Sustained Toy Play (St).</i>	Scored for a full interval (10 sec) of nonritualistic interaction with an object.
ATTENDING	<i>Sustained Attending (SA).</i>	Scored for a full interval (10 sec) of visual attention to an object or person.

Observer Training and Reliability Checks

Observers were undergraduate students who obtained course credit for their observational work. This included a 2-wk training seminar in use of the measures, a weekly team meeting to check their understanding of the definitions, and periodic, unannounced reliability checks on the direct observations in the home settings. These checks were conducted by a "master" observer who was coordinated with the regular observer via earphones to the same tape player. In order to maximize observer independence, the master observer's scoring forms were turned away from the regular observer.

Intervention Techniques

In line with the intent of this study, the principal treatment goal entailed increasing the duration of each child's solitary play. For purposes of experimental control, it was also deemed important to obtain systematic changes in other aspects of the children's behavior—cooperative social behavior in three of the children and television watching in the fourth child. These control procedures will be explained in the next section under experimental design. Finally, it proved necessary with all children to add a time-out contingency for treatment purposes.

Solitary play contract. All phases of this study were directed by a therapist-consultant with at least 2 yr experience in social learning approaches to family treatment. When design and treatment considerations called for the solitary play intervention, the consultant met with the parent(s) to discuss the treatment rationale outlined in the introduction of this paper. Next, a time period of the day, not coincident with the observation time, was selected for the play contract. The criterion for selection was identical to that for observation times—a period in which the child was likely to produce high-rate problem behaviors. In all four children, this meant that contract time and observation time were apt to be in close temporal proximity. In fact, the time separations were: Bob, 1 hr; Jim, 3 hr; Glen, 2 hr; and Joe, 2.5 hr.

The solitary play contract was then explained to both parents and child in the following style: The child was asked to play with any toy or toys for a designated time period in the presence of other family members. Of greatest importance was the requirement that this play must be solitary and reasonably quiet; the child could not approach others or attract attention in any loud or aversive way. If others approached the child, the child must ignore them. The "contract" guaranteed that fulfillment of these requirements would earn points (stars) of value in obtaining rewards on a "menu" already constructed through parent-child discussions. Finally, it was emphasized that contract violations would terminate that contract period. Only on the first day could the contract period begin again immediately after a violation. Thereafter, the child would have to wait until the next day. Contract times were set by a kitchen timer, and contracts could occur seven days per week.

Contract time spans and point-reward exchanges varied across the four subjects. The initial span was selected as one judged by the parents to be easily mastered. Day by day, this span was increased (along with point values) up to a maximum of 30 min. For all 4 subjects, points were cashed in at the end of 5 days of consecutively completed contracts. Finally, parents were instructed to provide their approval whenever they observed their children engaged in solitary play. Thus, the contract was viewed as a means of teaching parents to target and respond appropriately to this behavior in the home setting.

Cooperative social contract. For three of the children, a cooperative social contract preceded the solitary play contract (see the next section for experimental rationale). Because most of the children's oppositional actions occurred in the context of social activity, it seemed reasonable to attempt a commonly used intervention based on parent-child cooperative activity. Total time per contract was similar to toy play (30 min maximum, 7 days per wk) and point-reward values were identical to toy play. The contract

occurred at approximately the same time of day as that for toy play, but not simultaneously.

The contract was outlined to parents and child as follows: The mother and the child were to play together along with any and all other family members in a cooperative manner. This meant that no one could violate rules set through previous parent-child agreement concerning the game. The mother would determine contract violations, just as in the toy play contract. If the child's siblings violated the rules, they would be excluded from the game. The child's violations were dealt with in the same manner as toy play violations. Again consistent with the toy play strategy, the parents were instructed to use approval in response to all cooperative social behavior whenever the child produced such actions.

Television-watching contract. This contract was employed for one of the children who was judged by his parents to be particularly dependent on adult interactions. The contract also served an experimental purpose to be explained later. In all respects, this procedure was identical to the toy play contract with the following exception: Contract completion required sustained attending to whatever television program happened to occur at the designated contract time. Similar to the toy play strategy, the boy's parents were told to use their approval in response to any solitary child behavior.

Time-out contingency. For all four children, it proved necessary eventually to add a means of directly suppressing their oppositional actions. Time out was presented to both parents and child in the following manner: If the child violated a household rule or did not comply with a parent's instruction, the child would then be required to go to a designated room (the children's bedrooms) and remain there alone and quiet for 5 min. "Quiet" meant that the child could talk to no one and could not engage in behavior loud enough to attract the parent's attention. Refusals to stay in the time-out room were followed by a parent closing the room door and securing it if necessary. The 5-min

quiet period was assessed by the parent using a kitchen timer.

Because the focus of this study was on functional relationships among the child's various behaviors, the previously described measures were geared to sample covariations of each child's behavior. No doubt it would have also been useful to monitor parental behavior, such as the use of time out and approval. This was not done because of the exhaustive focus on child behavior, and because parent concentration of these intervention techniques occurred during times other than observation periods. Once again, note that all of the previously described interventions occurred at times of the day not coincident with observation times.

Experimental Design

The design employed was a compromise between cause-effect logic and the suspected outcomes of a toy play intervention. Berland, Resch, Coe, and Wahler (Note 2) had already provided a rough analysis of toy play as a clinical intervention. Their study suggested that if a planned increase in solitary play is therapeutic, the effect looks unstable and probably short-lived. Therefore, we decided to provide an intervention prior to the toy play technique. Granted that such antecedent probes would exclude key components of solitary play, some degree of experimental validity could result. That is, solitary play is nonsocial and entails play rather than attention or simply doing nothing. Thus, antecedent control procedures ought to employ social techniques and solitary action different from play. If this type of planned, reinforced intervention were not associated with therapeutic changes, then changes following toy play might be argued to be a function of that intervention. Therefore, we decided to use cooperative social behavior as a control for the social-nonsocial factor; television watching was selected as a control for the play versus nonplay factor.

