

FACILITATION OF INTERPEER AFFECTION IN YOUNG  
CHILDREN: THE USE OF A STORY READING AND  
STIMULUS FADING PROCEDURE

ACCEPTED  
TUDIES

BY

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ABSTRACT

Interpeer physical affectionate and verbal appreciative responses were directly manipulated in day care children. A Pretreatment Baseline was carried out to measure any "natural" or pre-existing occurrences of those physical and verbal responses. Next, the treatment--a story reading procedure that included modelling, role playing, stimulus fading, and praise--was employed and it was successful in facilitating interpeer physical affection and verbal appreciation in the treatment setting. However, when posttreatment measures were compared to those in the Pretreatment Baseline, only the verbal appreciation response showed an increase in frequency. This reluctance of the children to perform interpeer physical affectionate responses was further underscored when a toy dog was made the object of the affection in the Posttreatment Baseline context. Although the children had not received any previous training with the dog, they showed an increase in dog-directed physical affection and verbal appreciation. In an effort to maximize the probability of occurrence of interpeer physical affectionate responses in play settings, two additional methods were designed (i.e., Instructional

Control Procedure and Dog/Assimilation Procedure). After these methods were employed, the frequency of interpeer physical affection was finally increased from pretreatment levels. Although it is encouraging that interpeer physical affection can be facilitated, the effort required to achieve this goal was great. The latter is especially true in light of the aggression research which demonstrates that physical aggression is easily facilitated. Observational research of children in natural settings and the reactions of the parents, caregivers, and peers to the children's performance of interpeer affectionate responses is needed. This research could elucidate the dynamics which underlie the possible differences in the children's willingness to engage in aggressive as opposed to affectionate behaviours. Finally, future research must ascertain the sources for the children's reluctance to engage in interpeer physical affectionate behaviours if social learning strategies for the development of affectionate and gentle behaviours in our children are to be realized.

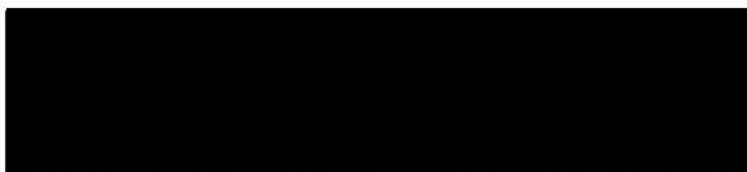
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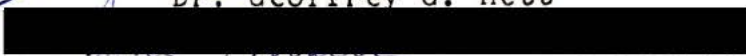
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## INTRODUCTION

The development in children of gentle affectionate-like behaviours has received little research attention from psychologists. More than 25 years has passed since the early work of Harlow (1958, 1959) and Bowlby (1958) that suggested the necessity of physical contact in development. Harlow (1958, 1959) demonstrated that for infant monkeys, physical contact served as a powerful primary reinforcer. Furthermore, Harlow, Harlow, Dodsworth, and Arling (1966) reported that non-purposeful physical interactive play engaged in by young monkeys is crucial to their later general social adjustment and, more specifically, is necessary for later affectionate behaviour toward peers. Similarly, Bowlby (1958) concluded that positive interpersonal physical contact and stimulation is a crucial variable in the normal emotional and physical development of human infants. However, physical affectionate, gentle interpeer behaviours such as, hugging, patting, and stroking have not been sufficiently investigated.

Perhaps the paucity of research in this area reflects our society's failure to attach sufficient importance to affection. On the contrary, Twardosz and Nordquist (1983) presented evidence to support the notion that our society

is concerned with affection and other positive feelings and behaviours in our personal relationships. They point out that this concern is often reflected in the media. For example, AT&T's "reach out and touch someone" series of commercials depicts their service in the context of affectionate interactions. The Institute for Social Research Newsletter (1978; cited in Twardosz & Nordquist, 1983) reported further evidence of the importance of affection. Their survey of adults in the United States to determine why people wanted children found that the majority of the respondents stated the primary advantages of children were the exchange of love and affection and the feeling of being a family.

Despite this apparent importance our society attaches to affection, psychology has often focussed upon the factors influencing two other important areas of the social development in children; prosocial behaviour and aggressive behaviour. Inspection of current developmental psychology textbooks would reveal chapters dealing with these two topics yet little that deals with affection or gentleness, per se (e.g., Bornstein & Lamb, 1984; Field, Huston, Quay, Troll, & Finley, 1982).

The term prosocial behaviour has come to include such behaviours as altruism, sharing, donating, helping, cooperating and rescuing (Ascione & Sanok, 1982; Asher & Hymel, 1981; Blackmon & Dembo, 1984; Bryan & London, 1970;

Bryan, & Walbeck, 1970; Burleson & Fennelly, 1981; Factor & Schilmoeller, 1983; Goldstein, Sprafkin, Gershaw, & Klein, 1980; Harris, 1970; Ladd, Lange, & Stremmel, 1983; Lipscomb, Bregman, & McAllister, 1983; Midlarsky & Bryan, 1972; Parish, 1981; Sagotsky, Wood-Schneider, & Konop, 1981; Sapon-Shevin, 1980). Unfortunately, the prosocial behaviour literature has not directly investigated affectionate behaviours.

As mentioned, a second area of social development that has received much attention is aggressive behaviour. Investigation of aggressive behaviour has provided some information on how such behaviours arise and are strengthened (e.g., Bandura, 1965; Bandura, Ross, & Ross, 1961; Bandura & Walters, 1963; Cowan & Walters, 1963; Frederiksen & Peterson, 1974; Hops & Walters, 1963; Piamonte & Hoge, 1973; Walters & Brown, 1963). However, the research has led to what could be two unsatisfactory strategies for decreasing the rate of the aggressive behaviours. One strategy reduces facilitating and cuing factors and the other operates directly on the established undesirable behaviours with extinction or punishment contingencies. Although both of these strategies can be useful in selected situations, the literature suggests that extinction and punishment procedures may elicit the very behaviours (i.e., aggression) that they are being used to suppress (Azrin, Hutchinson, & Hake, 1963, 1966; Kelly &

Hake, 1970). In addition, the children learn an undesirable approach to suppressing aggressive behaviours of others. That is, to stop aggression, one must aggress (e.g., hit someone that is hitting someone else). Perhaps the latter is best expressed by the British poet W.H. Auden (1945) who wrote, "I and the public know, what all school children learn. Those to whom evil is done, do evil in return" (p. 57).

This lack of a satisfactory strategy to decrease the rate of aggressive responses further underscores the importance of research investigating affectionate gentle-like behaviours. Affectionate behaviours seem to be clearly positive social behaviours and, to some extent, opposite and incompatible with aggressive behaviours (Acker & Marton, 1984; Marton & Acker, 1982; Pirot & Acker, 1978). Techniques developed for facilitating the rate of affectionate behaviours may lead to some control over aggressive behaviours by increasing the rate of responses incompatible with aggression. Control of the undesired aggressive behaviours would, therefore, exist without attempting to suppress them through extinction and punishment procedures.

To summarize, affectionate behaviours are apparently considered important by our society. In addition, these behaviours may provide a satisfactory strategy for decreasing the rate of aggressive behaviours. Despite

these assertions, little research has been carried out in the area of affectionate behaviours.

The limited research that has attempted to facilitate affectionate behaviours has involved samples of "normal" children or developmentally disabled (and/or socially isolate) children. Due to the heterogeneity of these two populations, the results of each body of literature are reviewed separately.

Hopkins (1968) reported an increase in the frequency of smiling in two retarded boys. Similarly, in a study by Keller and Carlson (1974), normal isolate preschool children increased their rate of smiling, imitation, and verbalization, but not their frequency of physical affection. In addition, Twardosz, Nordquist, Simon, and Botkin (1983) reported that they were able to increase the frequency of interpeer interactions, approaches to peers and peers' approaches to the subjects, the number of different peers with whom they interacted, and smiling. These authors (Twardosz et al., 1983) point out, however, that it is difficult to draw any conclusions about the effect of their intervention on affectionate physical contact during peer interactions.

The frequency of social interactions was facilitated in 10 institutionalized severely retarded children (Paloutzian, Hasazi, Streifel, & Edgar, 1971) and in preschool children, who displayed behavioural deficits,

that included delayed speech, poor motor coordination and social isolation (Strain & Wiegerink, 1976). In both of these studies the authors did not, however, describe whether the increased social interactions also included an increase in affectionate-like physical contact behaviours.

Cooke and Apolloni (1976) reported the only study in the developmentally disabled children literature that directly measured affectionate physical behaviours. Seven children, who were diagnosed "learning disabled" and aged 6 to 9 years (mean age of 8 1/2 years) increased their level of smiling, sharing, positive physical contacting, and verbal complimenting during the training sessions. It should be noted that these children were older than those typically found in studies dealing with increasing affectionate and other social behaviours in developmentally disabled children. In addition, they reported that all behaviours except verbal complimenting were facilitated during generalization sessions. However, the generalization and training sessions were quite similar thus raising the question as to whether their evaluation of generalization was adequate.

To summarize, research investigating affectionate behaviours in developmentally disabled and/or socially isolate children was reviewed. All but one study (Cooke & Apolloni, 1976) focussed primarily on social interactions and not on affection per se. Although Cooke and Apolloni

(1976) reported increased positive physical contact, their children were older than those participating in most other studies and the evaluation of generalization employed was questionable. Therefore, one may conclude that facilitation of physical affectionate-like contact behaviours has not generally been a focus of research with this population of children.

The following section will examine the studies involving facilitation of affection in "normal" children. In 1958, Brackbill included smiling in his definition of affection and succeeded in shaping smiling in infants. Fryrear and Thelen (1969) reported that nursery school children who watched TV films of affectionate behaviours were more likely to express similar affection than children who had not seen such behaviour on TV. These results must be considered tenuous as data were not presented. In contrast, Talkington and Altman (1973) reported that whereas filmed aggressive models served to precipitate subsequent imitative aggressive responding and reduced the levels of affectionate responding (below that observed in no-film controls), affectionate models had essentially no effect on subsequent responses.

The major contributors to the area of facilitation of affectionate-like behaviours in "normal" children have been Acker and his colleagues (Acker & Acker, 1970; Acker, Acker & Pearson, 1973; Acker & Marton, 1984; Marton & Acker,

1982; Pirot & Acker, 1978). Acker and Acker (1970) employed a shaping and differential reinforcement procedure to produce hugging in young children toward an inanimate surrogate mother. Acker et al. (1973), in a laboratory setting, used a generalized imitation procedure (see Appendix A) and produced generalized imitative physical affection (e.g., hugging, kissing etc.) towards both a teddy bear and the adult experimenter after reinforcement of neutral physical contact with each. In addition, physical affection was most facilitated by prior imitative physical contact training as opposed to verbal contact training.

Pirot and Acker (1978) reported that affectionate behaviours towards a toy animal were facilitated and found to generalize to freeplay following a laboratory based modelling experience in which children also had an opportunity to practice the modelled responses (e.g., physical caretaking with a "sick" teddy bear). In the second part of this study, the authors systematically investigated the separate effects of physical contact and imitative nurturance on the affectionate behaviour. These authors found that neither neutral physical contact nor non physical caretaking alone were sufficient to facilitate subsequent unprompted affection (the former finding failed to replicate the work of Acker, Acker & Pearson, 1973). This further supports the contention that affectionate

physical contact and subsequent affection may be functionally related. In addition, the authors suggested that aggression may be mitigated by their imitative nurturance procedure. However, they also drew attention to the low initial frequency of occurrence of aggressive behaviours, which made that conclusion rather tenuous.

Unlike many of the previous studies, Acker and Marton (1984) reported a study within the structure of an actual day care setting. They found that familiar and simple story reading procedures, supplemented with verbal stressing of the affectionate content, modelling of toy-directed affectionate behaviours by a surrogate teacher (i.e., the experimenter) and providing the opportunity for the children to practice the affectionate content (verbal/model/practice), resulted in an increase in subsequent toy-directed affectionate behaviours and a decrease in aggressive, toy-directed behaviours during freeplay. Neither verbal stressing of the affectionate story content alone nor verbal stressing in conjunction with modelling produced this effect. Although the occurrence of peer directed behaviours was less frequent than that of toy-directed behaviours, the verbal/model/practice condition was also associated with increased affection and decreased aggression in terms of interpersonal behaviours.

