

*DEVELOPING POSITIVE SOCIAL-EMOTIONAL BEHAVIORS:
A STUDY OF TRAINING AND GENERALIZATION EFFECTS¹*

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Four handicapped children were taught four positive social-emotional behaviors: smiling, sharing, positive physical contacting, and verbal complimenting, using instructions, modelling, and praise. Rates of these behaviors were shown to increase in four trained subjects using a within-subject multiple-baseline experimental design. The generality of the behavior change was investigated by integrating three untrained subjects with the trained subjects in a setting free of adult-imposed contingencies and through a series of follow-up observations. Three trained subjects evidenced collateral increases in the generalization setting on at least one other behavior when training in smiling was conducted. One trained subject showed generalization session increases for each behavior when training was conducted to increase that behavior. All three untrained subjects demonstrated increased rates of smiling and sharing when interventions were conducted to increase those behaviors with the trained subjects. There was no appreciable generalization of verbal complimenting by either the trained or the untrained subjects. Both trained and untrained subjects generally maintained their increased rates of smiling, sharing, and positive physical contacting across four weeks of follow-up observations.

DESCRIPTORS: behavioral covariation, collateral change, complimenting behavior, free play, praise, physical contacting behavior, social-emotional behavior, peers, children

It is widely believed that the U.S. educational institution has neglected systematic methods and strategies for promoting social-emotional aspects of child development. This position has been noted by commentators across several fields: education (Borich, 1971; Harbeck, 1970; Morris, 1972), special education (Bradtke, Kirkpatrick, and Rosenblatt, 1972; Morse, 1971), humanistic psychology (Henderson, 1972; Lyon, 1971), and behavioral psychology (Homme, 1970; Lazarus, 1973; Winnett and Winkler, 1972).

Skinner (1948, 1974) has written that behavioral techniques may be used to produce environments where cooperation, friendship, and peace prevail. Others (Homme, 1970; O'Leary and O'Leary, 1972) have suggested that if educators should decide to emphasize affective goals such as the development of love and joy, the techniques of behavior modification would be a most effective approach. Similarly, Lazarus (1973) advocated that behaviorists begin to apply their technology to teach people ". . . to emit forthright expressions of love, adoration, affection, appreciation and the specific verbal and nonverbal facets of compassion, tenderness, warmth, and other positive feelings . . ." (p. 698).

Before these editorial requests can be translated into applied behavior analytic research, observable behaviors must be substituted for such goals as love, tenderness, and warmth. Some researchers, working with handicapped subjects, have attempted to do so. For example,

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it has been shown that behavioral procedures increase positive physical contacting among schizophrenic children (Hingten, Sanders, and Deyer, 1965; Hingten and Trost, 1966) and sharing between severely retarded youngsters (Whitman, Mercurio, and Caponigri, 1970; Wiesen, Hartley, Richardson, and Roske, 1967). Moreover, Hopkins (1968) and Reisinger (1972) have shown that the smiling of institutionalized retardates can be environmentally controlled.

The present investigation sought to increase four social-emotional behaviors: smiling, sharing, positive physical contacting, and verbal complimenting. An attempt was made systematically to increase rates of these four behaviors in handicapped children using a package of teaching procedures composed of instructions, modelling (antecedent events), and trainer-delivered social praise (consequent events). Additionally, since several behavioral scientists (Grauber, 1971; Kazdin and Craighead, 1973) have noted the importance of the generalized effects of behavior modification efforts, the present research sought to investigate the generalizability of social-emotional behavior change. Specifically, the issues regarding generalization investigated were the extent to which trained subjects maintained their performance levels in the absence of a conditioning program and the extent to which untrained subjects increased their rates of positive social-emotional behavior as a function of being integrated with trained subjects.

The development of social-emotional repertoires that include high levels of smiling, positive physical contacting, and verbal complimenting would seem to offer a behavioral response to commentators who have called for increased attention to the development of positive affect in children.

METHOD

Subjects and Setting

Seven children, the entire student population of an experimental classroom at the Child Study

Center of George Peabody College, ranged in age from 6 yr four months to 9 yr three months, with a mean age of 8 yr six months. All subjects had histories of school failure and were diagnosed "learning disabled". Reports from parents and school agents indicated that inappropriate social-emotional behavior in the company of peers was a precipitating factor in several of the children's failures to adapt to a regular class setting. Initially, all the children demonstrated low rates of appropriate social-emotional behavior toward their classmates.

Four children, three females and one male, received training to increase their levels of positive social-emotional behavior. These trained subjects were the four class members who, on the basis of prebaseline observations, demonstrated the lowest rates of the four social-emotional responses targeted in the study. The remaining three children served as untrained peers, remaining in their classroom while the experimental subjects received training. They were brought to the experimental setting immediately after the training sessions to determine the effects of integrating untrained peers with trained subjects.

The research was conducted in a playroom located approximately 15 m from the subjects' classroom, and the data were collected on successive school days between 11:10 and 11:42 a.m.

Procedure

Data were gathered in two daily periods: training sessions and generalization sessions. Each type of session lasted 16 min. Generalization sessions immediately followed training sessions except for six follow-up generalization sessions. These follow-up sessions were intermittently conducted across a four-week period after training had been terminated. Data collected during generalization sessions permitted assessments of the extent to which the target responses of the trained subjects were maintained in the absence of experimenter-manipulated training events and of the extent to which

these behaviors were demonstrated by untrained subjects.

Training Sessions

The trainer, four subjects, and the observers were present during training, which was conducted by a male graduate student. A multiple-baseline design across response events was employed including the following conditions:

Pretraining period. No teaching procedure to modify any of the four targeted social-emotional behaviors was in effect. The trainer began each pretraining session by saying to the subjects:

I will be spending some time each day with you. We will do different things and learn different things as time goes by. For now, you may play in any way you want to. Everyone has a basket of toys with his name on it. The other grown-ups in the room are here to watch us and to help me with my work. They have to be quiet and watch us and write things down. They will not talk to you or play with you. Please do not say anything to them or try to play with them. Now you may all begin to play.