Since time out was reserved as a backup intervention for solitary play, there was no intention of examining its functional impact apart from

solitary play. Thus, if time out were to be used in this study, its singular effects could not be evaluated.

RESULTS

Interobserver Reliability

From 9 to 12 reliability checks were conducted for each child across the four phases of the research. Reliability indices were calculated for each behavior of each child by comparing the sums of all behavior category frequencies recorded by the regular and the calibrating observers. This procedure yielded total session reliability scores through the following formula for each category:

$$\frac{\text{Smaller Observer Total Score}}{\text{Larger Observer Total Score}}$$

Although interval-by-interval observer-agreement procedures are certainly a more stringent test of interobserver agreement, the less stringent total session comparisons were selected for two reasons. First, with the extensive, multi-category observation system used, we could not achieve an acceptable level of interval-by-interval agreement. Second and, we believe, more important, total session reliability seemed appropriate to the intended analyses because only between-session comparisons of the frequency

of all behaviors scored (rather than within-session analyses) were planned.

Also, it should be noted that two of the categories presented, opposition and social interaction, were actually summary categories with opposition including opposition, aversive rule violations, and complaints, and social interactions consisted of interactions with both adults and children. Consequently, observer-agreement indices for opposition and social interaction were calculated based on comparisons of the sum of the respective component behaviors.

Table 3 presents the mean proportions and range of session agreement indices for the four behavior categories for the observations on each child. Mean session reliability indices ranged from .74 to .92.

Bob:

Table 1 lists those behaviors that were assessed by direct observation (high-rate problem behaviors) and those assessed by parental report (low-rate problem behaviors). These latter behaviors or episodes will be described later in the Results section for reasons of clarity, as will the measures of the parents' attitudes.

Bob's oppositional behaviors were noncompliance, cursing, whining, and teasing. Baseline measurement revealed that these behaviors occurred on the average in 7% of the intervals;

Table 3

Observer mean agreement proportions with range in parentheses. All agreement proportions were based on scores for entire sessions. Opposition agreement is based on the sum of 3 categories used to represent that score (O, O-, and Cp). Social interaction agreement is based on the sum of 2 categories used to represent that score (SIa and SIc). See Table 2 for category definitions.

	<i>Opposition</i>	<i>Social interaction</i>	<i>Toy play</i>	<i>Attending</i>
Bob (9 check sessions)	.80 (.75 to .93)	.81 (.80 to .83)	.92 (.83 to .98)	.76 (.71 to .83)
Jim (10 check sessions)	.86 (.81 to .97)	.82 (.81 to .84)	.90 (.88 to .95)	.79 (.70 to .86)
Glen (11 check sessions)	.89 (.80 to .92)	.90 (.88 to .95)	.88 (.81 to .96)	.80 (.75 to .86)
Joe (12 check sessions)	.87 (.81 to .90)	.86 (.84 to .91)	.85 (.79 to .93)	.74 (.69 to .84)

across the 10 baseline sessions, oppositional behaviors appeared to increase in rate (see Figure 1). A similar increasing trend was noted in social interaction; this behavior occurred on the average in 30% of the intervals during baseline. On the other hand, sustained toy play (mean = 14%) and sustained attending (mean = 4%) showed variable but slightly decreasing trends during baseline.

When the social contract phase (15 sessions) was initiated, both oppositional behaviors and social interaction increased above baseline levels (mean = 13% and 52%, respectively) and continued to increase. In contrast, toy play behavior displayed both a marked drop in level (mean = 6%) to less than half its baseline mean and a reduction in variability. No substantial changes in sustained attending were apparent (mean = 4%).

When the targeted behavior for Bob was switched from social to solitary toy play, immediate, marked reductions in opposition (mean = 4%) and social interaction (mean = 30%) were obtained, while toy play quickly increased (mean = 27%) above the level observed in both previous phases. Again, sustained attending showed no substantial change in level (mean = 4%). As the sessions progressed, however, the initial gains in toy play began to decrease. Also, these later sessions of the solitary play contract were accompanied by increased oppositional and social interaction behaviors, although both behaviors remained below their baseline levels. Thus, the effects of the solitary toy play intervention appeared to be short-lived.

Addition of a time-out contingency to the independent toy play contract reversed these later trends so that opposition was again suppressed (mean = 4%) and social interaction reduced (mean = 25%). At the same time, toy play increased sharply to a level (mean = 44%) higher than that of the previous phase in which a solitary play contract by itself was used. A very small reduction in sustained attending (mean = 2%) was noted during this last phase.

Jim and Glen:

Because the referral behaviors, interventions, and data trends of Jim and Glen were so similar to each other (and, in turn, to Bob), the results for these two boys will be presented together briefly. The oppositional clusters of both Jim and Glen included noncompliance and teasing; Jim's referral problems also included shouting and yelling, and Glen's whining.

Baseline conditions were maintained longer for Jim and Glen (15 sessions and 20 sessions, respectively) than for Bob (10 sessions). During baseline, Jim and Glen displayed variable but high percentages of social interaction (mean = 47% and 37%, respectively), while both showed low but increasing percentages of oppositional behavior (mean = 6% and 8%). Although Jim displayed relatively low percentages of baseline toy play behavior (mean = 6%) with no clearly discernible trend, Glen showed an initial burst followed by a decline to lower levels of toy play (mean = 6%). Sustained attending was negligible throughout baseline and succeeding phases for both boys.