To summarize, the research involving normal children

suggests that toy-directed affectionate behaviours can be facilitated in both laboratory and natural settings (e.g., day care centres). Modelling alone will not result in this facilitation (unlike the typical effects for aggression; e.g., Bandura, Ross & Ross, 1961); rather the child's affectionate physical contact with the toy is critical. In addition, there is some indication that affectionate behaviour is incompatible with aggressive behaviour. Finally, the increased toy-directed affection was found to generalize to freeplay sessions. Although interpersonal behaviours of the children have not been directly manipulated, there is some suggestion that affectionate behaviours between peers may also be facilitated, when toy-directed affectionate behaviours are increased.

Research on affection in children, though demonstrating ways of facilitating toy-directed affection, has not generally demonstrated ways of increasing interpeer physical affection in "normal" children (except as reported above by Acker & Marton, 1984). The present investigation attempts to directly manipulate interpeer physical affectionate responses (in contrast to toy directed affectionate behaviours). It may, therefore, have considerable practical value in helping parents and teachers increase children's gentle and affectionate-like behaviours towards their peers.

To maximize the possibility of producing reliable

interpeer physical affection, pilot research was conducted by the present author which employed a procedure that involved story reading, modelling, prompting, role-playing, and reinforcement. This procedure is similar to that used by others as reported in the affection literature (e.g., Acker & Marton, 1984). Briefly, children attending a day care centre were each day read a story by the experimenter ("teacher") that contained affectionate content. The "teacher" then modelled the physical affectionate and verbal appreciative behaviours and prompted each child to assume the role of a character in the story and to perform the described response. Measures of interpeer affection were obtained in baseline games both before and after treatment (additional procedural details can be found in Appendix B).

Results demonstrated that interpeer affection was observed only when the "teacher" directly prompted the children (e.g., "Now you hug her."). It did not occur during the training sessions without a direct prompt. In light of this result, it was no surprise when generalization of interpeer affection to non-training conditions (which contained no direct prompts) was not observed.

These findings suggest that because it was possible to increase interpersonal affection through prompts only, the next study should try to focus on techniques to transfer

control of the behaviour from these prompts to more appropriate stimuli. It would be much more advantageous to have the affectionate responses come under the control of stimuli that occur in the child's environment.

To summarize, previous research has not directly investigated interpeer physical affection in "normal" children. Although the pilot study described above did attempt to do just that, it failed to produce the desired affect of facilitating unprompted affection. It was, however, successful in providing the basis for the current research.

## EXPERIMENT 1

The purpose of the present experiment was to facilitate interpeer physical affection among young children in a day care setting (see Appendix B for the rationale regarding the use of physical affection as the definition for affection). It was hoped that the product of this work would be an enhanced understanding of interpeer affection of young children in a "natural" setting. As a secondary goal, it was hoped that this research would lead to a practical strategy for day care centres to increase affectionate-like behaviours.

With these goals in mind, the question of under what conditions should affection be measured and trained was resolved in the following manner. It was believed that an acceptable and socially valid scenario under which physical affection could be expressed was that involving an act of appreciation. For example, child 1 asking child 2 for help; child 2 rendering the help; and child 1 reciprocating with an appreciative affectionate-like response. Pretreatment and posttreatment baseline measures involved games that created this scenario. To play the games, one child had to ask for help and the other child had to render it. Pretreatment baseline, as the name suggests, measured any "natural" or pretreatment occurrences of interpeer physical affection, whereas posttreatment baseline measured

any generalized occurrences after the affection was trained (during the treatment condition).

The treatment sessions involved familiar and simple story reading sessions that included helping/appreciation scenarios (see Prompt Fading Treatment described below). Because of previous difficulties (see pilot research results mentioned above) in achieving the desired affect of an increase in unprompted interpeer affection, the training employed modelling, role playing, reinforcement, and stimulus fading (Baer, Peterson, & Sherman, 1967; Terrace, 1963a, 1963b). Fading can be defined as "the gradual change of the stimulus controlling a response, so that the response eventually occurs to a partially changed or completely new stimulus" (Martin & Pear, 1983, p.133). The fading in the training involved the stimuli gradually being altered from the experimenter initially having to prompt a child (who was rendered help) to perform an interpeer affectionate response, to the rendered help itself serving as the discriminative stimulus for affection. This is described in more detail below.

## Method

### Subjects

Eighteen children who attended a day care centre in Victoria, British Columbia, participated in this study (9 boys and 9 girls). Children attended the centre on Mondays, Wednesdays and Fridays. The children, age 3 years 2 months to 4 years 10 months, all received parental consent for participation and all parents and staff were informed of the nature of the experiment. One boy and one girl were randomly assigned to each of 9 dyads. A dyadic interaction was chosen to allow the best opportunity to observe and record interpersonal behaviours.

### Setting

Data were collected in one designated room at the day care centre that the children attended. All children were familiar with this room as it served as a playroom in their everyday routine at the day care centre. The playroom contained many different toys including a toy wooden stove, refrigerator, blocks, rubber animals, dressup clothes, and other assorted toys.

Sessions were conducted on each day that both children of the dyad attended the centre. If one child of a particular dyad was absent, then his/her partner did not

participate that day and the dyad was observed next when the absent partner returned. Each session lasted for approximately 20 minutes. In addition, at the end of every session, each child chose a prize (e.g., balloons, stickers, etc.) for participating. This prize was contingent only upon the child's participation that day and not on any particular performance criteria.

### Familiarity Sessions

Prior to the pretreatment baseline, the surrogate "teacher" (experimenter) led each dyad to the playroom and read to them stories that were readily available at the day care centre (i.e., 1 story per day for 6 days). This story reading phase was designed to allow the children to become familiar with each other, the "teacher", and the procedure of leaving the accustomed day care routine to participate in the experiment.

### Pretreatment Baseline

In the playroom, the children were given the following instruction: "We are not going to read a story today. Instead we are going to play some fun games." The children then played 5 games. Games 1 and 2 required that one child request help and the other child render it. Each child was given an opportunity to both give and receive help. Games 3 and 4 required the children to play together in a much

less structured manner and did not demand that they help one another. Game 5 involved each child asking a stuffed dog to help them. These games are described in more detail below. The occurrence of any physical affectionate behaviours (see Table 1) when help was rendered was noted. In addition, to test the possibility that verbal appreciative behaviours (i.e., non-physical contact) would increase in frequency, verbal expressions of appreciation such as, " I really like that," " That made me feel good," and "Thank you" were noted. In the present study, "thank you" was the verbal appreciative response that was employed in the Prompt Fading Treatment Phase described below.

As mentioned above, it was believed that an acceptable and socially valid scenario under which physical affection could be expressed was that involving an act of appreciation. The games employed were designed in such a manner so that it was very natural for one child to request help, the second child to render aid, and the first one to show appropriate, nice, gentle, affectionate-like appreciation.

Game 1 (Bean Bag) consisted of one child throwing a bean bag, requesting help from the other child ("Please help me."), and the renderer of help retrieving the bean bag and handing it to the first child. The response of the "requester of help" to the "renderer" upon receiving the bean bag, was scored for the presence of verbal

Table 1

Definitions of Physical Affectionate Responses

- Hugging = the use of one or both arms to bring the recipient into gentle body-to-body contact usually followed by immediate disengagement in one continuous act.
- patting = repetitive and gentle contact with an open palm to a part of the recipient's body without audible slapping sounds
- stroking = gentle contact with an open palm to a part of the recipient's body that is then moved along in a gentle manner.
- holding by hand = gentle grasp of the recipient child's hand without forcibly pulling the child
- kissing = contact with closed lips to any part of the recipient's body.

appreciative responses and physical affectionate responses. If an affectionate response was observed, the "teacher" praised the child who performed it. However, if no affection was observed, the "teacher" continued on with the game. This constituted one trial. After the first child performed 6 consecutive trials, the children reversed roles. Therefore, in game 1 each child had 6 trials. The child who first requested help was randomly determined for each dyad.

Based upon the pilot study's results, it was believed that no interpersonal physical affection would be observed during pretreatment baseline. However, it was decided that should an interpersonal physical affectionate response occur during pretreatment baseline, it would be necessary to praise the performer of the response, because the teacher failing to make any response could be regarded as an implicit disapproval to some children for the performance of the affectionate response. This a priori decision was also made because pretreatment and posttreatment baselines should be identical in procedure, and if affection occurred in the posttreatment baseline, it would have to be praised in order to maintain it for further tests of generalization.

Game 2 (Block Building) was identical to game 1 except that game 2 involved block building instead of throwing a bean bag. One child sat on the carpeted floor and

requested the renderer of help to bring him/her a block ("Please help me."). The renderer of help then brought a block to the seated child and the seated child used the block in a building fashion. As in game 1, each child had 6 trials and the response of the requester of help to the renderer was scored on each trial (and praised if necessary). For game 2, the child who threw the bean bag second, was the first to request and build the blocks.

Games 3 (Picnic) and 4 (Dish Washing) were much less structured than the first 2 games. As mentioned above, these games demanded that the children play together but not necessarily help each other. The use of such games (games 3 and 4 that did not require that the children help each other) allowed for a test of generalization to a situation which was less like the Fading Treatment stories (briefly mentioned above and described in detail below) than games 1 and 2. At the beginning of game 3 the "teacher" said, "Now you are going to play a game where the two of you go on a picnic. Do you know what a picnic is?" Once it was ascertained that they both knew what a picnic was, the "teacher" handed them a bag containing props for a picnic (e.g., plastic bowls, cups, knives, forks, spoons, apples, etc.) and said, "Now you two go on a picnic and let's pretend that the carpet is a field of green grass." Scoring was carried out on a 15-second interval basis. That is, one or more behaviours (e.g., hugging, patting,

stroking, punching, etc., and verbal appreciation) was marked as having occurred if at least one instance of them was observed within the 15-second interval of observation. The non-occurrence of any particular behaviour was also marked. The latter avoided any differential cuing or reinforcement of the children's behaviour through differential scoring activity by the observer(s). Each dyad was observed for 8 consecutive 15-second intervals (total of 2 minutes). To signal the observer(s) that the 15-second interval had expired and that behaviours needed to be scored if they occurred, each observer was outfitted with an ear phone that sounded a tone at the end of the interval.

Game 4 (Dish Washing) utilized the same scoring procedure as game 3, but involved a different setting event. The "teacher" led the children over to the play kitchen area that contained a play sink (no water was used), a drain board, and a table with 4 complete place settings on it. The "teacher" then said, "In this game, you are to pretend to wash all the dishes, then put them here (pointing to the drain board) to dry, and then put them back on the table." Again, the dyad was observed for 2 consecutive minutes (8 interval measurements).

In game 5 (Dog Play) the children were introduced to a stuffed dog. The children were seated and the "teacher" explained, "This friendly doggy is going to help you. When

you ask him to bring you something he will." Each child was asked to remove one of their slippers. The "teacher" then placed the slipper of one of the children in the middle of the room and instructed the child whose slipper was taken, "Ask the nice doggy to bring it to you. Say please help me." After the child made the request, the "teacher" manipulated the dog, making it run to the slipper, barking, jumping, retrieving the slipper and bringing it to the child. The response of the child to the helping dog upon receiving the slipper was scored for verbal appreciation and physical affection. As in games 1 and 2, if an affectionate response was observed, the child was praised. This constituted trial 1 for the first child. The second child then engaged the dog in the same manner. Each child then had 3 more opportunities (trials) to ask the dog to bring them some item found in the room. Therefore, dog play involved 4 trials for each child.

To summarize, games 1 and 2 consisted of 6 trials each and the response of the requester of help, upon receiving it, to the renderer was scored for the presence of verbal appreciation and physical affection. Because the measures in games 1 and 2 were identical but for the nature of the games, the 6 trials in each game were combined to form a total possible score of 12 (i.e., total number of trials across both games 1 and 2). This measure is referred to as Helping Play. Games 3 and 4 were each comprised of eight

15-sec measurement intervals. The 16 measurement intervals that occurred across games 3 and 4 were combined to form a measure called Unstructured Play (i.e., total possible score was out of 16). Finally, for Dog Play, a score on the four trials (i.e., number of trials that the behaviours were observed) was derived (Game 5).