Each subject was given a laundry basket containing an identical assortment of toys.

Training Period I. During this condition, which lasted for five days, instructions, modelling, and trainer's social praise were used to increase the subjects' levels of smiling behavior. No intervention was in effect to modify the subjects' levels of sharing, positive physical contacting, or complimenting behavior.

At the beginning of each day's training, the trainer instructed the children as follows:

Making friends is important. One way to make friends is to smile at other people. Watch me smile (trainer models smiling.) Now, (turning to a subject) let me see if you can smile.

The trainer smiled frequently throughout the session and often verbally prompted the subjects to smile. The trainer's praise was dispensed

to each subject contingent on his/her smile responses on an intermittent basis between three and six times per session. This consequence consisted of statements specifying the subject and response being praised.

Training Period II. During this five-day period, instructions, modelling, and the trainer's social praise were employed in a fashion similar to that described for Training Period I. The subjects were instructed both to smile and to share their toys with one another. The trainer modelled smiling and sharing responses and issued praise contingent on these responses. This consequence was dispensed intermittently so that each child was praised between four and nine times per session for discrete instances of smiling and/or sharing responses. No intervention was in effect to modify the subjects' levels of positive physical contacting or complimenting responses.

Training Period III. During this five-day period, instructions, modelling, and praise were utilized in a manner similar to Training Period I. The trainer's social praise was issued intermittently so that each subject received praise from seven to 11 times per session contingent on smiling, and/or sharing, and/or positive physical contacting. No intervention was in effect to modify the subjects' levels of complimenting.

Training Period IV. During this eight-day period, instructions, modelling, and trainer's social praise were employed in a way similar to Training Period I. In this period, the trainer's social praise was issued to each subject from seven to 13 times per session contingent on any single target behavior or any combination of target behaviors. This procedure was used to maintain the subjects' levels of smiling, sharing, and positive physical contacting behavior above baseline levels and to increase the subjects' levels of complimenting behavior.

Generalization and Follow-up Sessions

During generalization sessions, the three untrained classmates of the trained subjects were

brought into the room where training had just occurred. Upon entering the room, each untrained subject was given a basket of toys identical to those already in the possession of trained subjects. The trainer immediately told the subjects (trained and untrained) that the generalization sessions were to be free-play periods. He then left the room. The only adults present at the generalization sessions were the data collectors. No intervention to alter the subjects' positive social-emotional behavior occurred.

Observational System

Smiling, sharing, positive physical contacting, and complimentary verbal statements were recorded during training and generalization sessions. As the definitions below indicate, only those behaviors initiated by the subject under observation were recorded. That is, a subject was not scored as having shared or positively contacted if she/he was the recipient of the response.

Events Recorded

The operational definitions for the behaviors monitored were as follows:

Smiling. A slight opening of the lips, a turning up of the corners of the mouth, and an increase in the protrusion of skin over the cheek bones (Hopkins, 1968).

Sharing. A subject offering or giving an object or material to a peer or his concurrent use of an object or material with a peer. Both the subject and a peer must touch the material unless it is designed to be used visually (*e.g.*, a book). Small materials (*e.g.*, pick-up sticks or toy soldiers) that collectively constitute a larger single set are considered as a single material if the subjects are oriented toward and within physical proximity (0.9 m) of one another.

Positive physical contacting. A subject extending a hand(s) or arm(s) toward a peer and patting, rubbing, hugging, stroking, or grasping in a positive fashion. Rapid physical contacts (*i.e.*, pats or strokes) are recorded as separate

instances only when a 1-sec or greater latency period occurs between contacts.

Complimentary verbal statements. A subject speaking to a peer in such a manner as to compliment, praise, reassure, or express warm feelings to the recipient of the comment.

Trainer social praise. The trainer praising, complimenting, or reassuring the exhibition of one or more of the above four social-emotional behaviors by a subject. The subject and the behavior being praised must be specified by the trainer. Specification of the subject may occur in one of two ways: verbal naming of the subject or patting the subject while verbally praising his/her behavior.

Data Collection

A time-sample recording technique (Bijou, Peterson, Harris, Allen, and Johnson, 1969) was employed in which each training and generalization session was divided into 10-sec intervals. Numbers called from a tape player marked the end of each interval. All subject responses or training events (teacher praise) that occurred during a 10-sec interval were recorded on a prepared coding sheet (all data collected were of a frequency nature). Each row on this sheet was divided into five cells, one for each subject response and training event monitored. All data were collected continuously. The 10-sec intervals were used solely to compute reliabilities.

Trained subjects' rates of the four social-emotional behaviors were monitored for 8 min in each training session. Each observer monitored the behavior of two subjects, alternating the subject observed every 60 sec. The order of subject observation was counterbalanced across days to ensure that all subjects were observed an equal number of times in all time intervals of the observational sessions.

Reliability

The four observers were trained in direct-observation data collection before the start of the study to a reliability across the five event categories of greater than 85% agreement.

Once the experiment began, either two, three, or four observers collected each day's data. Reliability data were collected daily. Observers were scheduled so that reliability was checked between all possible pairs of observers at least once in each experimental period. Moreover, at least once per experimental period, interobserver agreement was calculated among three observers regarding their simultaneous observations of a single subject's behavior.

Johnson and Bolstad (1973) noted that naturalistic observers are prone to record behavior differentially when they know that their data are being checked for observer agreement. To obviate this potential methodological difficulty, the schedule according to which the observers monitored the subjects' behavior was filled in on the data sheets by the experimenter. This precaution ensured that the observers were naive regarding which sets of intervals their records overlapped with another observer.