Introduction of the social play contract (10 sessions for Jim, 15 sessions for Glen) resulted in increased social interaction (mean = 54 and 48) and oppositional behaviors (mean = 10% and 10%) for Jim and Glen (see Figures 2 and 3). At the same time, toy play noticeably decreased for Jim (mean = 3%); Glen's toy play displayed no discernible change from baseline (mean = 6%).

When the targeted behavior was changed from social to solitary toy play, immediate reductions were obtained in Jim's and Glen's social interaction (mean = 35% and 31%) and opposition (mean = 4% and 6%), and immediate increases in their toy play (mean = 27% and 35%). However, as in the case of Bob, these changes appeared to be temporary. The last several sessions of the solitary play phase were characterized by increasing opposition and social interaction, and decreasing toy play.

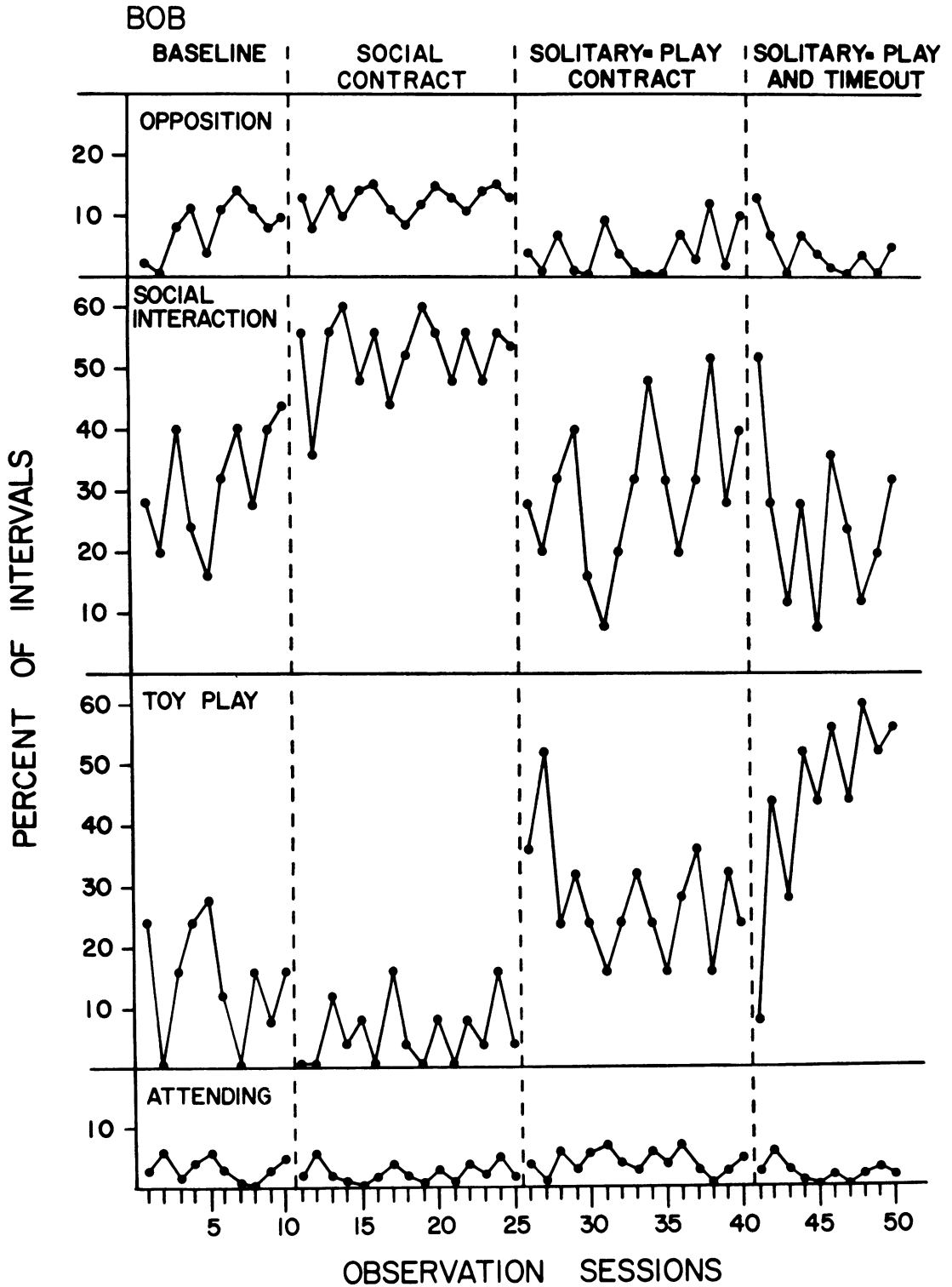


Fig. 1. Percentage of intervals in which Bob displayed opposition, social interaction, toy play, and attending behaviors across all conditions.