Pretreatment baseline measurement was carried out on a single day for the following 2 reasons: 1) pilot research, described above, indicated that familiarity and the passage of time would not bring about an increase in interpersonal affectionate behaviours and 2) repeated measurements during a multiple-baseline across subjects procedure could result in the children learning behaviours that would be incompatible with the later opportunity to engage in affectionate-like behaviours. For example, if the children repeatedly played one of our baseline games (described below) and did not engage in affectionate play (as was observed in the pilot study), they could learn play behaviours devoid of interpeer affection because the "teacher", by not giving any reaction, could be giving implicit approval to the nature of the children's play. When these same games were then used in posttreatment baseline, the probability would be reduced that affection, learned during the treatment phase and under different conditions, would generalize to these same baseline games.

### Prompt Fading Treatment Phase

Before the fading procedure commenced, one child of each dyad was randomly designated the Requester (i.e., one who requests help). The other child served as the Renderer (i.e., one who renders help). The "teacher" explained to the children that he would read a story and the children would act out segments of the story.

Six common children's stories were altered to include occurrences of one character requesting aid from a second character, the second character rendering the help, and finally the Requester showing appreciation to the Renderer verbally and physically (e.g., "thank you" and a pat). The number of "Requesting Help Interactions" per story varied from 6 to 9 instances. One example of a "Requesting Help Interaction" is shown in Table 2. As detailed in Table 2, the "teacher" prompted the children 3 times. The focus in the present study was the last prompt (e.g., "Now you say 'Thank you' and give her/him a gentle stroke on the back.; see Table 2). A stimulus fading procedure was instituted to fade that prompt in such a way that the affectionate behaviour would eventually come under the stimulus control of the act of helping alone, with no prompting by the "teacher."

Throughout the fading procedure, the children remained in their designated roles. However, just as in the Pretreatment and Posttreatment Baselines, they alternately

Table 2

A "Requesting Help Interaction" in the Adapted Version of Heidi

And of course there was Clara herself, pretty and sweet, but so pale and frail, and unable to walk or stand. Clara said, "I'm cold and I would like a blanket. Please help me."

"Teacher" to one of the children (the Requester), "Now you say, Please help me." (prompt #1)

After the child repeated the request, the "teacher" said to the second child (the Renderer), "Now you go and get a blanket (there was one available in the room) and hand it to Clara." (prompt #2)

Once the Renderer handed the blanket to the Requester, the "teacher" said to the Requester, with the accompanying gesticulations and eye movements, "Now you say 'Thank you' and give her/him a gentle stroke on the back." (prompt #3)

After the affectionate response was performed, the "teacher" praised the Requester. That is, praise was contingent upon performance of an affectionate response.

played the Requester during the generalization probe measurements (described below). As a result, only one child of each dyad (the Requester) was trained through the use of the fading procedure. The Renderer could, of course, observe the training of the Requester. This design allowed a rudimentary investigation of the effect of the Requester's affectionate-like modelling, throughout the fading procedure, on the Renderer's responses during the generalization probe measurements and baseline conditions.

The fading proceeded in the following manner for the example shown in Table 2. Initially, the prompt was "Now you say 'Thank you' and give her/him a gentle stroke on the back," and the "teacher"'s accompanying gesticulations and eye movements. The prompt was then reduced by omitting the first word (i.e., Now). If that prompt still evoked the appropriate response on subsequent occasions, then the prompt was further reduced by omitting the first two words (i.e., Now you). Gradually, the prompt was reduced until the target stimuli that remained were the "teacher" reading the story and prompting the Requester to ask for help. Because this study was not concerned with whether the prompt for requesting help (i.e., prompt #1 in Table 2) came to evoke the helping response, the "teacher", when it was necessary (e.g., after ten seconds in which no request for help or no help itself was initiated), also prompted the helping response (i.e., prompt #2 in Table 2).

Therefore, the target stimuli that assumed control over the affectionate responses could be the "teacher" prompting the Requester to ask for help, the actual request and, when needed, also prompting the Renderer to give the help, as well as the actual giving of it. Once the unprompted physical affectionate behaviour to the giving of help was observed consistently, the children entered the posttreatment phase, to be described.

As noted above, each helping interaction involved a request for help and help being rendered. The "teacher" then allowed a 2-sec delay before prompting the Requester to perform the verbal appreciative and physical affectionate responses. If a physical affectionate response was observed before the prompt, then it was scored as an UNPROMPTED AFFECTIONATE RESPONSE and the "teacher" praised the Requester. However, if the response failed to appear after the 2-sec delay, the prompt was given by the "teacher" and scored as a prompted trial. Again, the Requester was praised for performing the affectionate response.

During this Prompt Fading Treatment Phase, every third "Requesting Help Interaction" was a generalization probe measurement. Tests for unreinforced, generalized, interpeer physical affection were made by means of these generalized probes. A generalization probe measurement consisted of the request of help (prompted or not) and the

help being given (prompted or not). However, no prompt was given to the Requester to perform the affectionate response. That is, only the target stimuli (i.e., being helped by the Renderer) were presented. Note that as the prompt for affection was faded, the generalization probe measurement and the "Requesting Help Interaction" became gradually identical. If an affectionate response was observed during a generalization probe measurement, it was also scored as an unprompted affectionate response and the Requester was praised. But, if no affectionate response was observed, the "teacher" continued reading the story. The children were alternated on each successive generalization probe measurement. As mentioned above, this design allowed a rudimentary comparison of the performance of the child who gave the affection and the one who received and viewed it ("observational learning").

To summarize: through the use of a procedure which consisted of stimulus fading, modelling, role playing and reinforcement, the Requester of each dyad was trained to perform an unprompted physical affectionate response to a child who has rendered her/him help. Measurement during this phase was the percentage of trials in which an unprompted affectionate response occurred. Each "Requesting Help Interaction," whether a generalization probe measurement or an interaction scheduled to be prompted was considered a trial. Once the unprompted,

interpeer, physical affectionate behaviour to the giving of help was observed consistently (two days that the behaviour occurred on 100% of the trials), the children entered the posttreatment phase.

#### Posttreatment Baseline

The posttreatment baseline procedure was identical to that used during the pretreatment baseline. The children played the same 5 games and again responses were scored for physical affection and the presence of verbal appreciation.

#### Reliability

To ensure reliable interobserver scoring, explicit scoring rules for affectionate responses were established. Table 1 summarizes the definitions used.

In addition to the "teacher", one male adult served as an observer to obtain interobserver reliability measures. Unknown to the children, the observer scored the behaviours from outside the room through a window. Consequently, the observer scored the behaviours independently from the "teacher" and was "blind" to the experimental condition that was in effect. Reliability checks occurred in all three phases of the experiment (i.e., pretreatment baseline, prompt fading treatment and posttreatment baseline) and approximately once every 15 sessions. Reliability was calculated by taking the number of

agreements divided by the sum of agreements plus disagreements. Mean reliability was 100% as it was extremely clear to both observers when a response occurred.

## Results and Discussion

The present findings differ on the measures of peer-directed affection and dog-directed affection. Therefore, each is described separately before contrasting them.

### Pretreatment Baseline

As was expected from the results of the pilot study, no interpeer physical affection was observed during the pretreatment baseline phase (see Table 3). In addition, as described above, any verbal forms of "thank you" were noted to test the possibility that verbal appreciative behaviours (i.e., non-physical contact) would increase in frequency. As shown in Table 3, no incidences of interpeer "thank yous" were observed.

The Pretreatment Baseline results were somewhat different when the dog was made the recipient of the affection (Dog Play). Each of three children performed one physical affectionate response to the dog (see Table 3). In addition, five children said "thank you" to the dog (two of these five children had also performed a physical affectionate response to the dog; see Table 3). Four of the children said "thank you" once (1 out 4 trials) and the fifth child said "thank you" on two of the four trials.

TABLE 3

Number of Children who Performed Physical Affectionate Responses and Verbal Appreciative Responses During the Pretreatment Baseline

		<u>Response</u>	
<u>Interpeer Physical</u>	<u>Interpeer "Thank You"</u>	<u>Dog-Directed Physical</u>	<u>Dog-Directed "Thank You"</u>
(n = 18)			
0	0	3	5

As summarized in Table 3, the findings of the pretreatment baseline indicate that no interpeer physical affection or verbal appreciation were observed. In contrast, when a dog was made the recipient of the affection, 3 of the children performed a physical affectionate response and 5 children responded with a "thank you."

#### Attrition

One boy Renderer refused to continue after just two sessions in the next phase (i.e., Fading Treatment). One of two girls, being the only children remaining in the subject pool, was randomly picked as a Renderer to complete the dyad. Because no Pretreatment Baseline could now be obtained on this replacement, data on nine Requesters and eight Renderers will be reported for the remainder of the studies.

#### Fading Treatment Phase and Posttreatment Baseline

Physical affection data for all nine Requesters are presented in Figures 1 through 5. As may be observed there, subjects D.M., L.K., H.M., D.A., C.M., and S.K. all showed unprompted physical affectionate responses during the Prompt Fading treatment. The remaining three subjects had their Prompt Fading treatment interrupted by an

FIGURE 1

Percentage of Trials on which D.M. Performed Physical Affection in Experiment 1

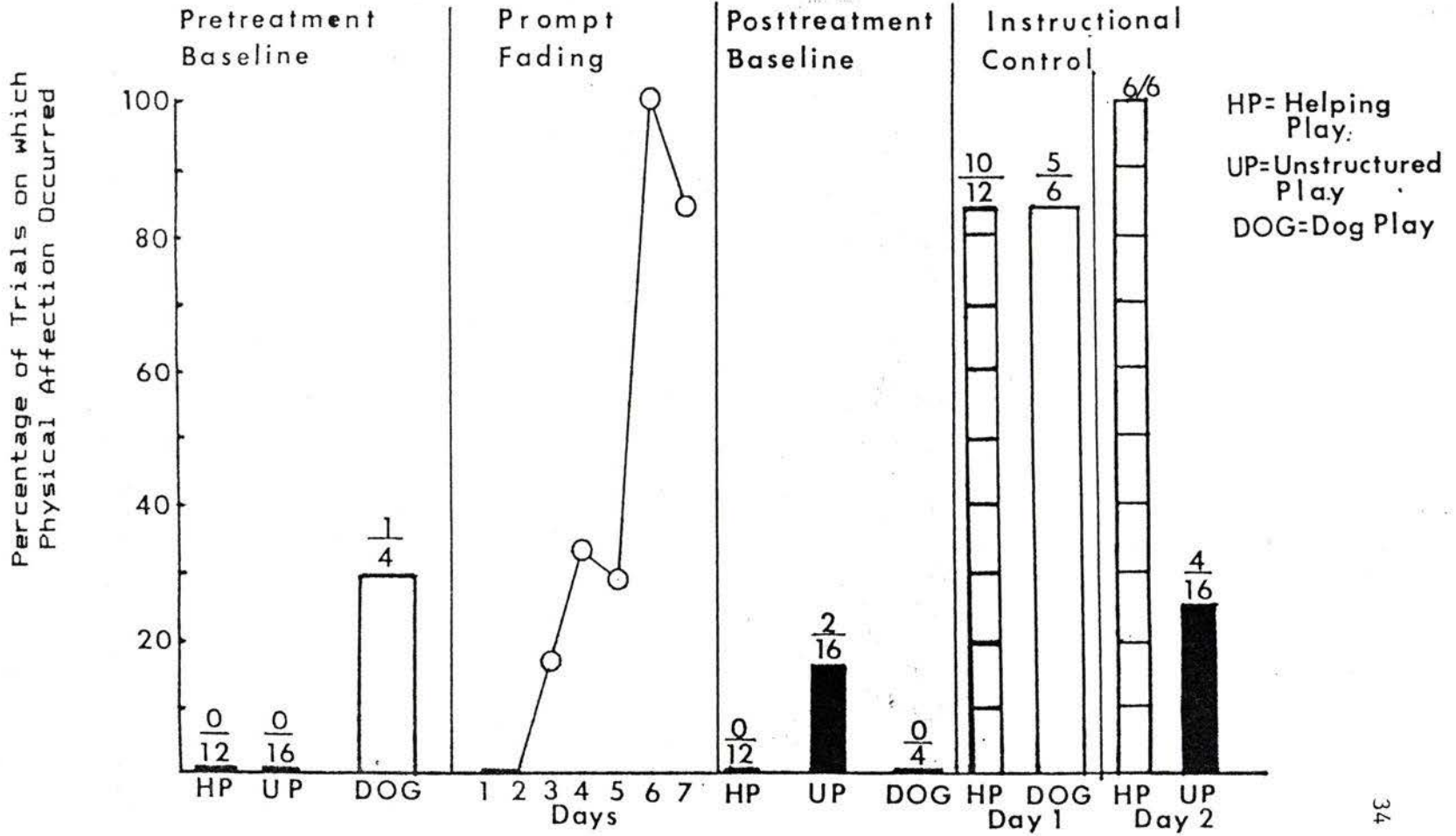
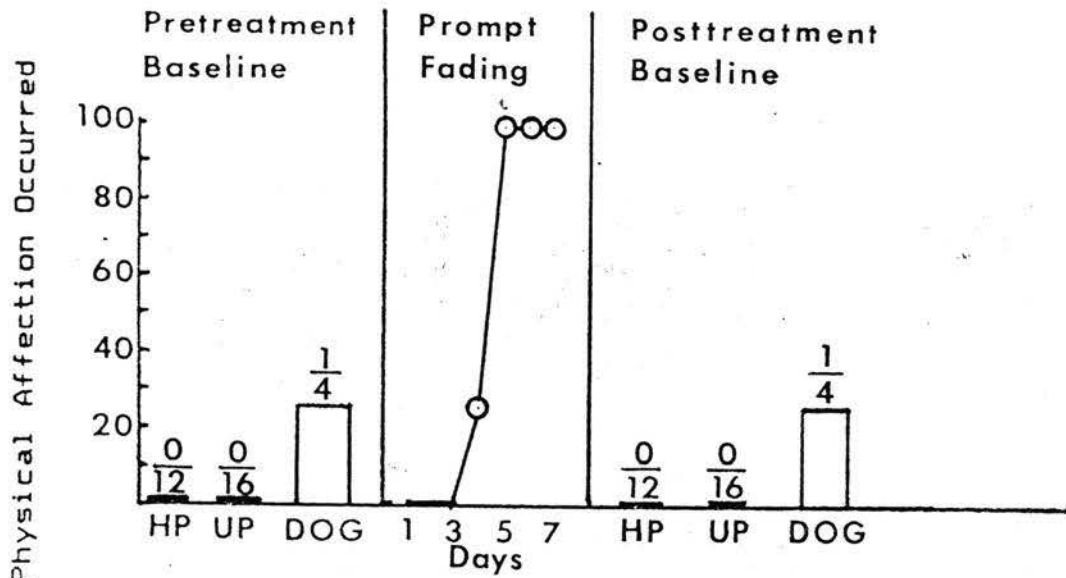