The per cent agreement between observers was calculated for each response and training-event category on a point-by-point basis by dividing the number of cell agreements by the number of cell agreements and disagreements combined. Instances of agreement were counted when both observers recorded zero (one agreement), one (one agreement), or more (one agreement per episode) subject response(s) or trainer praise(s) in the same cell of their respective data sheets. Instances of disagreement were counted when observers' records differed on one (one disagreement) or more (one disagreement per episode) subject response(s) or trainer praise(s) by cell.

RESULTS

Reliability

The mean per cent of agreements between observers across the 12 weeks of data collection (eight weeks for teacher praise) were as follows: smiling 91%, sharing 93%, positive physical contacting 98%, verbal complimenting 99%, teacher praise 94%. There were no in-

stances of interobserver agreement below 80% for any of the five behaviors monitored.

Trained Subjects

As can be seen in Figures 1 through 4, training-session rates of all social-emotional behaviors increased concomitant with the onset of training designed to teach the behaviors. Since the four replications of training effects (Figures 1 to 4) produced such similar results across the trained subjects, Subject 1's results (see Figure 1) are described as an example of the trained subjects.

Figure 1 shows that Subject 1's training-session rates of all four social-emotional behaviors were lower during their respective baseline periods than in their training periods. With the onset of Training Period I, Subject 1's rate of smiling increased over its baseline level. At the beginning of Training Period II, Subject 1's rate of sharing increased. In Training Periods III and IV, Subject 1's rates of positive physical contacting and verbal complimenting respectively increased. Thus, all four positive social-emotional behaviors were exhibited at increased rates when training designed to increase them was conducted. Additionally, after being increased in the training sessions, all behaviors remained above their respective baseline rates across all subsequent training sessions.

The generalization-session behavior rates for the trained subjects were more variable than their training-session rates. Subjects 1 and 3 evidenced similar response acquisition patterns in the generalization sessions. That is, smiling, sharing, and positive physical contacting increased for these two subjects in Training Period I when training for smiling alone was conducted. Similarly, Subject 4 increased his rate of generalization-session smiling and positive physical contacting in Training Period I. Subject 2, however, demonstrated generalization increases consistent with his training-session increases during the first three training periods. No trained subjects evidenced generalization of the verbal complimenting response.

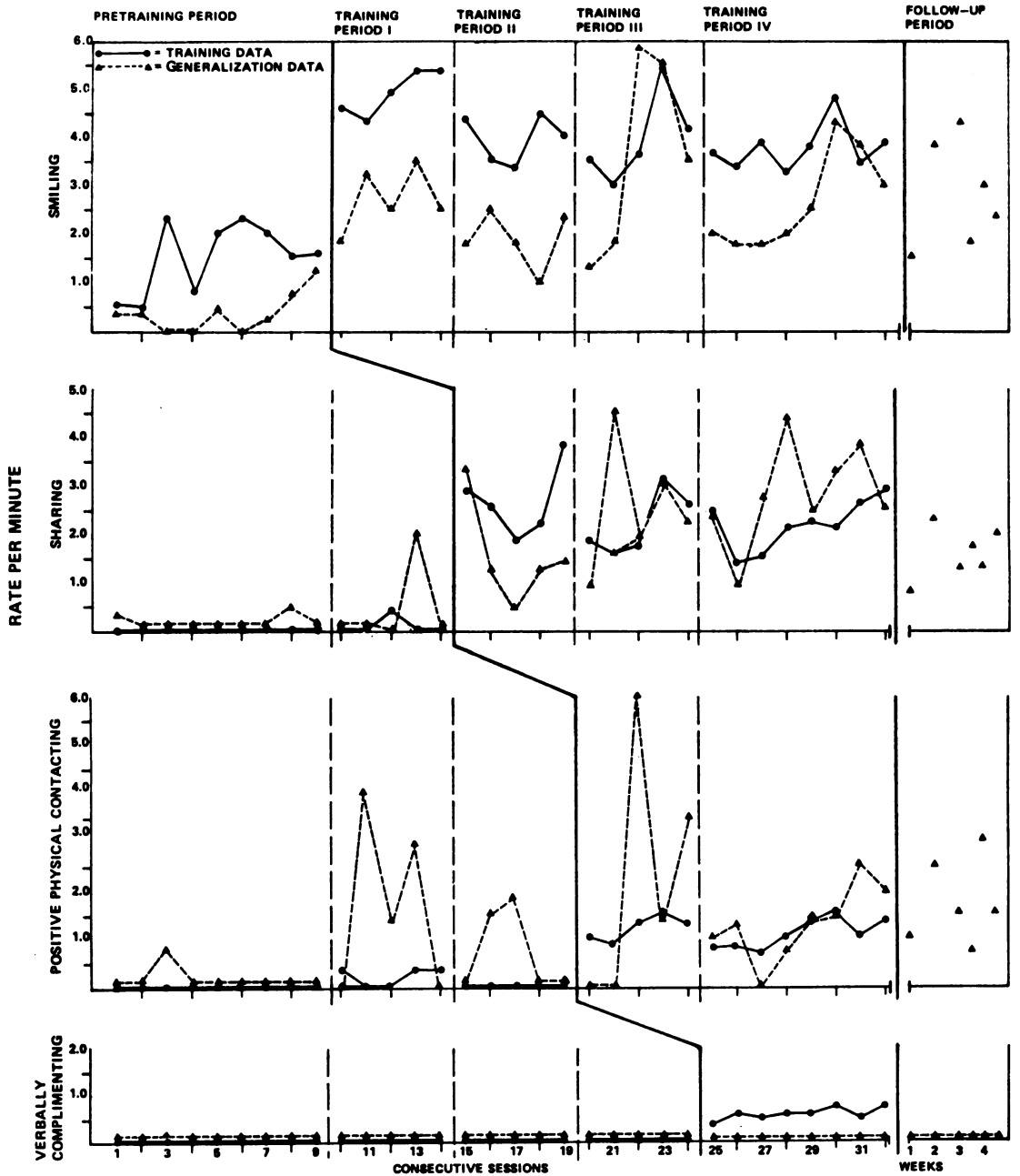


Fig. 1. Rate per minute by Subject 1 of smiling, sharing, positive physical contacting, and verbally complimenting for each training and generalization session.