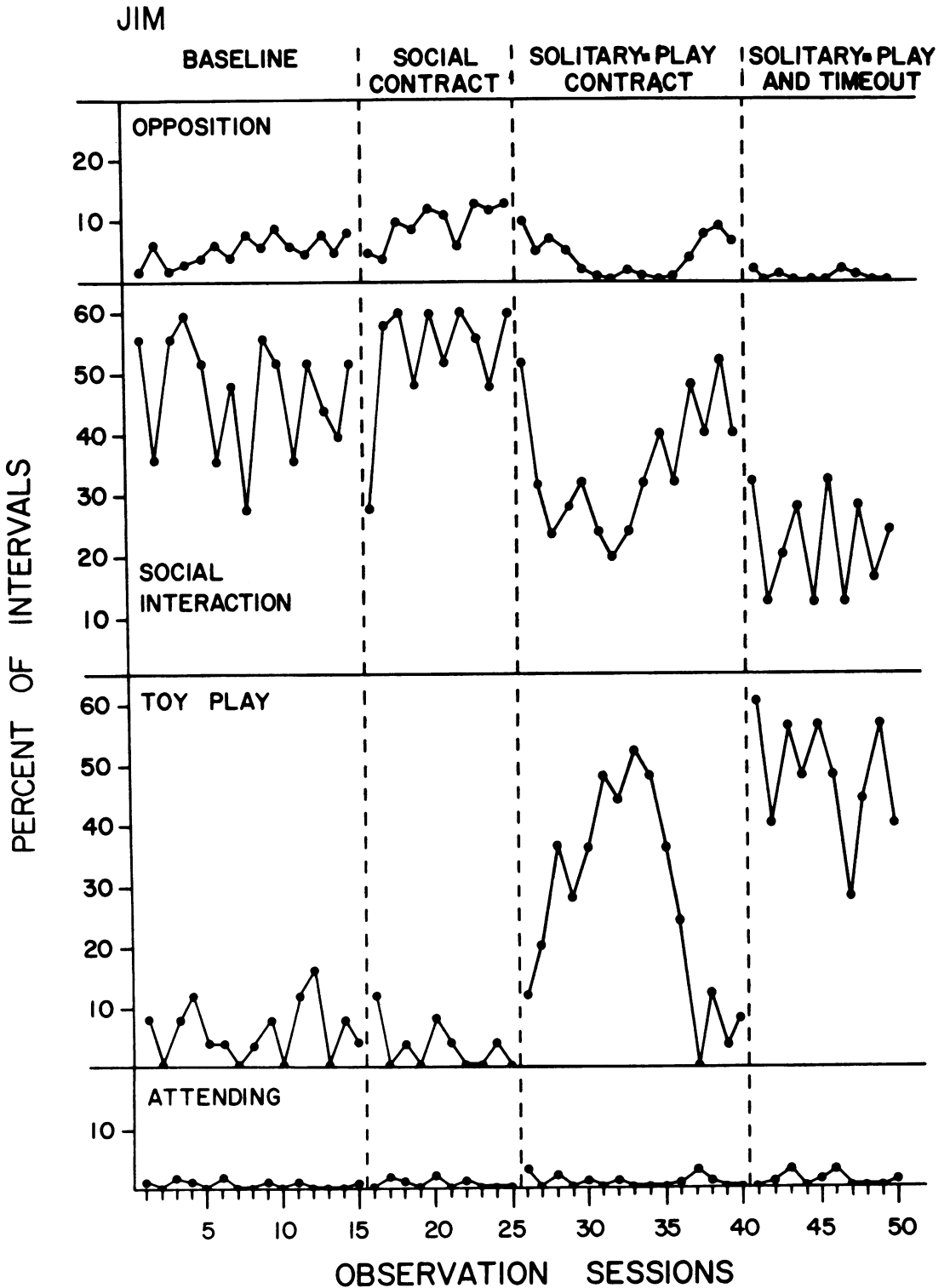


Fig. 2. Percentage of intervals in which Jim displayed opposition, social interaction, toy play, and attending behaviors across all conditions.