FIGURE 2

Percentage of Trials on which L.K. and H.M. Performed Physical Affection in Experiment 1

HP=Helping Play  
UP=Unstructured Play  
DOG=Dog Play

L.K.



H.M.

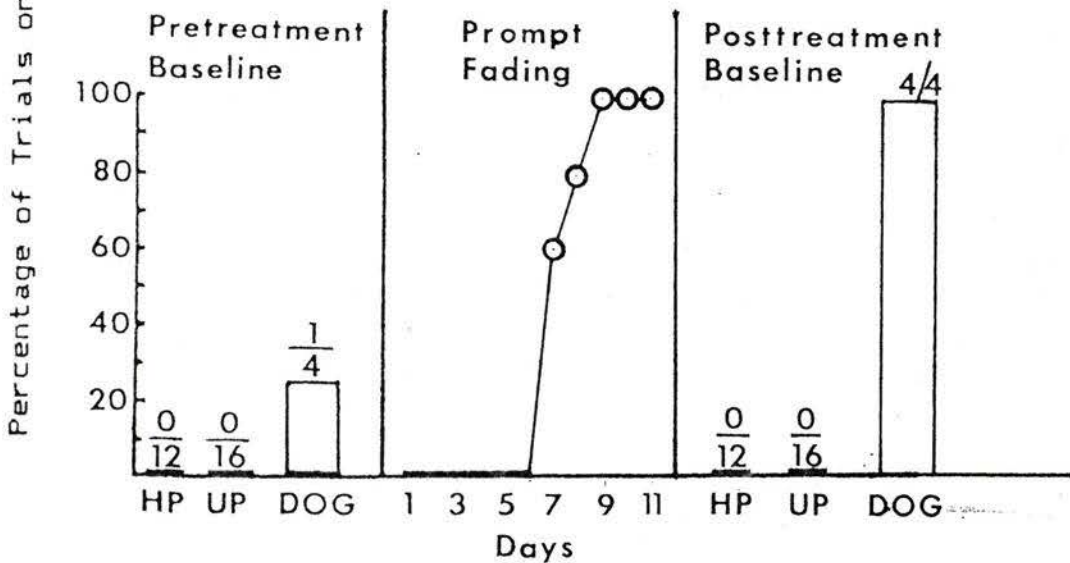
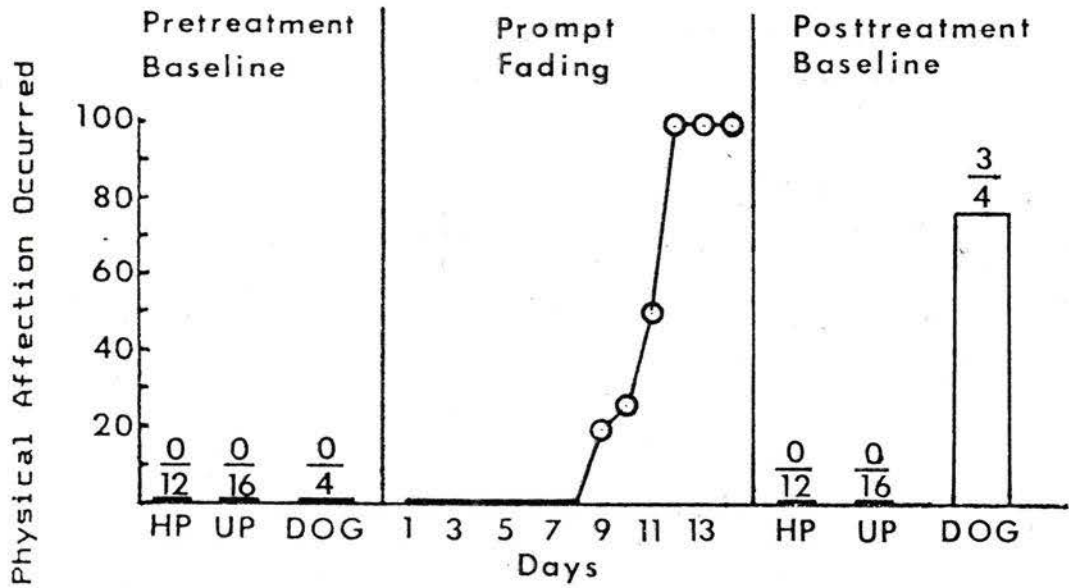


FIGURE 3

Percentage of Trials on which D.A. and C.M. Performed Physical Affection in Experiment 1

HP=Helping Play  
UP=Unstructured Play  
DOG=Dog Play

D.A.



C.M.

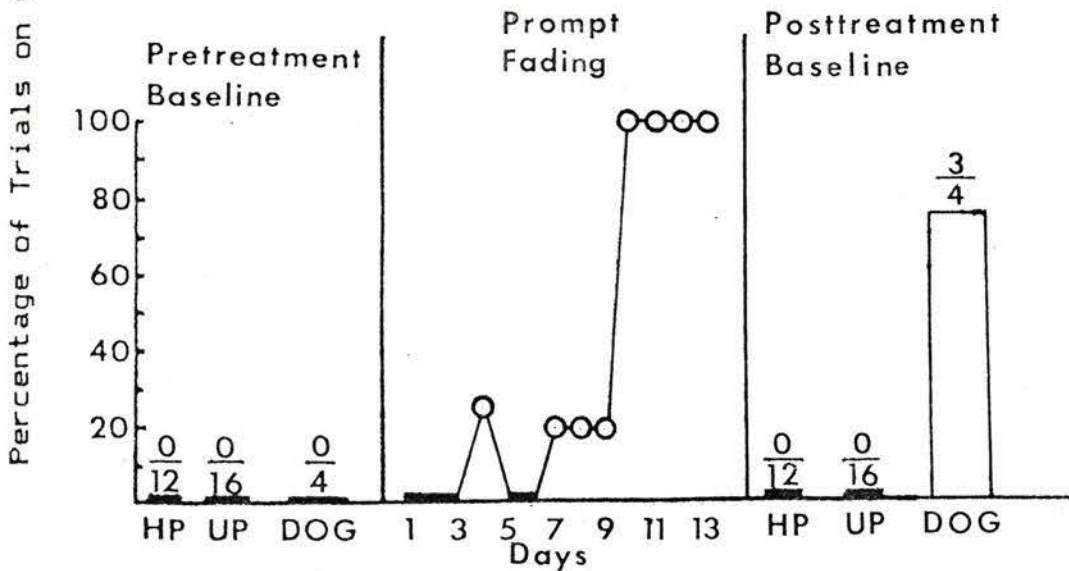
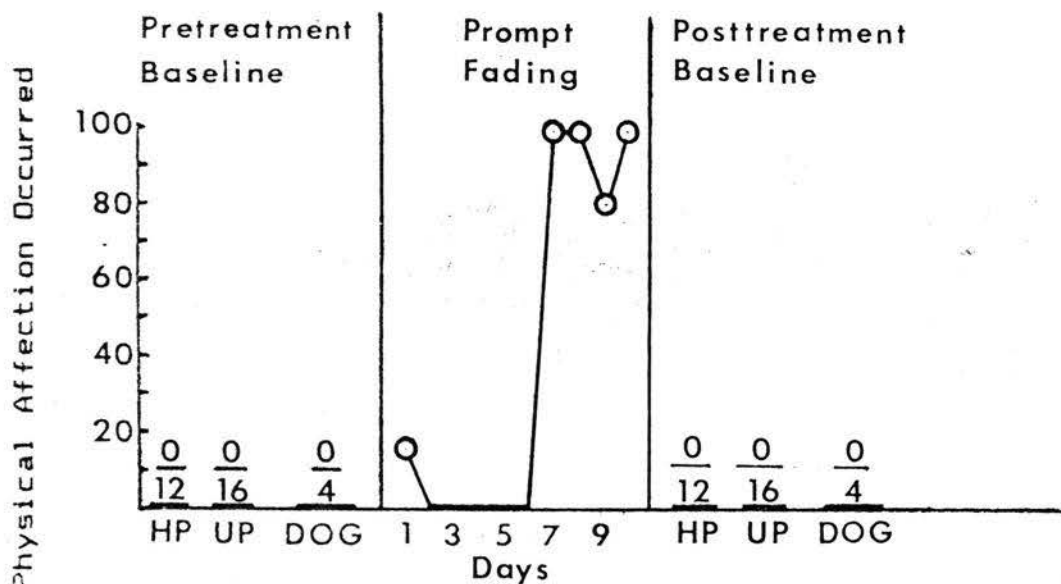


FIGURE 4

Percentage of Trials on which S.K. and M.A. Performed Physical Affection in Experiment 1

HP=Helping Play  
UP=Unstructured Play  
DOG=Dog Play

S.K.



M.A.