Untrained Subjects

Subject 5's (see Figure 5) generalization-session rate of smiling increased markedly from the pretraining period to Training Period I

when the intervention for smiling was conducted with trained subjects. A slight rate increase of positive physical contacting was also evident at this time. Subject 5's increased rate of smiling maintained across experimental pe-

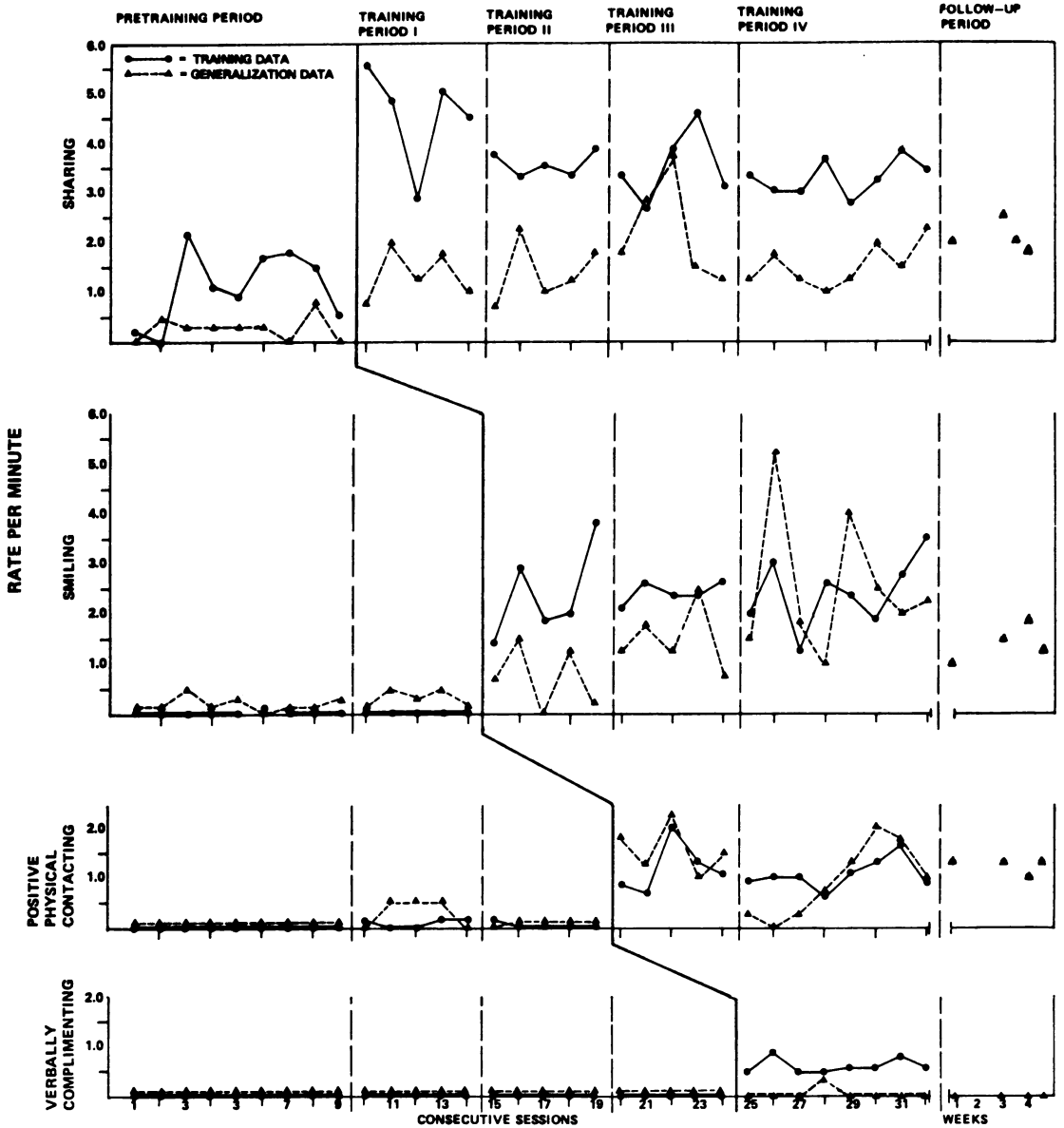


Fig. 2. Rate per minute by Subject 2 of smiling, sharing, positive physical contacting, and verbally complimenting for each training and generalization session.

riods but his rate of positive physical contacting was erratic. Subject 5's rate of sharing increased from the pretraining period to Training Period II when training in sharing was instituted. This increase maintained throughout the study.