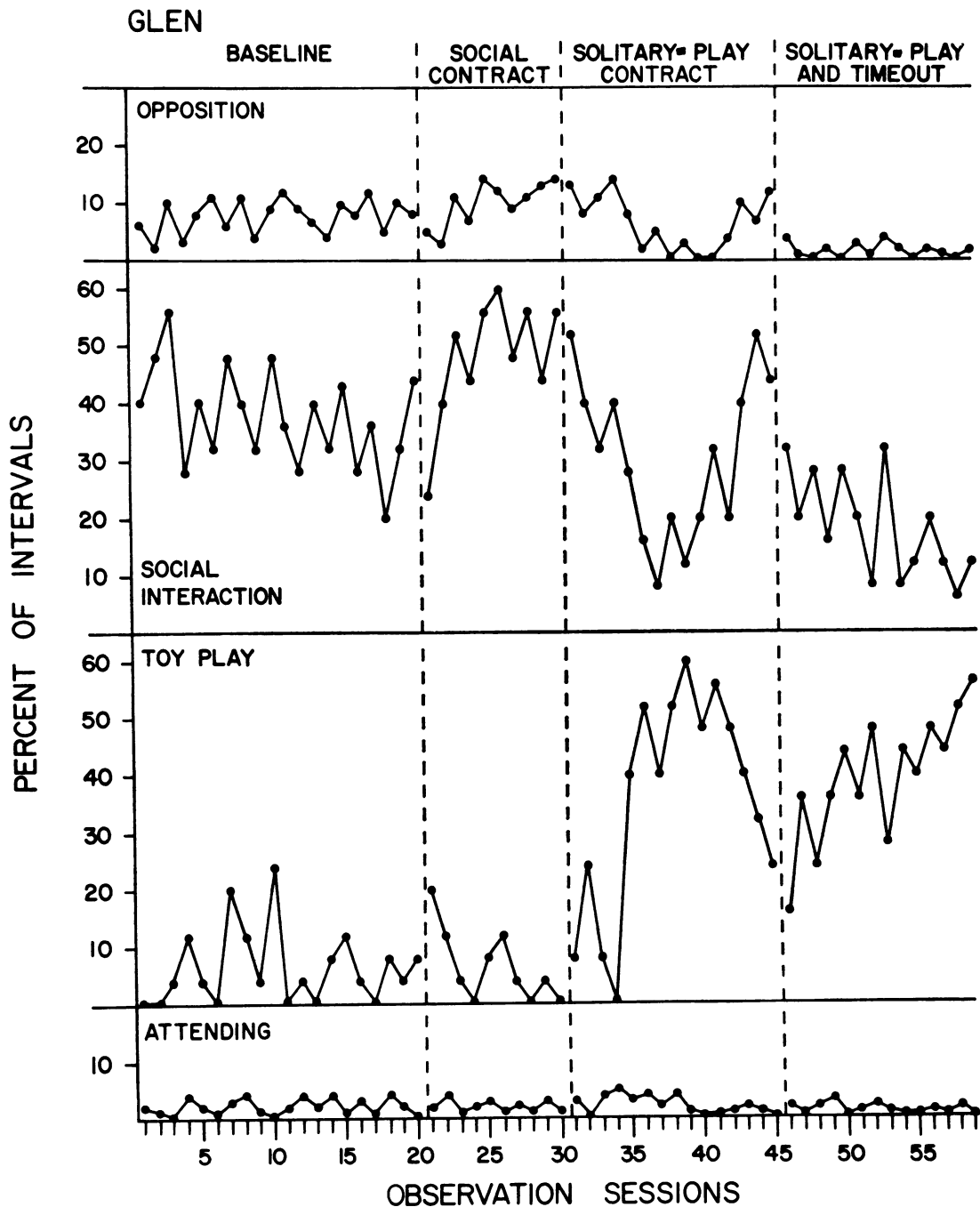


Fig. 3. Percentage of intervals in which Glen displayed opposition, social interaction, toy play, and attending behaviors across all conditions.

Addition of a time-out contingency to the solitary play contract appeared to reinstate the positive changes. That is, this double contin-

gency was accompanied by reductions in oppositional (mean = .5% and 2%) and social interaction behaviors (mean = 22% and 18%),

while toy play was again increased for Jim (mean = 48%) and Glen's toy play returned to its previous level (mean = 34%).

Joe:

In terms of referral behaviors, Joe was non-compliant and teasing, as were the previous three boys, and, in addition, demanding (see Table 1). Baseline data indicate that Joe was a highly interactive (mean = 45%) child who displayed the highest levels of oppositional behaviors (mean = 11%) of the four boys (see Figure 4). Baseline toy play percentages were variable but generally low (mean = 7%). Across the baseline and three intervention phases, extremely low percentages of sustained attending were observed (mean = 1%, 2%, 2%, and 2%, respectively), although a slight increasing trend was apparent.

When a nonsocial, nonplay behavior—television watching—was employed by the parents, very slight changes were obtained in sustained attending (mean = 2%), opposition (mean = 10%), and toy play (mean = 6%). A slight overall drop in social interaction (mean = 42%) was noted, although it remained highly variable, as in the baseline phase.

Following 15 sessions of reinforced television watching, the targeted behavior was switched to solitary play and immediate changes were obtained in Joe's behavior. Oppositional behaviors were reduced to less than half their previous percentages (mean = 4%) and social interaction also decreased (mean = 3%). Simultaneously, toy play sharply increased to approximately 5 times its level during the baseline and TV-watching phases (mean = 32%). However, as with the previous three boys, the last several observation sessions were characterized by reversals in these trends; that is, increased oppositional and decreased toy play behaviors were noted.

Finally, adding a time-out procedure to the solitary play contract recovered the earlier behavioral gains. Opposition was again suppressed

and toy play increased (mean = 2% and 36%). Social interaction (mean = 31%) remained below its baseline level.

In summary, then, all four boys' behaviors were characterized by essentially the same trends. All the boys were initially described as having deficient social skills, i.e., their behaviors were oppositional, demanding, and sometimes aggressive, and the children were said to be unable to "get along with" their parents, siblings, or peers. Baseline measurement indicated high percentages of social interaction and low but associated trends in oppositional behaviors. Baseline percentages of toy play were also low. Introduction of a contingency designed to teach appropriate social exchange behaviors—social toy play—between child and parents was not accompanied by reductions in inappropriate social behaviors such as opposition, teasing, demanding, and fighting. In the case of Bob, Jim, and Glen, attempts to shape appropriate social behavior with the social play contract accelerated oppositional behaviors (Figures 1, 2, and 3). In contrast, application of a contract specifically designed to increase the target child's solitary toy play was associated not only with increased toy play during observation sessions but also with equally marked reductions in opposition. Also, for all children, these gains appeared to be rather short-lived until the solitary play contract was combined with a time-out procedure for oppositional behaviors. This combined contingency reinstated previous positive changes in toy play and opposition. For Bob and Jim, an insufficient number of observations was obtained in the final, solitary play plus time-out phase to indicate whether or not the behavioral gains in toy play and opposition would have again proved temporary. However, in the cases of Glen and Joe, the solitary play plus time-out condition was extended beyond that point at which the gains in toy play and opposition had been reversed. No loss of toy play gains or increase in opposition was noted for Glen and Joe during the final, combined intervention phase (see Figures 3 and 4).