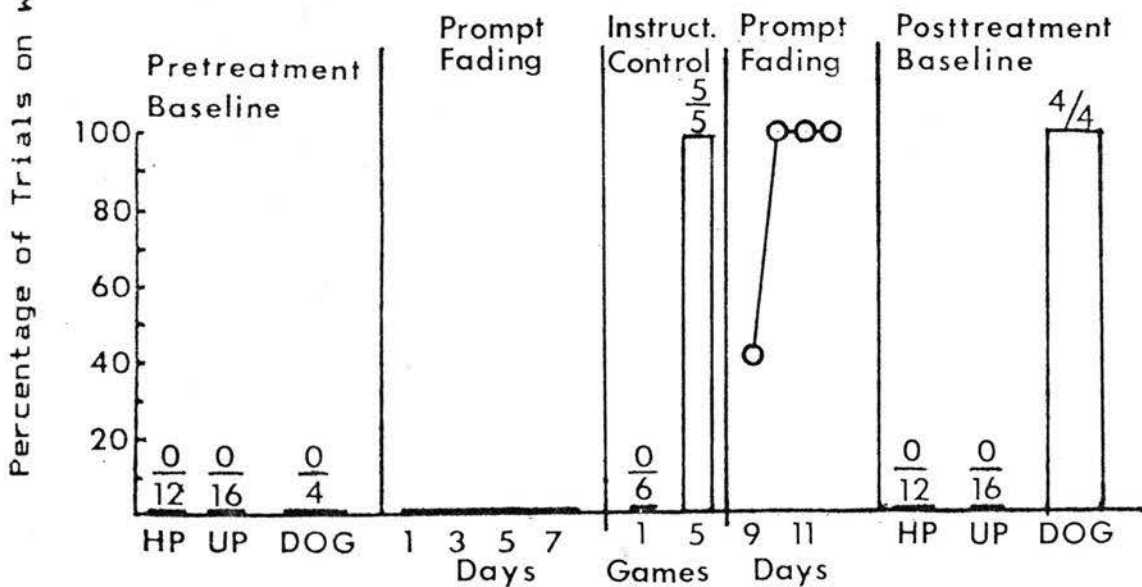
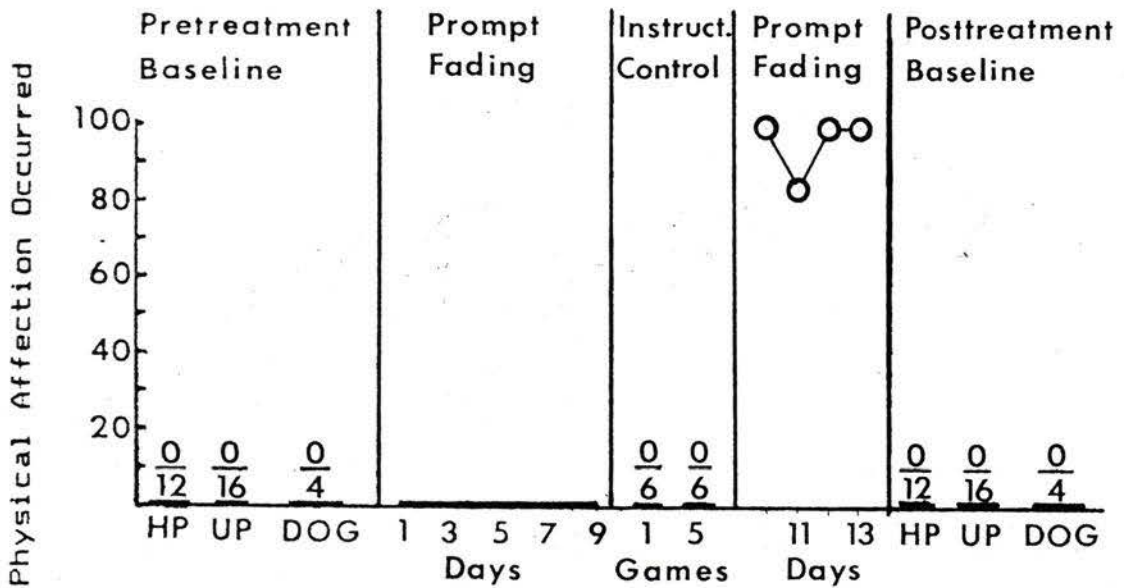


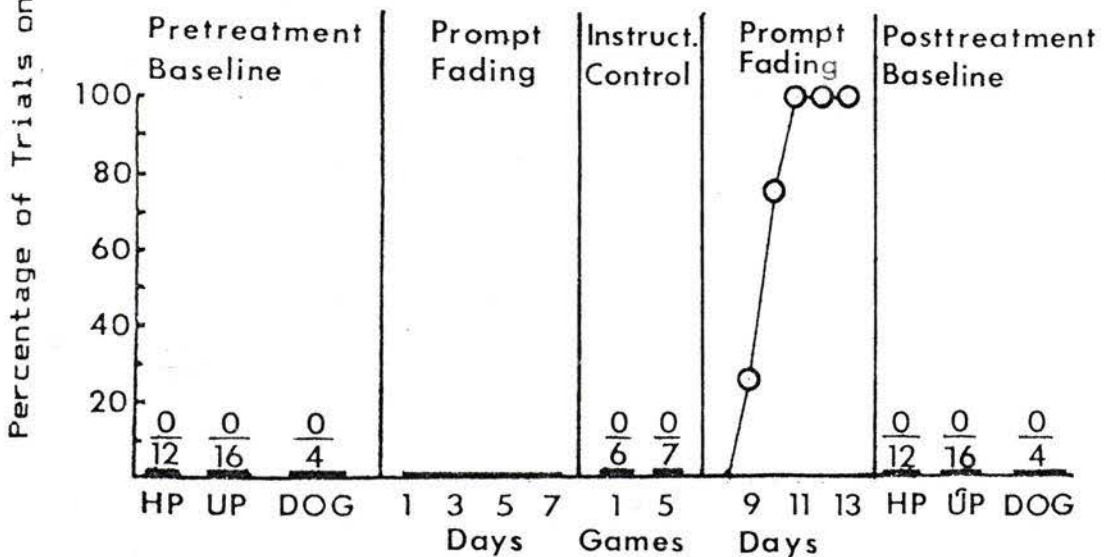
FIGURE 5  
 Percentage of Trials on which M.K. and N.R. Performed  
 Physical Affection in Experiment 1

HP=Helping Play  
 UP=Unstructured Play  
 DOG=Dog Play

M.K.



N.R.



additional intervention (Instructional Control Procedure) to be discussed below. Because the nature, duration, and/or timing of experimental phases differed across subjects, the remainder of the results, together with elaboration of further treatment interventions, will be discussed on an individual subject or subject-subgroup basis.

To assess whether affection generated in the Prompt Fading story sessions would generalize to the baseline conditions of game-playing, a Posttreatment Baseline was instituted.

The first child to enter the posttreatment baseline phase was D.M. She was the only child in the study to display any interpeer physical affection during the posttreatment baseline phase. As shown in Figure 1, the affection occurred on 2 of 16 trials during Unstructured Play.

As shown in Table 4, on posttreatment measures D.M. increased her frequency of interpeer and dog-directed "thank yous." Interpeer and dog-directed responses increased from zero (out of 12 trials during Helping Play) and one occurrence (out of four trials in Dog Play) during pretreatment baseline to eight and four occurrences during posttreatment baseline, respectively. In contrast, she decreased her physical affectionate responses to the dog from one (out of four trials) to zero. These results

TABLE 4

Number of Physical Affectionate Responses and Verbal Appreciative Responses D.M. Performed

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	1	1
Baseline	(28)			(4)
Posttreatment	2	8	0	4
Baseline	(28)			(4)
Instructional Control Procedure				
Helping Play (12)	10	10	N/A	N/A
Dog Play (6)	N/A	N/A	5	5
Retest				
Helping Play (6)	6	6	N/A	N/A
Unstructured Play (16)	4	0	N/A	N/A

Note. The values in parentheses represent the number of trials. TY = Thank Yous; N/A = Not Applicable.

suggested that the "thank yous" did not come to serve as SDs (discriminative stimuli) for the physical affectionate responses. Consequently, an Instructional Control Procedure was developed to make "thank you" a reliable SD for the physical responses and it will now be described.

#### Instructional Control Procedure

This procedure was comprised of two games with the children remaining in the roles that they had in the Fading Treatment Phase (i.e., Requesters and Renderers). Game 1 consisted of 6 trials in which the Requester was instructed to say, "Please help me," and the Renderer gave him/her a toy. On each trial, if the Requester failed to say "thank you" and perform an unprompted physical affectionate response directed to the Renderer, the experimenter prompted both responses, praised the Requester after their performance, and gave the instruction, "I want you to remember that every time you say thank you, give a pat, a hug or a stroke." If the Requester said "thank you" only, the experimenter prompted the physical affectionate response, praised the Requester, and gave the same instruction. If both responses were observed, the experimenter praised the Requester, and again gave the same instruction.

Game 2 was identical to game 1 except that the stuffed

dog, again manipulated by the experimenter, gave him/her a toy. As in Game 1, the Requester was prompted, if necessary, to say "thank you" and to perform a physical affectionate response to the dog. The latter training game was identical to the Dog Play measure except for the toys that were retrieved by the dog and the section of the room that was used. After these two training games, Helping Play and Dog Play measurements were once again obtained.

As shown in Figure 1 and Table 4, after the Instructional Control Procedure, D.M. performed 10 interpeer physical affectionate responses during Helping Play (zero responses during pretreatment and posttreatment Helping Play, see above). In addition, she slightly increased her "thank yous" from 8 (during posttreatment) to 10 (see Table 4).

Similarly, D.M.'s frequency of dog-directed physical affectionate responses (Dog Play) increased from zero on posttreatment measures to five responses after the instructional procedure (see Figure 1 and Table 4). As shown in Table 4, her frequency of dog-directed "thank yous" remained at a very high level.

Two days later Helping Play and Unstructured Play were carried out with D.M. Helping Play was replayed for the following reasons. First, it tested the durability of the response since the last session. Second, it served as a baseline from which generalization to a less structured

situation (i.e., from the highly structured Helping Play to the less structured Unstructured Play) could be assessed. As shown in Table 4, the responses were quite durable as H.M. performed six interpeer physical affectionate responses and six interpeer "thank yous" during Helping Play. In addition, she displayed some generalization to Unstructured Play by performing four interpeer physical affectionate responses.

To summarize, during Posttreatment Baseline, D.M. showed very little physical affection directed to her peer and to the dog, but increased the frequency of her "thank yous" to both. These results led to the development of a procedure (Instructional Control Procedure) to make "thank you" a more reliable SD for the physical responses. After this procedure, physical affection directed to the child Renderer and to the dog were greatly increased.

#### Is the Complete Fading Progression Necessary?

The performance of D.M. after the Instructional Control Procedure led to the question of what experimental procedures (Fading Treatment and/or Instructional Control Procedure) were necessary to produce these results. One explanation is that the Fading Treatment was not necessary and that the Instructional Control Procedure alone produced the findings. A second explanation would be that once unprompted interpeer physical affection was achieved during

the fading progression, it interacted with the instructional procedure to produce the present results. Conversely, if one introduced the Instructional Control Procedure before the Fading Treatment produced unprompted interpeer physical affection, these results might not be replicated.

To test these hypotheses, the fading progression of three children (M.A., M.K., & N.R.), who had not shown any unprompted interpeer physical affection during the stories of the Fading Treatment, was interrupted. The children had received 47, 41, and 51 fading trials, respectively

As shown in Figures 4 and 5, after the Instructional Control Procedure was instituted, none of the three Requesters increased their frequency of interpeer physical affectionate responses. In addition, no interpeer "thank yous" were observed. With respect to dog-directed physical affectionate responses, two of the three Requesters (M.K. & N.R.) showed no increase in physical affection, but M.A. showed a large increase (see Table 5 and Figure 4). As shown in Table 5, the frequency of N.R.'s "thank yous" did not change, M.K.'s increased (i.e., zero occurrences to one occurrence) and M.A.'s decreased (from two occurrences to one occurrence).

To summarize, a simple investigation of the necessity of the entire fading progression to produce a high frequency of interpeer physical affection was carried out.

TABLE 5

Number of Dog-directed Physical Affectionate and Verbal Appreciative Responses Performed by the Children Whose Fading was Interrupted

Condition	Child	Response	
		Dog-Directed Physical	Dog-Directed Thank You
Pretreatment Baseline (4)	N.R.	0	0
Instructional Control Procedure			
Dog Play (6)		0	0
Pretreatment Baseline (4)	M.K.	0	0
Instructional Control Procedure			
Dog Play (6)		0	1
Pretreatment Baseline (4)	M.A.	0	2
Instructional Control Procedure			
Dog Play (5)		5	1

Note. The values in parentheses represent the number of trials.

With three of the dyads, the Fading Treatment was replaced by the Instructional Control Procedure before unprompted physical interpeer affection was observed. The findings indicate that while physical affection to the dog was increased in one of three dyads, the frequencies of interpeer physical affection and interpeer verbal appreciative responses were not altered with any of the dyads. The frequency of dog-directed "thank yous" was unchanged in one dyad, increased in a second, and reduced in a third. These results--obtained with M.A., M.K., and N.R.--in conjunction with those obtained with D.M. suggest that it may have been an interaction of the completed Fading Treatment and the Instructional Control Procedure which led to D.M.'s increase in her frequency of interpeer physical affectionate responses.