As can be seen in Figure 6, Subject 6's generalization-session rate of smiling increased from

the pretraining period to Training Period I, when the trained subjects received the intervention for smiling. His rate of sharing increased from its baseline rate to Training Period II, when intervention for sharing began. These increases in smiling and sharing generally maintained throughout the study. Subject 6's rate

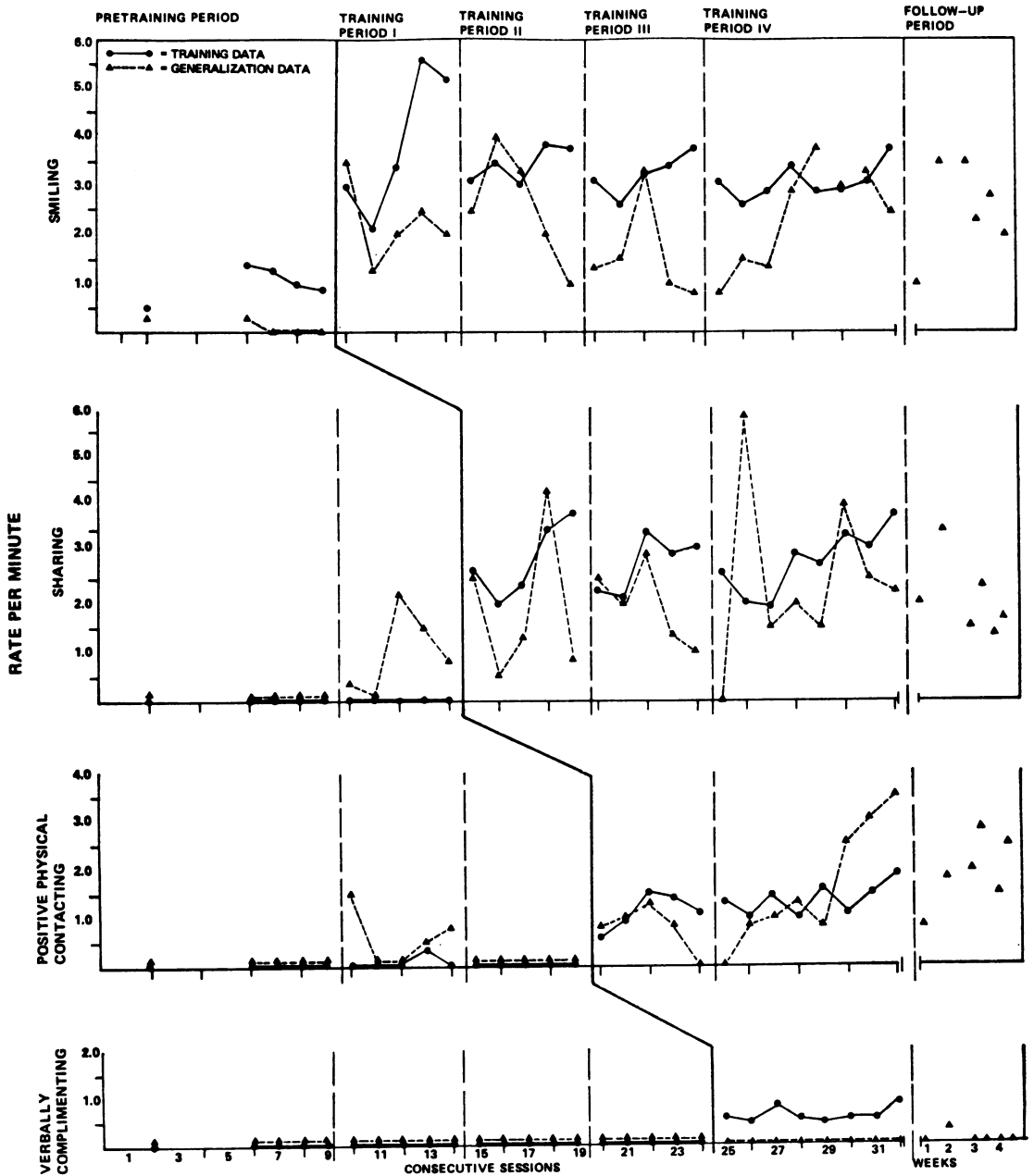


Fig. 3. Rate per minute by Subject 3 of smiling, sharing, positive physical contacting, and verbally complimenting for each training and generalization session.

of positive physical contact was erratic, although it was noticeably higher in the follow-up period than in the pretraining period.

Subject 7's (see Figure 7) generalization-session rate of smiling increased from the pretraining period to Training Period I when trained

subjects' smiling was reinforced. This increase maintained across the remaining periods of the study. Likewise, Subject 7's generalization-session rate of sharing increased from baseline to Training Period II. With the exception of a single high-rate day during baseline, Subject 7's

