This conference paper attempts to describe some of the ecological conditions under which children's social behavior can be, and perhaps is, organized. Thirteen preschool children between 2-1/2 and 5-1/2 years of age, participated in several experiments with confederates acting as peers and with novel as well as familiar toys. Four behavior categories were identified: verbalizing, visual regard, onlooking, and mutual play. On the basis of these behavior categories, the effects of the novelty toys on behavior patterns were studied. Results indicate that novel events were capable of influencing, at least for a short time, preschoolers' social behavior. The effects of novelty on mutual play show that novelty may even elicit social play. Data tables are included. (CS)
I've been reflecting on what it means to be last in a symposium such as this, whether the final paper just simply brings up the "rear," or whether I'm expected to provide some sort of punch line. For those of you still determined to see this set of papers through to the very end, let me reassure you that I do not intend, in this discussion, to advocate the social value of Disneyland, or Six Flags Over Georgia, or even Charlotte's own recent exploration into human fulfillment--Carowinds.

Today marks only the second occasion that I have given a paper on children's social relations at a scientific meeting. But let me tell you about my first experience, a paper on the modification of peer preferences delivered at a meeting of SEPA in 1969, nearly five years ago while I was a graduate student. My memory of it is vivid. It was probably a well-attended meeting; but the paper session on peers was less than crowded with an audience. I was nervous, of course. I was also disconsolate at such a poor showing--so disconsolate, in fact, that after mumbling out my introduction I was tempted to step down from the speaker's platform, walk down into the audience, and tell him...to read the paper himself. I exaggerate; I did give my talk, to the other speakers.

Not long after that New Orleans meeting, Professor Hartup's review of peer relations emerged in the new Carmichael's Manual, and I wondered if the review itself would deal a fatal blow to research on peers, although a fatal blow probably wouldn't have required much. Not that Dr. Hartup's review wasn't an enviable one; it was remarkable indeed! But the literature he reviewed was often so tedious, filled as it is with countless correlation coefficients, usually not very striking, all sorts of personality traits, usually not very tangible, and, more important, little of a theoretical nature to make it all comprehensible, much less exciting. Maybe we need Arthur Jensen in peer research. But let me quote from Dr. Hartup's own assessment in the Manual: he said, "a general theory concerning the development of peer relations may never emerge."

Have things changed since 1970?

I'm going to do something that may be unorthodox but I think justifiable by introducing you, without any sort of literature summary or further explanation into an experimental setting.

SLIDE ONE

The setting is a simple one, in many respects a natural one, but with both the social and physical technology present to make it just unnatural enough to be scientific—at least I trust that is so. The physical technology, of course, includes the one-way mirror, the recording equipment and check sheets, microphone, and tape-recorder. The social technology involves controlling the verbal and play behavior of the two child, or adult, confederates in the room, and of course there are numerous student observers using the recording equipment and check sheets.

A total of thirteen preschool-age children have been introduced, individually, into this setting, time and time again. As is common to single-subject designs, the confederates' behavior is relatively constant (here it may be more accurate to say that the range of their activities is relatively constant); and changes in the confederates' behavior are made after some stability has been observed in the participant's behavior.

You'll notice that although this is fundamentally a social setting, it is one that also includes material objects that we adults call toys. The toys, I would argue, are what make this setting "natural"—not so much the presence of the confederates. And in contrast to most other studies of children's social behavior, we offered no edibles, no M&Ms, no tokens or praise or approval for acts well done. The children apparently violated many known rules of behavior by behaving at all, and by returning, I might add, repeatedly to the setting. Of course, wasn't it Harry Harlow who long ago pointed out—well, Harlow pointed out just about everything at one time or other—that man does not live by bread alone, or even by verbal approval or a pat on the head.

But lest you misunderstand my goal, it was not the point of this research to attack reinforcement theory. It wasn't meant to discredit the mechanical model of man, beast, or child. Its modest claim lies in attempting to describe, simply, some of the ecological conditions under which children's social behavior can be, and perhaps is, organized.

The children who participated as subjects (I call them participants) varied in age between about 2 and a half years to about 5 and a half. Four behaviors were of interest across the several experiments I'd like to report now. They are presented
in Slide Two. These behavior categories and their definitions

SLIDE TWO

are doubtless familiar to many child researchers, particularly
behavior analysts: Verbalizing, Visual Regard, Onlooking. Mutual Play was of particular interest, and you'll note that
to be scored for Mutual Play during any observation interval,
the child participant had to have initiated play with one of
the confederates' toys. This was made relatively easy to
judge because the confederates were themselves not permitted
to initiate play activities with the participants.