#### Return to Fading

After the Instructional Control Procedure, the three dyads' fading progression was continued from the point of interruption. For two Requesters (i.e., M.A. and N.R), the pattern and the number of trials in their fading progression was very similar to those of the six Requesters who did not have their fading interrupted (see Figures 1, 2, 3, 4, and 5). As shown in Figures 1, 2, 3, 4, and 5, only M.K. had a different fading pattern from the other eight Requesters (i.e., the six who did not have their

fading interrupted and the two who did). As mentioned above, M.K. did not perform an interpeer physical affectionate response or a "thank you" during Pretreatment Baseline nor during the Helping Play which followed the Instructional Control Procedure. However, on the first day that fading was reinstated, he performed unprompted interpeer physical affectionate responses on 8 out of 8 trials and interpeer "thank yous" on 7 out of 8 trials. This "all or nothing" pattern was not observed with any of the other children.

To summarize, a clear statement regarding the effect of the Instructional Control Procedure on the subsequent return to fading cannot be made. A more systematic investigation of the role played by the Instructional Control Procedure on subsequent fading should be addressed in future research.

#### Posttreatment Baseline for the Remaining Eight Requesters

Previous sections reported the posttreatment baseline results of one Requester--D.M. As described above, during the Posttreatment Baseline she showed very little interpeer physical affection and no dog-directed physical affection, but greatly increased her frequency of "thank yous" to both. The present section will review the findings for the remaining eight Requesters.

With the eight remaining Requesters, interpeer physical

affection did not occur in the Posttreatment Baseline. In contrast, the frequency of interpeer verbal appreciation showed some increase in Posttreatment Baseline (see Table 6) as compared to Pretreatment Baseline (see Table 3).

There were no occurrences of interpeer physical affectionate behaviour for any of the eight Requesters during Helping and Unstructured Play. With regard to the frequency of interpeer "thank yous", four Requesters showed an increase (see Table 6) and all "thank yous" were observed during Helping Play. As shown in Table 6, two Requesters showed an increase from zero occurrences during Pretreatment Baseline to one occurrence during Posttreatment Baseline; one Requester increased from zero to four; and one Requester increased from zero to six.

Dog-directed physical affection was more frequent as compared to interpeer physical affection. Four of the eight Requesters showed increases in the frequency of dog-directed physical affection from pretreatment measures to posttreatment measures. As shown in Figures 1, 2, 3, 4, and 5, on the four trials of Dog Play, three Requesters increased their frequency by three responses (D.A., C.M. and H.M.) and one increased it by four (M.A.). However, M.A. had already shown this large increase when fading was interrupted and the Instructional Control Procedure was implemented.

As in the case of the superiority of dog-directed

TABLE 6

Number of Interpeer Thank Yous Performed During Helping Play of Pretreatment and Posttreatment Baselines

Condition	Child	Interpeer Thank You
Pretreatment Baseline (12)	M.A.	0
Posttreatment Baseline (12)		1
Pretreatment Baseline	S.K.	0
Posttreatment Baseline		1
Pretreatment Baseline	C.M.	0
Posttreatment Baseline		4
Pretreatment Baseline	H.M.	0
Posttreatment Baseline		6

Note. Values in parentheses represent the number of trials.

physical affection compared to interpeer physical affection, dog-directed "thank yous" also occurred more frequently than interpeer "thank yous." H.M. and C.M., who showed increases in dog-directed physical affection during the four trials of Dog-Play (see above and Figures 2 and 3), also increased their frequency of "thank yous" (see Table 7). As shown in Table 7, there were two other children ( M.K. and S.K.) who increased their frequencies of "thank yous."

To summarize, during the Posttreatment Baseline, none of the eight Requesters (i.e., this excludes D.M.) performed any interpeer physical affectionate responses. In contrast, four Requesters increased their frequencies of interpeer verbal appreciative responses. With regard to dog-directed behaviours, four of the eight Requesters increased their frequency of physical affectionate responses. Similarly, four of the eight Requesters increased their frequency of "thank yous."

#### Requesters' Stimulus Generalization

In the present study, one may conceptualize stimulus generalization along two stimulus gradients. The first gradient involves the contextual stimuli present during Fading Treatment and those present during the Posttreatment Baseline (henceforth referred to as Stimulus Context

TABLE 7

Number of Dog-directed Thank Yous Performed During  
Pretreatment and Posttreatment Baselines

Condition	Child	Dog-Directed Thank You
Pretreatment Baseline (4)	C.M.	0
Posttreatment Baseline (4)		2
Pretreatment Baseline	H.M.	1
Posttreatment Baseline		4
Pretreatment Baseline	M.K.	0
Posttreatment Baseline		2
Pretreatment Baseline	S.K.	1
Posttreatment Baseline		2

Note. Values in parentheses represent the number of trials.

Generalization). In other words, when an affectionate response was praised during the Fading Treatment context, was it now observed in the Posttreatment Baseline context? The second stimulus gradient involves the object of the affection (henceforth referred to as Stimulus Object Generalization). That is, if the Requester has shown interpeer verbal appreciation and has been praised for its performance during the Posttreatment Baseline, does the Requester now generalize this response to another object of affection (i.e., the toy dog)? The results indicate that stimulus generalization was observed along both stimulus gradients (i.e., contextual and object), but not for all responses (i.e., physical and verbal).

The findings involving Stimulus Context Generalization will be reviewed first. When interpeer physical affectionate responses are considered, stimulus generalization was not observed except for the first Requester, D.M. That is, although the interpeer physical affectionate response was present in the Fading Treatment context, when the context was altered in the Posttreatment Baseline (i.e., story reading was replaced by the baseline games) the response was no longer performed by eight of the Requesters (D.M. being the only exception). In contrast, five of the Requesters (M.A., C.M., D.M., S.K., and H.M.) showed generalization of the interpeer verbal appreciative

response from the fading context to the posttreatment context. These results suggest that although both the physical affectionate response and the verbal appreciative response were trained in the same manner and occurred as often in the Fading Treatment, the children showed reluctance to perform the physical affectionate response in a different contextual setting.

When Stimulus Object Generalization is considered, the results indicate that four of the Requesters showed generalization along this gradient. C.M., D.M., S.K., and H.M. increased their frequency of interpeer and dog-directed verbal appreciative responses. In addition, these four Requesters increased their frequency of dog-directed physical affectionate responses. The reluctance to perform physical affectionate responses observed when the peer was the object of the affection was not present when the dog was the object of the affection.

To summarize, both Stimulus Context Generalization and Stimulus Object Generalization were observed. However, the generalization across contexts involved only interpeer verbal appreciation responses. In contrast, Stimulus Object Generalization involved both physical affection and verbal appreciation being generalized from the training with the peer to their performance directed to the dog. It seems to be the special combination of physical affection directed to another child which creates the condition in

which the children are especially reluctant to perform.

### Effects of Peer Modelling

A rudimentary investigation of the effect of the Requesters' modelling on the Renderer (i.e., partner) was carried out and will now be briefly discussed. Table 8 lists the pairs of children and their designated roles (i.e., Requester and his/her Renderer). As shown in Table 9, the Renderers performed interpeer verbal appreciative responses, dog-directed physical affectionate responses, and dog-directed verbal appreciative responses during the Posttreatment Baseline.

As described above, the Fading Treatment included generalization probes with the children alternately playing the Requester. During these probes, the children who were trained as Requesters performed interpeer physical affectionate responses by the conclusion of the Fading Treatment. However, the Renderers (i.e., when they alternated and became the Requester) failed to show any interpeer physical affectionate responses or verbal appreciative responses during the generalization probes (i.e., the Renderers were apparently unaffected by modelling from their partner).

During Posttreatment Baseline, the Renderers' pattern of results was similar to that of the Requesters' in that both performed more physical affectionate responses and

Table 8

Requester and Renderer PairingsRequesterRenderer

L.K. (female)

S.S. (male)

H.M. (male)

A.L. (female)

S.K. (female)

W.A. (male)

D.A. (female)

B.J. (male)

C.M. (male)

M.M. (female)

N.R. (male)

F.S. (female)

M.K. (male)

S.J. (female)

M.A. (male)

V.K. (female)

D.M. (female)

replaced

Table 9

Effect of Peer Modelling

Requester	Behaviours that Increased in Freq.	Renderer	Behaviours that Increased in Freq.
L.K.		S.S.	DT
H.M.	IT DP DT	A.L.	DT
S.K.	IT DT	W.A.	DP
D.A.	DP	B.J.	DP
C.M.	IT DP DT	M.M.	IT DP DT
N.R.		F.S.	
M.K.	DT	S.J.	DT
M.A.	IT DP	V.K.	IT DP

Note. Freq. = Frequency; IT = interpeer "thank you"; DP = dog-directed physical affection; DT = dog-directed "thank yous."

verbal appreciative responses to the dog than to their peers. For both groups (i.e., Requesters and Renderers) peer directed behaviours were in the form of "pleasant" verbal behaviours (i.e., "thank yous") and not physical affection. As shown in Table 9, two of eight Renderers increased their frequency of interpeer "thank yous," four of the eight increased their frequency of dog-directed physical affection, and four of the eight increased their frequency of dog-directed "thank yous."

As shown in Table 9, the Renderers (in Posttreatment Baseline) tended to perform the type of response that his/her Requester performed. For example, Requester M.A. and his Renderer partner V.K., increased their frequency of interpeer "thank yous" and dog-directed physical affection, but neither increased their frequency of dog-directed "thank yous" (see Table 9). However, to assert that a causal relationship existed between the Requesters' behaviour and that of the Renderers' and to term the Renderers' behaviour as "imitative," one would need to show that if the Requesters ceased performing their behaviours (e.g., saying "thank you"), then the Renderers would also cease performing those responses. Future research to systematically address this issue is needed.

## Summary and Conclusions

To summarize: all nine Requesters performed interpeer physical affectionate responses by the conclusion of the Fading Treatment. In contrast, none of the Renderers showed interpeer physical affection by its conclusion. However, such behaviours were observed with only one Requester, D.M., during the Posttreatment Baseline and these occurred on only 2 of 28 trials. The frequency of interpeer "thank yous" was increased in five of the nine Requesters and with two of the eight Renderers.

The pattern of results of dog-directed behaviours is quite different from the peer-directed response pattern. Four of the nine Requesters and four of the eight Renderers showed increases from Pretreatment Baseline to Posttreatment Baseline in dog-directed physical affection. In addition, the frequency of dog-directed "thank yous" was increased in four Requesters and four Renderers.

A number of interesting observations are apparent when the interpeer and dog-directed data of the Requesters are contrasted. First, even though the Requesters had learned unprompted interpeer physical affectionate responses during the Fading Treatment, they did not display them during the posttreatment measurement sessions. Second, although interpeer physical affectionate responses did not occur, the likelihood of the children saying "thank you" to a peer

was increased. Third, dog-directed physical affectionate responses increased in frequency from Pretreatment Baseline to Posttreatment Baseline and were, therefore, much more frequent than interpeer physical affectionate responses. The latter increases occurred in spite of dog-directed responses not being observed in pretreatment measures and not being trained during the Fading Treatment or any other part of the study. Fourth, the frequency of dog-directed physical affectionate responses, dog-directed "thank yous", and interpeer "thank yous" was approximately equal.

One question to be addressed is why the unprompted interpeer physical affectionate response that was observed during the Fading Treatment did not also appear during the posttreatment baseline measurement sessions. In other words, why did it not generalize from the Fading Treatment to the Posttreatment Baseline sessions? One explanation, is that the contextual cues that were present during the Fading Treatment were not present during the Posttreatment Baseline Phase. That is, although the two situations appeared highly similar, they were not similar enough in some key respect(s).

A second and related explanation for the lack of generalization from the Fading Treatment to posttreatment measures may involve the children's behavioural histories prior to the experiment. Perhaps their histories included punishment following the performance of an interpeer

physical affectionate response. The Posttreatment Baseline sessions, which were less structured than the Fading Treatment sessions, may have better approximated the child's everyday environment and thus brought into play more of his/her behavioural history.

A second question is how does interpeer physical affection differ functionally from dog-directed behaviours. In our society interpeer physical behaviours and toy-directed behaviours are under the control of different contingencies. A young child playing in a gentle and affectionate fashion with a stuffed animal (e.g., hugging his teddy bear) may be greatly encouraged and reinforced. Conversely, interpeer physical affection may not be encouraged and could often be punished. For example, one could easily imagine the following interaction: a young child in a department store walking up to a baby sitting in a stroller. As the child reaches for the baby, the mother grabs him/her and whisks the child away with an admonition that, "we shouldn't touch other people."