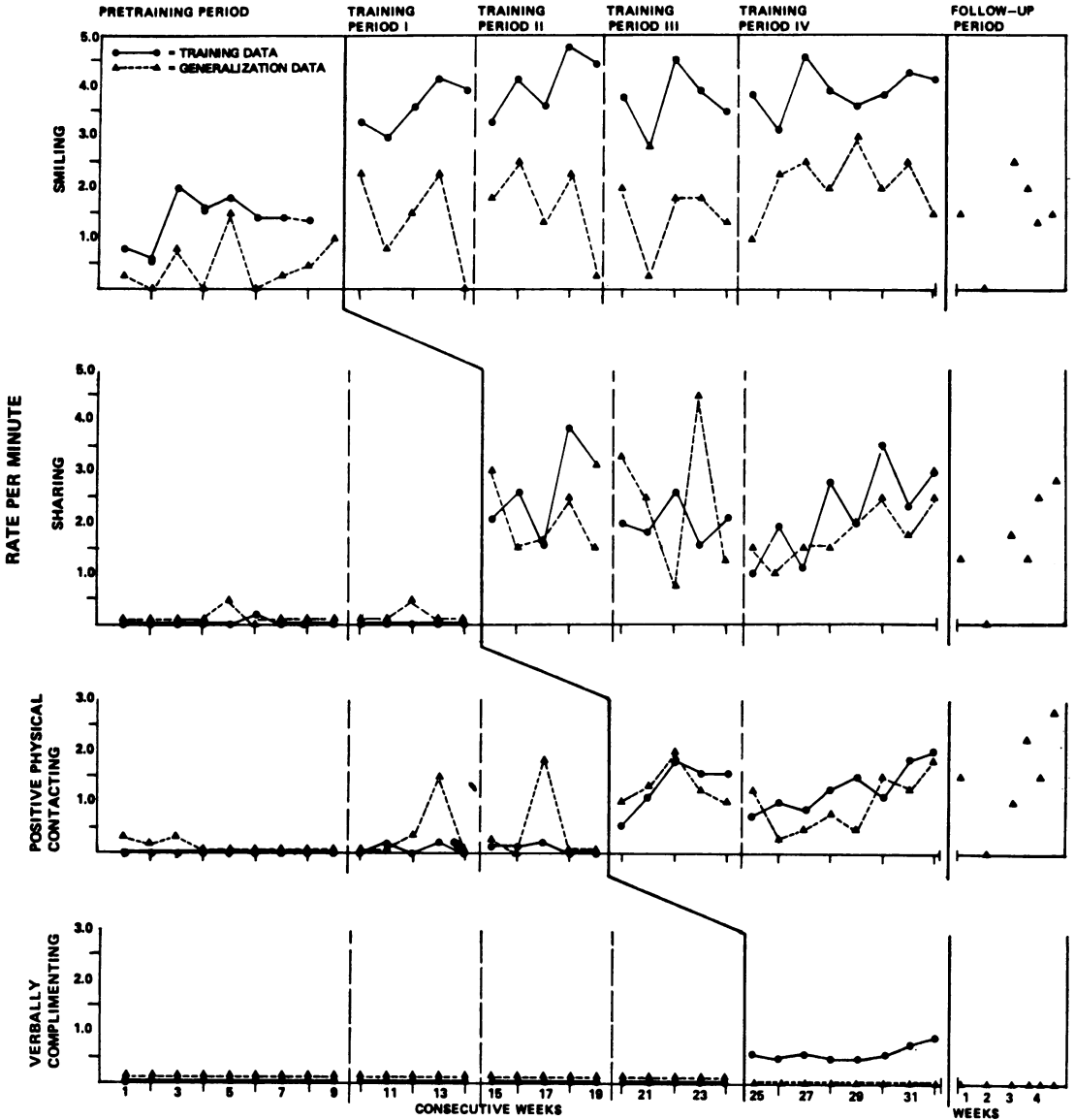


Fig. 4. Rate per minute by Subject 4 of smiling, sharing, positive physical contacting, and verbally complimenting for each training and generalization session.

rate of positive physical contacting was higher during his training period and subsequently than it had been in baseline.

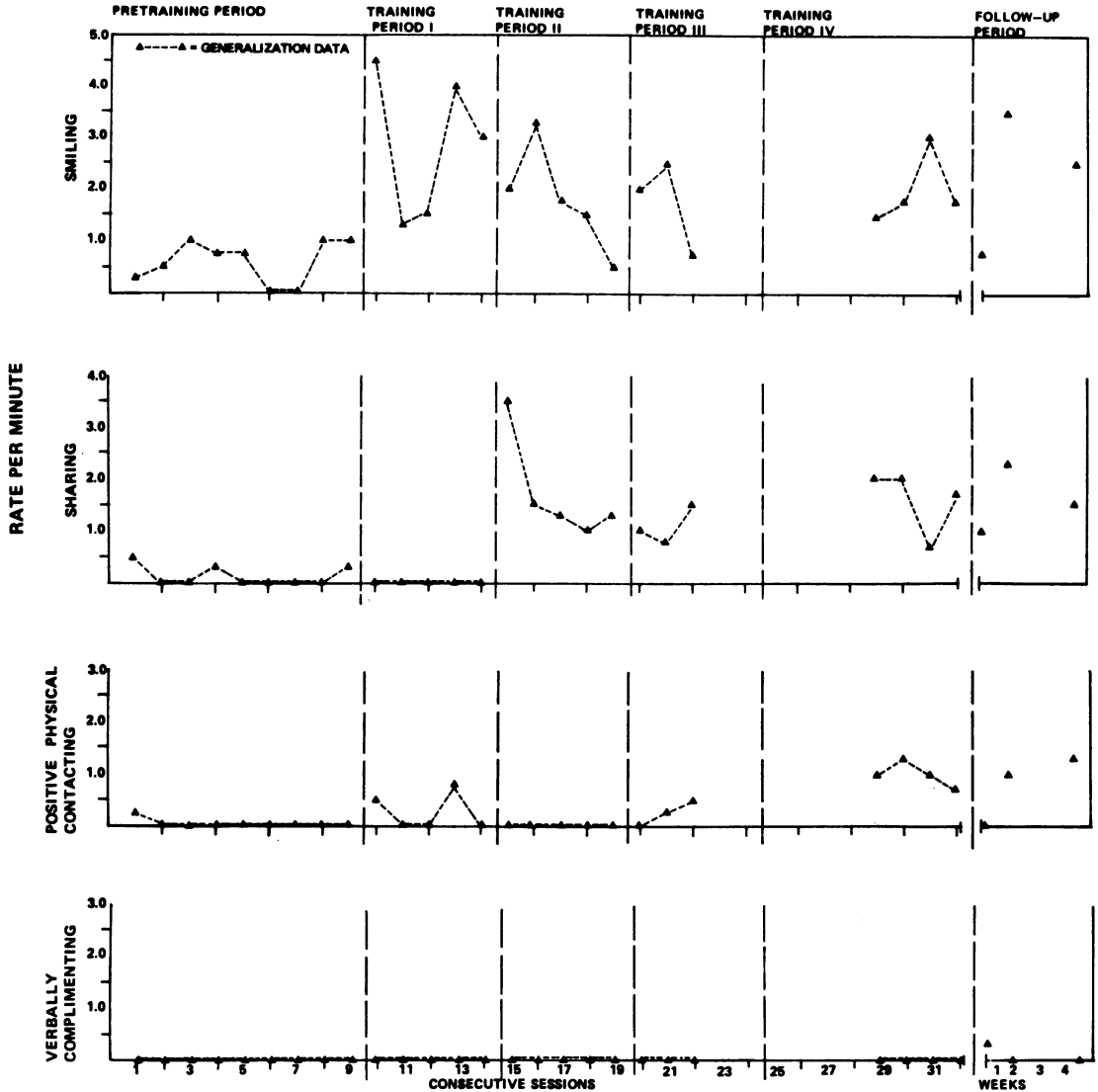
As with the trained subjects, no untrained subjects evidenced any appreciable generalization of the verbal complimenting response.