Length of time in the setting varied across experiments,
from a minimum of 8 to a maximum of 30 minutes. And for the
most part, sessions were scheduled Mondays, Wednesdays, and
Fridays. In all experiments, the participants' behavior was
recorded every other 6 seconds (a time-sampling method): the
observers would observe for 6 then record for 6 seconds by
simply checking if a behavior toward one or both of the con-
federates was observed to occur.

In the first experiment, two boys, brothers age 8 and 9
years respectively, were the confederates. Their functions were
relatively simple: in each of three phases, one confederate
was verbally responsive—which means that this boy elaborated,
in one form or another, what the preschooler said; meanwhile,
the other boy was verbally unresponsive, and didn't say a word.
Still, both of them frequently looked at the participant, and
otherwise worked on similar projects they made out of Play-
doh, Lincoln Logs, or Sponsone Lego Blocks. The next slide shows

SLIDE THREE

what happened. In the first phase, one boy (El) was verbally
responsive, and E2 (the other boy) was not. It happened that
all three preschool participants, one female and two male, one
black and two white, directed most of their verbal and visual
behavior to the verbally responsive confederate.

Reversals, in which the confederates exchanged their ver-
bal roles, were followed by predictable shifts in the three
participants' behavior. All, that is, except Mutual Play, which
was so low in frequency as to be virtually ungraphable. Which
is somewhat interesting when you think about it, recollecting
Parten's famous study in 1932 in which social "participation,"
as she called it, was held to be such an increasingly prominent
characteristic of preschoolers' social relations. More im-
portant for now, though, was the finding that simply verbal
elaborations, including questions, both increased and maintained
the verbal and visual behavior of the preschoolers. Virtually
Behavioral Categories

Verbalization  Speaking words while either onlooking or visually regarding another.

Visual Regard  Eyes are directed at an E's face.

Onlooking  Eyes are directed at an E's hands or at the objects he is manipulating.

Mutual Play  Touches an E's objects by modifying them or by taking them.
none of the confederates' verbalizations could be called praise or approval.

Experiment I, then, showed that the experimental setting was an effective one, and that the procedures permitted relatively clear and reliable differences to be detected as a result of experimental conditions. The results, for the most part, do not collide with ethological observations of the behavior between young children in real settings. The low baseline of Mutual Play was intriguing, and that did conflict with ethological observations. But what was missing? Toy? No. Toys? No. And yet one characteristic of natural settings, for children was missing, at least in a relative sense; namely, new toys, or, in our abstract reasoning, what was missing was novelty.

And it turns out that novelty is a quite easy thing to manipulate. Thus, in a second experiment, with adults as confederates, a baseline of interaction was established and the effects of a new toy measured against that baseline. In contrast to the first study, the baseline now consisted of both confederates' talking—they alternated in responding verbally to the participant's verbalizations. In addition, both baseline and experimental phases were scheduled within each experimental session: 10 minutes, first, in which both confederates were verbally responsive and playing with the same materials, the subsequent 10 minutes the same except that one confederate got up and returned to play with a new (previously ununtraded) toy.

SLIDE FOUR

The next two slides show a kind of modal response of five preschoolers tested. For most new toys, all four response categories often demonstrated increases to the confederate with the new toy. Visual Regard was least affected; Mutual Play and Onlooking (to a large extent confounded with one another by definition) showing the largest effects.

Clearly, novel events associated with one of the confederates were capable of influencing, at least for a short time, the preschoolers' social behavior. The effects of novelty on Mutual Play were so dramatic, in fact, that one is almost forced to conclude that novelty elicits social play, although certainly not in a Pavlovian sense. Most of that play, incidentally, was constructive rather than destructive in nature.
But, do the effects of novel toys—or novel events generally—do they last? Do novel events sustain the increments in social behavior initially created?

That was the question for two other experiments. In Experiment III, three to four sessions of baseline interaction (one confederate verbal, the other silent) were followed by three to four sessions in which the nonverbal confederate played with a novel toy. (For each participant there was a different toy.)

SLIDE SIX

Upon the introduction, at Phase 2, of novel events associated with the nonverbal confederate, E2, the three preschoolers increased their interactions with E2; and in two of the participants, interaction with E1, who was verbal, suffered. However, these initial effects of the novel events were not sustained—although this conclusion is not altogether unambiguous, since the experiment was perhaps insufficiently long-term.