A third question is concerned with the apparent difference between interpeer physical affection and interpeer "thank yous". That is, what contingencies are responsible for the children learning to say "thank you" and not performing physical interpeer affection? The explanation may again involve our societal contingencies. "Thank you" is very similar to many other social amenities.

This response is under aversive control that "sets up extremely strong and lasting responses which persist without any obvious reinforcement" (Bijou & Baer, 1978, p. 78). Saying "thank you" does not get very much of a response (e.g., a polite "Your welcome"), but omitting it would (e.g., admonishment for not saying it). The contingency which may be involved in the "thank you" response is one of negative reinforcement; avoiding an aversive stimulus. In addition, the children's behavioural histories may contain interpeer physical affection resulting in punishment. Consequently, not performing a physical interpeer affectionate response also avoids an aversive stimulus. Therefore, saying "thank you" and not performing an interpeer physical affectionate response avoid aversive stimuli and are, by definition, negatively reinforced.

To summarize, interpeer physical affection was not facilitated during Posttreatment Baseline measures. However, interpeer "thank yous," dog-directed physical affection and dog-directed "thank yous" increased in frequency. A number of hypotheses were described to explain these results.

## EXPERIMENT 2

The following series of single-subject studies is intended to further enhance our understanding of the dynamics of interpeer physical affection of young children and to generate hypotheses for future research. Because of the heuristic nature of this series, variables were manipulated, without complete methodological control, in an attempt to maximize the probability of occurrence of unprompted interpeer physical affection. It was expected that if some variables could be identified as possible influences on the hitherto unlikely occurrence of interpeer physical affection, then future research could elucidate possible causal relationships.

L.K.

L.K. was the first child to enter this phase (i.e., Experiment 2) of the study. Although she failed to perform interpeer physical affectionate responses, interpeer and dog-directed verbal appreciative responses, and performed only one (out of four trials) dog-directed physical response during posttreatment baseline measures (see Table 10), the method utilized in Experiment 2 resulted in a high frequency of all of these responses.

The first method utilized was the Instructional Control Procedure described earlier. As shown in Table 10, after

TABLE 10

Number of Physical Affectionate and Verbal Appreciative Responses L.K. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	1	0
Baseline	(28)		(4)	
Posttreatment	0	0	1	0
Baseline	(28)		(4)	
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	6	5	N/A	N/A
Game 2 (6)	0	2	N/A	N/A
Instructional Control Procedure				
Game 2 (6)	6	6	N/A	N/A
Dog Play (7)	N/A	N/A	5	4
<u>Day 2:</u>				
Game 1 (6)	5	6	N/A	N/A
Unstructured Play (16)	0	1	N/A	N/A
<u>Day 3: General Instruction</u>				
Game 1 (6)	6	6	N/A	N/A
Unstructured Play (16)	0	0	N/A	N/A

Note. Values in parentheses represent the number of trials.  
Expt. = Experiment; TY = Thank Yous; N/A = Not Applicable.

its implementation, L.K. performed six interpeer physical affectionate responses and five interpeer "thank you" during Game 1 (Bean Bag). However, on the six trials of Game 2 (Block Building) L.K. performed no interpeer physical affectionate responses and only two interpeer "thank you". Consequently, the Instructional Control Procedure was again introduced and when Game 2 was replayed, L.K. performed interpeer physical and verbal appreciative responses on all six trials. Next, Dog Play (Game 5) was played and L.K. performed five dog-directed physical responses and four dog-directed "thank yous."

During the next session, Game 1 was again played and Unstructured Play was also carried out. Game 1 was replayed for the following reasons. First, it tested the durability of the response since the last session. Second, it served as a baseline from which generalization to a less structured situation (i.e., from the highly structured Game 1 to the less structured Unstructured Play) could be assessed. As shown in Table 10, the responses were quite durable as L.K. performed five interpeer physical affectionate responses and six interpeer "thank you". However, there was almost no generalization to the less structured Unstructured Play. During the 16 trials, L.K. performed only one interpeer "thank you" and no interpeer physical affectionate responses. As a result,

generalization to a less structured situation was the focus of the next session.

The session on Day 3 was similar to the previous session as Game 1 and Unstructured Play were used. However, on Day 3 a general instruction was added at the beginning of the session. The instruction was the following: "Whenever people are nice to you and help you, I want you to say 'Thank you' and give them a pat, stroke or a hug." Game 1 was replayed to ascertain whether the responses still occurred in a structured setting and as shown in Table 10, her frequency of interpeer physical affectionate responses during this game remained at a very high level. However, during the less structured Unstructured Play, she failed to perform interpeer physical affectionate responses and verbal appreciative responses. Because these measurement games become boring for the children after a few days, the research was discontinued with L.K.

To summarize, during the Posttreatment Baseline, L.K. failed to perform interpeer physical affectionate responses and verbal appreciative responses, and dog-directed "thank yous." In addition, she performed only one (out of four trials) dog-directed physical response. After the Instructional Control Procedure, she increased her frequency of all of these responses when the situation was highly structured. However, when the situation was less

structured (e.g., Unstructured Play) she did not perform any interpeer physical affectionate responses.

These results replicate those obtained with D.M. (see Experiment 1). With both D.M. and L.K., interpeer physical affection was increased when the Instructional Control Procedure was implemented after the completion of the Fading Treatment. The results obtained with these two children (i.e., D.M. and L.K.) in conjunction with the previously described findings of the three children who had their fading progression interrupted (see section above entitled, "Is the Complete Fading Progression Necessary?"), further support an interaction hypothesis. That is, once unprompted interpeer physical affection was achieved during the fading progression, it interacted with the instructional procedure to produce the results obtained with D.M. and L.K. Finally, the results of D.M. and L.K. were again replicated with D.A. (see Table 11).

#### H.M.

The next child to enter Experiment 2 was H.M. As shown in Table 12, he did not perform interpeer physical affectionate responses during Pretreatment and Posttreatment Baselines. In contrast, he showed an increase in the frequency of interpeer "thank yous," dog-directed physical affectionate responses, and dog-directed "thank yous" during posttreatment measures

TABLE 11

Number of Physical Affectionate and Verbal Appreciative Responses D.A. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	0
Baseline	(28)			(4)
Posttreatment	0	0	3	0
Baseline	(28)			(4)
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	6	5	N/A	N/A
Game 2 (6)	1	1	N/A	N/A
Dog Play (6)	N/A	N/A	6	2
Day 2:				
Dog Play (3)	N/A	N/A	3	1
Game 2 (6)	5	4	N/A	N/A
Day 3:				
Dog Play (4)	N/A	N/A	4	0
Game 2 (6)	4	4	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

TABLE 12

Number of Physical Affectionate and Verbal Appreciative Responses H.M. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	Response			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	1	1
Baseline	(28)		(4)	
Posttreatment	0	6	4	4
Baseline	(28)		(4)	
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	3	6	N/A	N/A
Dog Play (6)	N/A	N/A	6	4
Day 2:				
Dog Play (3)	N/A	N/A	3	3
Dog retrieving bean bag				
Game 1 (6)	N/A	N/A	4	5
Dog removed				
Game 1 (6)	0	2	N/A	N/A
Game 2 (6)	3	6	N/A	N/A
Dog retrieving bean bag				
Game 2 (6)	N/A	N/A	4	5
Dog removed				
Game 2 (6)	4	6	N/A	N/A
Day 3				
Game 1 (3)	0	2	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 1 (6)	6	6	N/A	N/A
Renderer acting as child				
Game 1 (6)	0	1	N/A	N/A
Renderer acting as Dog				
Game 1 (13)	9	9	N/A	N/A
Renderer acting as child				
Game 1 (4)	0	1	N/A	N/A
General Instruction				
Game 1 (10)	7	7	N/A	N/A

Note. Values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

as compared to pretreatment measures. During Experiment 2, a number of methods were utilized and they resulted in an increase of interpeer physical affection.

Because interpeer "thank you" occurred frequently and interpeer physical affectionate responses did not, the Instructional Control Procedure was implemented to make "thank you" a reliable SD for the physical affection. Therefore, on H.M.'s first day of Experiment 2 the session began with the Instructional Control Procedure. However, even after the Instructional Control Procedure was introduced repeatedly (10 times), H.M. made only three interpeer physical affectionate responses on the six trials of Game 1 (Bean Bag; see Table 12). In contrast, he continued to perform dog-directed responses at a high frequency (see Table 12). These results indicate that H.M. responds consistently in a physical affectionate manner to the dog but less consistently to his peer.

The discrepancy between his responses to the peer and to the dog was the focus of the session on Day 2. A procedure was developed to make the dog and his peer more similar. It resulted in an increase in the frequency of interpeer physical affection from the Posttreatment Baseline level, but only a minimal increase (i.e., from three responses to four responses on the six trials) from the level observed after the Instructional Control

Procedure on Day 1.

The session on Day 2 began with three trials of Dog Play to illustrate the durability of the dog-directed responses. To make his peer and the dog more similar, Game 1 (i.e., Bean Bag) was played with the child Renderer holding and manipulating the dog, and the dog bringing back the bean bag to H.M. As shown in Table 12, H.M. continued to perform dog-directed physical affectionate responses and verbal appreciative responses. When Game 1 was replayed without the dog (i.e., in its standard form), H.M. said "thank you" on two of the six trials, but failed to make any interpeer physical affectionate responses. Therefore, one conclusion that may be drawn is that the peer holding the dog did not result in the peer becoming more similar to the dog. Rather, the dog became more similar to the peer and the frequency of dog-directed physical responses decreased (see Table 12).

To investigate whether these results were due to some variable related to the specific task (i.e., returning a bean bag), Game 2 (i.e., Block Building) was implemented. As shown in Table 12, on the six trials of Game 2, H.M. performed three interpeer physical affectionate responses and said "thank you" on all six trials.

Game 2 was then played two additional times. The first time it was played, the child Renderer held and manipulated the dog, and the dog brought a block to H.M. The second

time, it was played in its standard manner. As shown in Table 12, the frequency of interpeer physical affectionate responses increased marginally from the level achieved after the Instructional Control Procedure on Day 1.

The next session's (i.e., Day 3) method further increased the frequency of interpeer physical affection. Game 1 was repeatedly played with the Renderer either pretending to be a dog (i.e., crawl on hands and knees and bark occasionally) or acting as child (Dog/Child Assimilation Procedure). However, this procedure failed to increase the frequency of H.M.'s interpeer physical affectionate responses relative to his performance on Day 2 (see Table 12). Finally, the general instruction utilized with L.K. (i.e., "Whenever people are nice to you and help you, I want you to say 'Thank you' and give them a pat, stroke or a hug.") was added and it was successful in increasing the frequency of interpeer physical affection from the levels observed on H.M.'s second day of Experiment 2.

To summarize, the results of H.M.'s Experiment 2 indicate that his frequency of interpeer physical affectionate responses was increased from Posttreatment Baseline levels. The Instructional Control Procedure and a general instruction appeared to be the methods most important in producing this result. A method referred to as the Dog/Child Assimilation Procedure was tried, but it

was not effective in producing interpeer physical affectionate responses. However, it cannot be ruled out that it was an interaction of all or some of the methods employed that led to the final frequency of behaviours. To make a definitive statement as to the most effective method or which methods were necessary, additional analytic research is needed of the individual methods.

As with D.M., L.K. and D.A., the Instructional Control Procedure--utilized after the complete fading progression--played an important part in facilitating H.M.'s interpeer physical affection. However, the effect was less robust in the case of H.M. and other methods were implemented. Because the children reacted differently to our treatment, further research is needed to identify the client variables that interacted with the treatment variables.

#### S.K.

The next child to begin Experiment 2 was S.K. As shown in Table 13, during pretreatment and posttreatment baselines she did not perform any interpeer and dog-directed physical affection. However, the frequencies during Posttreatment Baseline of interpeer and dog-directed "thank yous" were increased from pretreatment levels. In spite of the lack of physical affectionate responses during pretreatment and posttreatment baselines, the methods

TABLE 13

Number of Physical Affectionate and Verbal Appreciative Responses S.K. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	1
Baseline	(28)		(4)	
Posttreatment	0	1	0	2
Baseline	(28)		(4)	
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	0	0	N/A	N/A
Dog Play (6)	N/A	N/A	6	5
Day 2: Dancing				
Game 1 (6)	0	0	N/A	N/A
General Instruction				
Game 1 (6)	1	0	N/A	N/A
Day 3				
Game 1 (6)	0	0	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 1 (12)	8	10	N/A	N/A
Renderer acting as child				
Game 1 (6)	6	6	N/A	N/A
Game 2 (6)	6	6	N/A	N/A
Day 4				
Game 2 (6)	0	0	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 2 (5)	5	5	N/A	N/A
Renderer acting as child				
Game 2 (8)	7	7	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

utilized in Experiment 2 resulted in an increase in all measures.