DISCUSSION

The present study demonstrated that four positive social-emotional behaviors—smiling,

sharing, positive physical contacting and verbal complimenting—can be taught to children evidencing initially low rates of such behaviors.

The results concerning the generalized effects of training were less consistent. All four trained subjects (see Figures 1 to 4) increased their rates of smiling in the generalization sessions with the onset of the training in smiling. Moreover, the trained subjects continued to smile above pretraining levels throughout the experi-



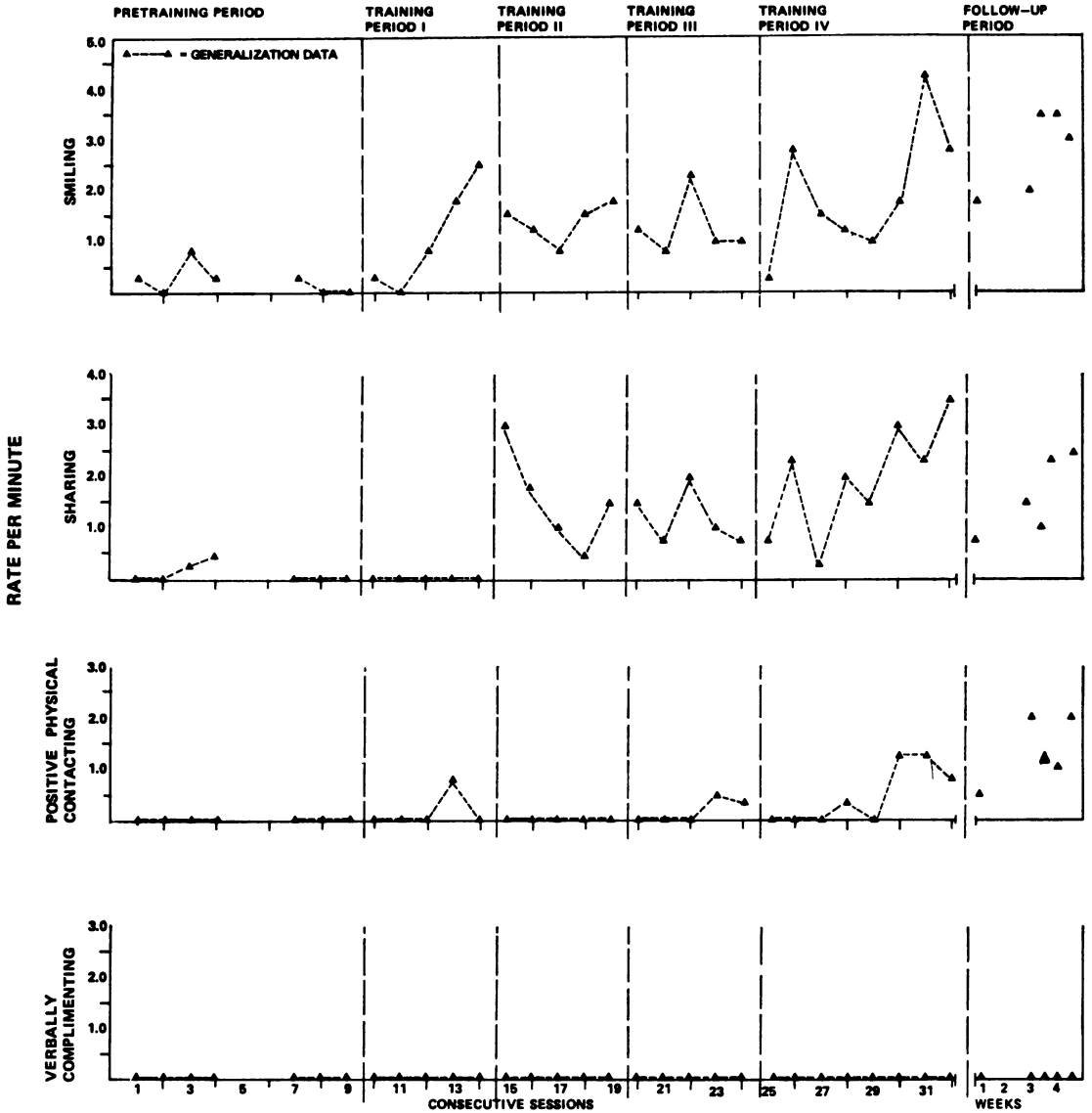


Fig. 6. Rate per minute by Subject 6 (untrained) of smiling, sharing, positive physical contacting, and verbally complimenting for each generalization session.

smiling and sharing in Training Periods I and II respectively, when the trained subjects were taught to increase those behaviors.

The rates of positive physical contacting of the untrained subjects (see Figures 5 to 7) in the generalization sessions were somewhat erratic. Generally, however, positive physical contacting increased in rate from the pretraining period to the training periods. As with the trained subjects (Figures 1 to 4) the increases occurred

beginning in Training Period I, when the training in smiling was conducted.

No substantial effect in generalization of verbal complimenting was reflected in the results of trained or untrained subjects. These results suggest that verbal complimenting is a behavior that may be unlikely among young children in a setting free of adult-imposed contingencies.