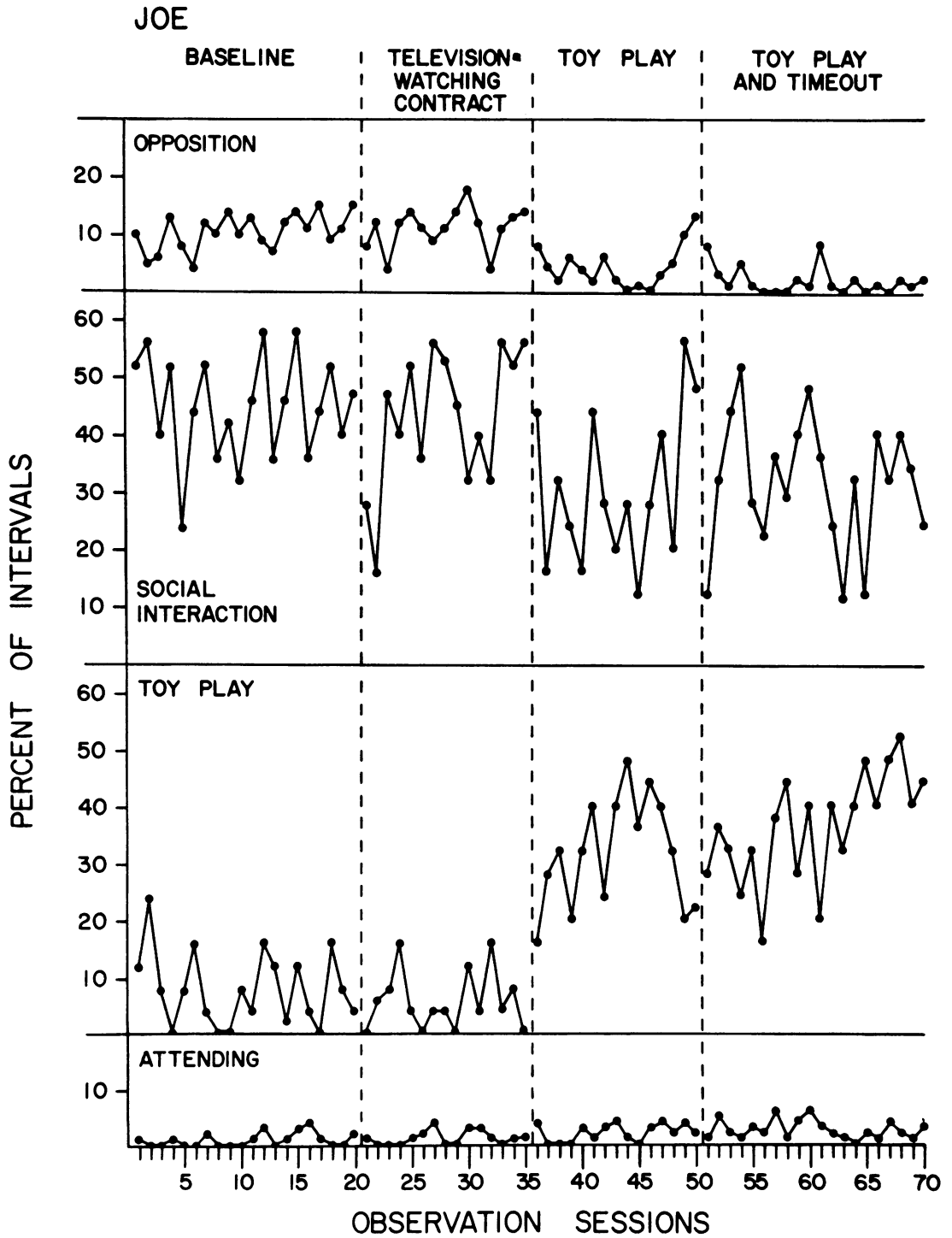


Fig. 4. Percentage of intervals in which Joe displayed opposition, social interaction, toy play, and attending behaviors across all conditions.

Data on Parents' Attitudes

At the end of the observation sessions, the parents globally rated their child's observation-session behavior on a 7-point scale in terms of a descriptor previously supplied by the parent. The ratings for each child for each session are presented in Figure 5.

The parents' ratings of their children's behavior varied both within and between each phase for all children. However, closer inspection of these data indicates that there were distinct differences in distributions of ratings between each phase. Typically, the parents' ratings of the children's behavior in baseline clustered at the "worst" end of the scale (7). The median ratings for each child in baseline were as follows: Bob = 5.8, Jim = 5.4, Glen = 4.3,

Joe = 5.5. Generally, the ratings began and remained "bad" during baseline. Unlike the other three boys, Glen's ratings began somewhat positively and became progressively worse as baseline continued.

Implementation of the social play or television-watching interventions, which were associated with either no change or a worsening of problem behaviors, was initially accompanied by somewhat more positive ratings. However, the ratings quickly became more negative as the social play/TV-watching phase was continued. Median ratings for this phase were: Bob = 5.1, Jim = 3.4, Glen = 4.5, Joe = 5.1.