Thus, in a portion of a fourth experiment, involving two preschoolers and lasting nearly three months, the short-term nature of the effects of novel events was replicated, as described in the next two slides in sequence.

SLIDE SEVEN

In this study, sessions were each 30 minutes long. Now, in Slide 7, you'll notice that for 60 minutes, this preschool male reliably preferred to interact with the verbally responsive adult (E1) rather than the silent E2. You'll note also that this preference was rather dramatically altered by the nonverbal confederate's introduction of a novel toy (in the third 30 minute session); but that in 20 minutes, the preference began to favor the first confederate once again—that is, the confederate who played with the more familiar toys but was verbally responsive.

SLIDE EIGHT

Next, in Slide 8, the first 30-minute session in which the novel toy was initially introduced by E2 is followed by the next two sessions, identical to the first, depicting, well, almost an habituation effect of the continued exposure of the participant to the same novel toy, so that finally, there would appear to be as nearly total an extinction of interaction with E2 as interaction with the microphone on the ceiling.
### Frequency

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<tr>
<th>Phase</th>
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<th>Outlook</th>
<th>Visual Regard</th>
<th>Verbalization</th>
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**Vestaizetion**

10°' 8°

To Ekt

To Elo
LOOKING at 0

REGARD 0

Behavior Toward E1
Behavior Toward E2

BLOCKS OF 2-MINUTES

SESSION 1
SESSION 2
SESSION 3
SESSION 4
SESSION 5
SESSION 6
SESSION 7

MUTUAL PLAY
CALLOOKING
VERBALIZING

FREQUENCY
Instead of Experiment III's 24 to 32 minutes, then, we gave the novel toy a full 90 minutes to assert its influence. The long-term result, as you can see, suggests that novel toys eventually lose their capacity to maintain children's social interactions. I don't have time to discuss some interesting qualifications to this conclusion, nor to stress the apparently overwhelming significance of verbal behavior in social relations during childhood.

DISCUSSION

It is my hope that the whole point of this experimental exercise will not be lost simply to a statement about the relative value of different children's toys to facilitate social play. Certainly the method would seem to be capable of discriminating between socially useful and socially trivial playthings. But I, for one, refuse to do that job for Mattell Toy Company, or for that matter, Creative Playthings. There is, I believe, more to this experimental analysis than meets the eye. The results, for a start, do not simply confuse reinforcement theory, but rather confront that theory with the realities of the child's own ecology, and in this sense, the present analysis is an ecological one.

Certainly, the successes achieved in modifying social behavior of young children by adults and by peers, using social and material reinforcement, support an operant model of children's social relations. But perhaps because many characteristics of natural social situations have not been explored, our theoretical attempts to deal with or to do justice to the motivation toward social interaction among young children have settled for a merely functional account, which says little about why a so-called reinforcer is, in fact, reinforcing.

And I suggest that this impasse may be solved to some extent by recognizing, first, that the distinction between social and exploratory behavior is an artificial distinction, and because of the data just reported here, if not elsewhere, the distinction has little basis in fact, and seems counter-productive.

That infants and young children are responsive to novelty and sensitive to variety is well established in the literature. And the same variables that control exploratory behavior are also capable, as has been shown here today, of controlling children's social behavior.

It might be instructive here to note that Robert Sears at Stanford, who recently defended the heuristic value of the concept of dependency (that is my understanding), contended that
the concept is capable of describing the reinforcement conditions under which children's social responses to caretakers and other people are, or can be organized. The value of an ecological analysis is that it calls attention to contextual events in the natural environment, not typically considered reinforcements, that may also organize children's social behavior. Specifically, children's social relations can be organized by novel, as well as reinforcing events associated with other people.

But even this isn't novel. Professor Woodworth, as early as 1958, maintained that in all likelihood, children do not chiefly provide one another with "affection" or primary drive reduction. The fact that he felt compelled to point this out seems to us now just a little absurd. Rather, Woodworth felt, children provide one another with interesting activities. Professor Rheingold, too, has argued for more than a decade now that both children and adults are potentially very powerful sources of stimulus change.

And now, the punch line. If not M&Ms, or tokens or praise, what then? but stimulus events that are novel, that excite the curiosity, that even boggle the child's imagination, that call forth responses to other human beings, to find out what is going on, what can be done together, what there is...

Thank you very much.