The data from the follow-up sessions (see Figures 1 to 7) when no adult-imposed contin-

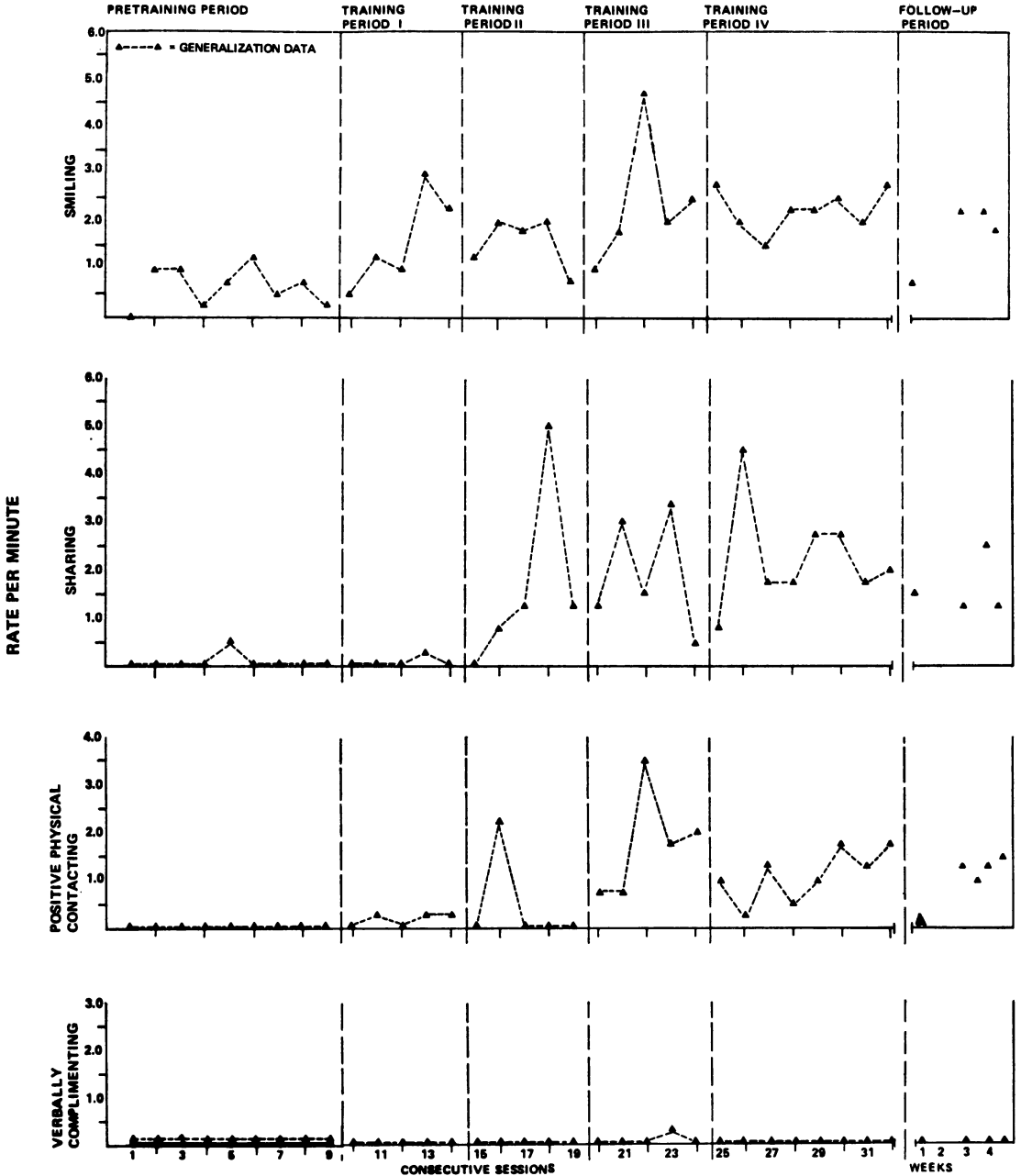


Fig. 7. Rate per minute by Subject 7 (untrained) of smiling, sharing, positive physical contacting, and verbally complimenting for each generalization session.

gencies were operating, revealed that once increases in social-emotional behavior rates were effected, they maintained after training had concluded. This finding may be explained by recalling the "trapping effect" reported by Baer and Wolf (1970), who suggested that once

desirable behaviors are taught in a training-session environment, they are often maintained by "natural communities of reinforcement" (p. 319). In terms of the present study, the training procedure may have resulted in a situation wherein subjects' increased rates of social-emo-

tional behavior served to facilitate one another's maintenance of such behavior.

The present study demonstrated that positive social-emotional behaviors are controllable through environmental change. Moreover, the investigation showed that training in positive social-emotional behaviors may have desirable effects on untrained subjects who are integrated with trained subjects. This generalization across subjects may be attributable to social reciprocity (Strain, Cooke, and Apolloni, *in press*); Strain and Timm, 1974) or observational learning (Bandura, 1969; Bandura and Walters, 1963).

To identify specifically the controlling independent variable(s), future investigators might profitably consider individually analyzing the components of the package used in the present study. For example, it would be useful to determine the differential effects of manipulating antecedent and consequent events on rates of social-emotional behavior.

The present research has shown that positive social-emotional behavior may be operationally defined, reliably monitored, and systematically increased through application of behavioral technology. This endeavor would seem to offer a provocative response to commentators who have maintained that the results of social-emotional education must be empirically demonstrated before widespread acceptance and implementation may be expected (Borich, 1971; Lyon, 1971). Additionally, this investigation would seem to hold implications for behavior modification researchers and practitioners. Winnett and Winkler (1972) posited that behavior modifiers are overly concerned with using their technology to produce still, docile, quiet children. The present research has shown that behavior modification techniques can be successfully employed to teach children the behavioral components of dynamic, positive, social-emotional relationships.

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