Changing the target behavior from social play/TV watching to solitary play was accompanied by gradual changes in the parents' ratings of the children's behavior. That is, at the

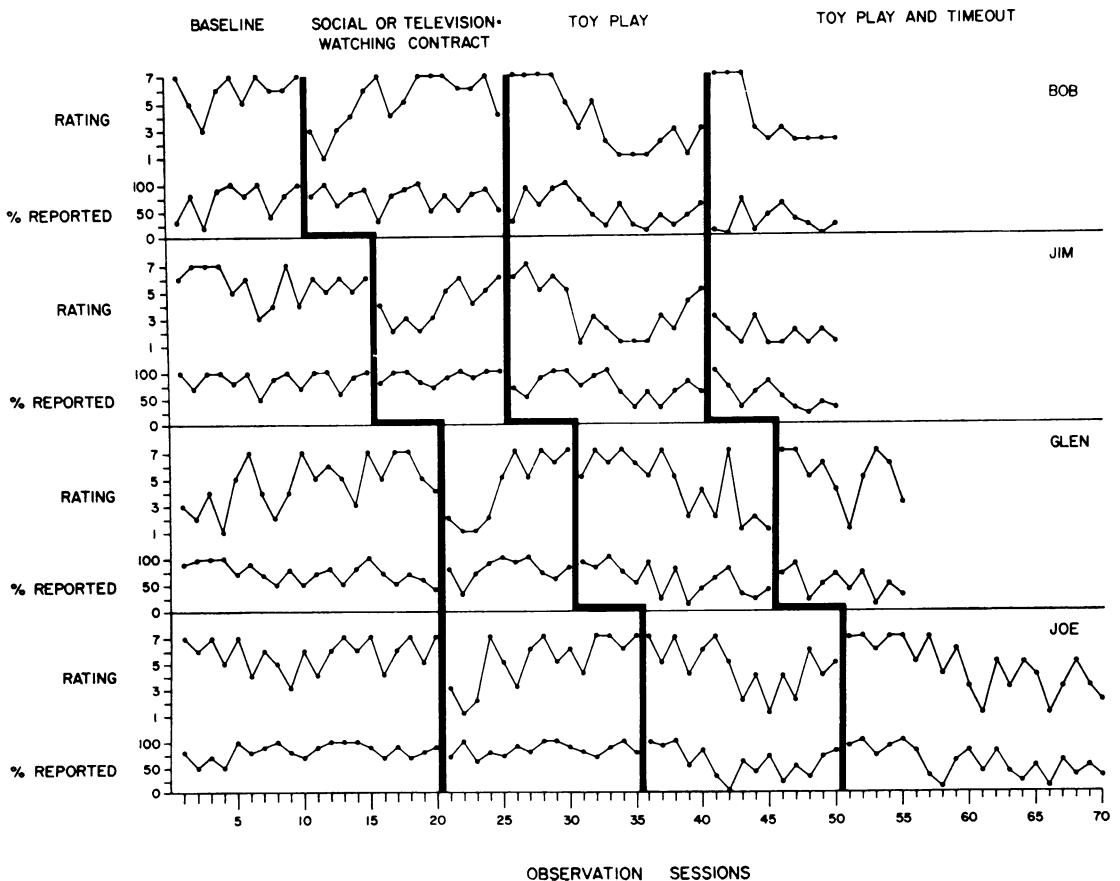


Fig. 5. Parent attitude scale scores and percentage of total possible episodes reported by parents for each target child across all conditions. On the attitude scale, 1 is the best rating possible, 7 the worst.

beginning of the solitary play contract phase, parents' ratings continued to be negative for several sessions, despite the fact that often immediate positive changes in the children's behavior were obtained in this phase. Then, during the middle third of the solitary play contract phase, marked improvements were obtained in parent ratings. Finally, the parents' ratings once more began to worsen near the end of the solitary play contract phase. Median ratings for this intervention phase were: Bob = 2.5, Jim = 2.7, Glen = 4.3, Joe = 4.1, indicating an overall improvement in the parents' ratings of their children's behavior.

When the time-out procedure was added to the solitary play contract and the behavioral gains reinstated, the parents' ratings of their children's behavior began again to improve, though not immediately. Several sessions under the combined procedure had elapsed before the parents of Bob, Glen, and Joe began to characterize their children's behavior as having improved (again, despite the fact that positive behavior change was virtually immediate). Only Jim's mother showed an immediate return to positive ratings during this final phase. Although more variable than the parents of Bob and Jim, the ratings by Glen's and Joe's parents were of a positive trend. Median ratings during this phase were: Bob = 2.0, Jim = 1.0, Glen = 5.0, Joe = 4.2.

In summary, then, parents' ratings of their children's behavior in observation sessions seemed to follow, though they lagged behind, the changes observed in the children's opposition and toy play behaviors.

Episode Report Data

At each observation session, parents were asked to report low-rate but serious child problems. Because these behaviors were unlikely to occur at times, places, or frequencies permitting direct observation, these behaviors necessarily had to be assessed by the parents' reports. Although we realize the limitations of this assessment method, we consider the assessment of

these behaviors critical to the investigation and to treatment because: (a) they were highly ranked by parents as problem behaviors, (b) such low-rate behaviors have typically been difficult to treat successfully, and (c) we were interested in the potential generalization of the interventions across behaviors.

The fourth column of Table 1 lists the low-rate problems of each child. Each child had 4 to 6 serious, low-rate problem behaviors. There was a remarkable consistency in the distribution of these problems: All four children fought with peers and destroyed property; temper tantrums were reported for three of the boys. Aggressive behaviors (fighting with peers, hitting parents, property destruction) constituted approximately 60% of the low-rate referral problems listed.

The reports obtained of behavioral episodes were converted to percentages of total possible reports at each 24-hr sampling period (see Figure 5). These percentages simply reflect the number of episodes in each child's list that were reported to have occurred. Although the percentages of reports appear somewhat variable, the same general trends occurred across children. Baseline episodes were high (50 to 100%). Episode occurrences for Jim and Joe were stable or ascending, and although the proportion of Glen's episodes displayed a decreasing trend, the daily percentages descended below 50% only once. The social play/TV-watching intervention was accompanied by little or no change in level and trend for Bob, Jim, and Joe, while Glen, whose previous baseline of episode behavior displayed a decreasing trend, experienced an increase in level during this phase. Implementation of the solitary toy play contract was associated with decreases in the types of episodes reported as occurring, but the last several sessions indicated a return toward baseline levels. The final, combined solitary play plus time-out phase again was associated with suppression of the number of types of low-rate problem behaviors that occurred.

Although some of the change in self-report

measures (attitude scale rating, episode report data) might occur not as a result of the intervention procedures but because of the halo effect of decreased oppositional behavior or parents' expectations of change once an intervention was initiated, several aspects of the data argue against these possibilities. In terms of the parents' expectations, it should be noted that for all children, the initial intervention—social play or TV watching—was a complete failure; i.e., opposition either remained at baseline levels or increased. Thus, it seems unlikely that, given this immediate history of failure, parents would have expected our next procedure, solitary toy play, to have succeeded, and it also seems unlikely that the changes in their ratings or reports of problem episodes were the result of any positive expectations. As to the possibility of a halo effect (i.e., that decreased opposition during the solitary play phase affected the parents' ratings and reports of episodes), an overall decrease in opposition, parents' ratings, and episode reports did occur during the last two phases. However, although opposition immediately decreased following introduction of the solitary play contracts, parents' ratings remained at baseline levels for several sessions even after changes in opposition were obtained. Similarly, trends in reports of low-rate episodes were less clear during the initial sessions of the phase (when opposition was quickly declining). Only later, during the middle of the phase, did the decreases in types of episodes reported become visible.

DISCUSSION

The present data argue a functional incompatibility between these children's solitary toy play and their oppositional actions. A treatment plan aimed at increasing the children's solitary play did produce that result as well as coincident reductions in observer-recorded and parent-recorded behaviors involving the children's aggressive and oppositional actions. We believe that functional connections among these vari-

ables were demonstrated. The children's problem behaviors changed in positive directions only when the duration of their solitary toy play was increased. Planned increases in their cooperative social, and in one case solitary-attending, behaviors had no such impact on the behavior. Thus, it seems unlikely that any positive reinforcement intervention other than reinforcement for solitary play could have produced these desirable outcomes. But, although we think it reasonable to argue these conclusions, we also realize ambiguity on several points: (a) the nature of observer reliability obtained; (b) an explanation for the inverse relationship between solitary play and problem behaviors; (c) implications of the short-lived duration of this relationship; (d) overall therapeutic and ethical aspects of the solitary-play intervention. These will now be considered in sequence.

First, it will be recalled from an earlier section that observer agreement on the direct observation measures was based on total session scores, not on interval-by-interval comparisons within sessions. Therefore, the measures must themselves be considered as global session scores, and it is not possible to draw conclusions about within-session rates of the measured behaviors. The obtained relationships among behaviors (i.e., solitary play and opposition) cannot be viewed in any point-for-point fashion.

Second, the inverse relationship between solitary play and problem behaviors was not an artifact of the measurement system. In order words, the observers' scoring of the toy play category did not preclude scoring opposition or social interaction (see Wahler, House, & Stambaugh, 1976). The most likely interpretation of this relationship centers on the additional finding that the intervention program also reduced the children's social interaction with adults and siblings. It has already been shown that children with oppositional behavior engage in more social interaction than do children without this problem (Moore, Note 3). And, description of these boys' oppositional behaviors (Table 1) reveals that many of their inappropriate actions

entailed social interchanges. Why then didn't the television-watching intervention have a positive impact on Joe's behavior? In part, this lack of effect was due to our rules preventing television watching during the observation sessions. However, other solitary behaviors were possible during the sessions, and television watching could occur at other times of his day at home. Despite these possibilities, his parents reported no change in his oppositional actions and neither did the observer. It seems evident that not just any solitary activities will lead to the desirable effects seen during the toy play period.

Third, whatever the desirable outcomes of toy play, its impact was transitory. At most, one could expect a curbing of oppositional behavior for only a few weeks. Then, some direct means of suppressing oppositional behavior becomes necessary. Nevertheless, the finding that toy play alone will temporarily reduce opposition, along with the previous finding of a "natural" incompatibility of the two behaviors (Wahler & Moore, Note 1), warrants further inspection of this clinical intervention. It may well be that solitary toy play ought to be the preferred initial target of positive reinforcement for young children with aggressive and oppositional behaviors. Further normative and longitudinal studies are obvious means of pursuing this matter.

Finally, if solitary toy play is a useful clinical tool, what are the implications of this strategy concerning a troubled child's overall adjustment at home? At first glance, such an orientation to treatment seems to give credence to the Winett and Winkler (1972) fear that behavior modifiers aim to make troubled children "still, quiet, and docile." In addition, the child development field has long regarded solitary play as the "least mature" form of child behavior (Parten, 1932). However, we think it reasonable to take an opposite stance on both counts. First, the observed increments in all the children's solitary play by no means eliminated their social interactions. Even during the time-out phase, there was ample opportunity for them to have

positive (as well as negative) interchanges with others. Second, we found it exciting to see that researchers in the developmental area have recently reported observational data that question Parten's (1932) conclusions. Moore, Evertson, and Brophy (1974) and Rubin, Maioni, and Horning (1976) report that preschoolers' solitary play seldom involved indices of "poor social adjustment" (e.g., sulking, pouting, self-stimulation). Rather, the bulk of solitary play was made up of task-oriented, large muscle behaviors—many of which could be functional in school settings. "Aloneness" need not therefore connote maladjustment. In fact, we think that a good case could be made to consider high rates of social interaction as questionable in value to the developing child.

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Received September 18, 1978

Final acceptance July 10, 1979