Because the frequency of posttreatment baseline "thank yous" had increased from pretreatment levels, the Instructional Control Procedure was employed on Day 1 to make "thank you" a reliable SD for physical affectionate responses. However, the latter did not result in an increase in frequency of interpeer physical affection and "thank yous" during Game 1 (Bean Bag) measurements. In contrast, the frequency of dog-directed physical affection and "thank yous" was greatly increased (see Table 13).

Because the nature of S.K.'s interpeer play lacked physical contact, the session on Day 2 commenced with a method to increase that contact. This method (referred to in Table 13 as "Dance") involved the children holding each other and swaying to the music for two minutes. Game 1 (Bean Bag) was then played and as shown in Table 13, there was no change in the frequency of interpeer affection. Next, a general instruction (i.e., described above) was given, but resulted in only one interpeer physical affectionate response and no interpeer "thank yous."

To obtain a baseline of interpeer behaviours on Day 3, Game 1 was played. As shown in Table 13, S.K. did not perform any interpeer affectionate responses. Next, we replayed Game 1 utilizing the Dog/Child Assimilation Procedure. As shown in Table 13, when the child Renderer

pretended to be a dog, S.K. responded with eight physical affectionate responses and 10 "thank yous." Game 1 and 2 (Block Building) were then played with the child Renderer acting as a child and on all trials S.K. performed a physical affectionate response and a verbal appreciative response (see Table 13).

During the next session (Day 4), Game 2 was replayed to test the durability of the responses since the last session. As shown in Table 13, S.K. failed to perform an interpeer affectionate response on all six trials of Game 2. To reestablish the previous frequency of responding, Game 2 was again played utilizing the Dog/Child Assimilation Procedure. With the child Renderer pretending to be a dog, S.K. performed physical affectionate responses and verbal appreciative responses on all five trials (see Table 13). Finally, Game 2 was again played with the Renderer acting as a child. S.K. performed seven physical affectionate and verbal appreciative responses during this latter game (see Table 13).

To summarize, S.K. did not perform interpeer physical affectionate responses during pretreatment and posttreatment baselines. In addition, interpeer and dog-directed "thank yous" occurred at a low frequency during posttreatment measures. The methods utilized in Experiment 2 resulted in an increase in the frequency of all measures. However, the methods that were effective in

producing S.K.'s results differed from the effective methods of the previously described children (i.e., D.M., L.K., D.A., and H.M.). The Instructional Control Procedure that was effective in producing increases in interpeer affection with the other children, was not effective with S.K. Conversely, the Dog/Child Assimilation Procedure was effective in increasing the frequency of S.K.'s interpeer affectionate responses, whereas it was previously ineffective with H.M. However, as mentioned above, one cannot conclude that the increase in the frequency of the behaviours was not a result of an interaction of all or some of the methods employed.

#### M.A. and C.M.

Because of the heuristic nature of Experiment 2, the potential use of the Dog/Child Assimilation Procedure was investigated further with the remaining children. The next children to begin Experiment 2 were M.A. and C.M. As shown in Tables 14 and 15, the methods employed were the Instructional Control and the Dog/Child Assimilation Procedures. The combination of these methods resulted in an increase, compared to Posttreatment Baseline levels, of interpeer physical affection and "thank yous."

The Instructional Control Procedure affected M.A. and C.M. differently when the peer was the object of the affection. As shown in Table 14, after the Instructional

TABLE 14

Number of Physical Affectionate and Verbal Appreciative Responses M.A. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	2
Baseline	(28)			(4)
Posttreatment	0	1	4	0
Baseline	(28)			(4)
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	0	0	N/A	N/A
Dog Play (5)	N/A	N/A	5	0
Day 2:				
Dog Play (3)	N/A	N/A	3	0
Game 1 (6)	2	3	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 1 (10)	7	6	N/A	N/A
Renderer acting as child				
Game 1 (7)	4	2	N/A	N/A
Renderer acting as child				
Game 2 (6)	5	5	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

TABLE 15

Number of Physical Affectionate and Verbal Appreciative Responses C.M. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	0
Baseline	(28)		(4)	
Posttreatment	0	4	3	2
Baseline	(28)		(4)	
<u>Expt. 2</u>				
Day 1: Instructional Control Procedure				
Game 1 (6)	5	6	N/A	N/A
Game 2 (6)	0	5	N/A	N/A
Dog Play (6)	N/A	N/A	6	6
<hr/>				
Day 2				
Game 2 (6)	0	2	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 2 (6)	5	6	N/A	N/A
Renderer acting as child				
Game 2 (6)	0	0	N/A	N/A
<hr/>				
Day 3: Renderer acting as child				
Game 2 (6)	6	6	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

Control Procedure, M.A. still failed to perform interpeer affectionate responses during Game 1. In contrast, during Game 1, C.M. performed five interpeer physical affectionate responses and six "thank yous" (the latter is an increase of two from Posttreatment Baseline; see Table 15).

However, when C.M. played Game 2, he did not perform any physical affectionate responses, but continued to say "thank you" at a high frequency (see Table 15).

When the dog was the object of the affection, the children acted similarly (see Tables 14 and 15). That is, for both children, the frequency of dog-directed affection was at a high level.

As shown in Tables 14 and 15, after the Dog/Child Assimilation Procedure, M.A. and C.M. performed both interpeer physical affectionate responses and verbal appreciative responses during Games 1 and 2. The role played by this method and the Instructional Control Procedure in producing this effect can only be surmised. In the case of M.A., it was only after the Dog/Child Assimilation Procedure that interpeer affection was produced for the first time. However, it cannot be concluded that the Dog/Child Assimilation Procedure alone produced this result. Perhaps it was an interaction of all the previous methods (i.e., Fading, Instructional Control and the Dog/Child Assimilation Procedure) that resulted in

the increase in affection.

In the case of C.M., interpeer affection had already occurred during Game 1. After the Dog/Child Assimilation Procedure the behaviour generalized across settings from Game 1 to Game 2. Again, it cannot be concluded that the Dog/Child Assimilation Procedure alone produced this result as it may have only been produced by the summation of all the methods employed.

To summarize, after the Instructional Control and Dog/Child Assimilation Procedures were employed with M.A. and C.M., interpeer affection was increased in frequency from Posttreatment Baseline levels. Conclusions of which method(s) was responsible for these results cannot be made.

#### M.K. and N.R.

The last two Requesters to participate in Experiment 2 were M.K. and N.R. Although these children failed to perform interpeer physical affection during pretreatment and posttreatment baselines, they performed interpeer affectionate responses during Experiment 2 (see Tables 16 and 17). However, the affection was observed only when the child Renderer pretended to be a dog (i.e., Dog/Child Assimilation Procedure).

Because of absenteeism, the children were only seen for one day during Experiment 2. After obtaining an interpeer affection baseline of zero responses, the Instructional

TABLE 16

Number of Physical Affectionate and Verbal Appreciative Responses M.K. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	0
Baseline	(28)			(4)
Posttreatment	0	0	0	2
Baseline	(28)			(4)
<u>Expt. 2</u>				
Day 1:				
Game 1 (3)	0	0	N/A	N/A
Instructional Control Procedure with Dog ONLY				
Dog Play (6)	N/A	N/A	6	2
Game 1 (6)	0	2	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 1 (6)	6	3	N/A	N/A
Renderer acting as child				
Game 1 (6)	0	0	N/A	N/A
Renderer acting as Dog				
Game 1 (6)	4	0	N/A	N/A
Renderer acting as child				
Game 1 (6)	0	0	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

TABLE 17

Number of Physical Affectionate and Verbal Appreciative Responses N.R. Performed During Pretreatment, Posttreatment and Experiment 2

Condition	<u>Response</u>			
	Interpeer Physical	Interpeer TY	Dog-Directed Physical	Dog-Directed TY
Pretreatment	0	0	0	0
Baseline	(28)			(4)
Posttreatment	0	0	0	0
Baseline	(28)			(4)
<u>Expt. 2</u>				
Day 1:				
Game 1 (3)	0	0	N/A	N/A
Instructional Control Procedure with Dog ONLY				
Dog Play (9)	N/A	N/A	6	0
Game 1 (6)	0	0	N/A	N/A
Dog/Child Assimilation Procedure				
Renderer acting as Dog				
Game 1 (17)	5	0	N/A	N/A
Renderer acting as child				
Game 1 (6)	0	0	N/A	N/A

Note. The values in parentheses represent the number of trials. Expt. = Experiment; TY = Thank You; N/A = Not Applicable.

Control Procedure was implemented. In order to investigate, in a rudimentary manner, the necessity of the child and dog renderer components of the Instructional Control Procedure, only the dog section of this method was utilized. As shown in Tables 16 and 17, dog-directed affection increased, but interpeer affection did not.

Next, the Dog/Child Assimilation Procedure was instituted. The frequency of interpeer affection increased only when the child Renderer pretended to be a dog (see Tables 16 and 17). When the child Renderer acted as a child, no occurrences of interpeer affection were observed.

To summarize, the Instructional Control Procedure's dog section and Dog/Child Assimilation Procedure were employed with M.K. and N.R. The frequency of dog-directed physical affection increased with both children. In contrast, interpeer physical affection occurred only when the child renderer acted as a dog. These results fail to replicate the findings obtained with the other seven children. That is, with those other seven children there were eventually numerous instances of interpeer physical affection when the child Renderer acted as child. However, two points must be made. First, the complete Instructional Control Procedure was not used; only the dog component was employed. As illustrated in Experiment 1, generalization of physical affection from the dog to the peer does not occur readily.

Therefore, it should not be surprising that the dog component did not result in an increase in interpeer affectionate responses. In addition, perhaps the child Rendereer section of the Instructional Control Procedure serves an important role--by itself or in conjunction with other methods--in increasing the frequency of interpeer affection.

The second point involves the brevity of Experiment 2. M.K. and N.R. participated on only one day of Experiment 2. Perhaps with more trials over a greater number of days, the frequency of interpeer physical affection would have increased. For example, S.K. (see Table 13) and M.A. (see Table 14) required more than one day of Experiment 2 to show an increase in interpeer physical affection. Had S.K. and M.A.'s participation been terminated after one day, they too would not have shown an increase in the desired behaviours.

To summarize, Experiment 2 was successful in producing interpeer physical affection in six of the eight children who had not shown any such affection during pretreatment and posttreatment baselines. Because the children were quite resistant to performing interpeer physical affectionate responses, a variety of methods were employed to produce the increase in affection.

## General Discussion

Our society apparently attaches great importance to affection (Twardosz & Nordquist, 1983). Despite this, psychology has focussed upon two other areas of social development in children: prosocial behaviour and aggressive behaviour. The small amount of reseach that has investigated affection has either concentrated on toy-directed affection (e.g., Pirot & Acker, 1978), or social interactions and not on affection per se (e.g., Strain & Wiegerink, 1976). However, two studies have addressed interpeer physical affection (Cooke & Apolloni, 1976; Acker & Marton, 1984). The former (Cooke & Apolloni, 1976) reported increased positive physical contact, but the methodology left the results equivocal. Acker and Marton (1984) reported a small, but significant, increase in interpeer physical affection and a decrease in interpeer physical aggression, when toy-directed affectionate behaviours were increased. But, they (Acker & Marton, 1984) did not attempt to directly manipulate the interpeer responses. Direct manipulation might have increased the size of the effect.

The purpose of the present experiment was to facilitate interpeer physical affection among young children in a day care setting by direct manipulation of the interpeer

response in an attempt to produce a sizeable interpeer physical response. It was hoped that the product of this work would be an enhanced understanding of interpeer affection of young children in a "natural" setting. As a secondary goal, it was hoped that this research would have practical value in suggesting methods that parents and teachers could use to increase the frequency of children's gentle and affectionate-like behaviours toward their peers.

One value of the current research rests in its demonstration that a naturalistic and familiar story reading procedure in conjunction with a prompt fading procedure can facilitate the subsequent incidence of gentle, affectionate behaviours between children. The results obtained through the use of the prompt fading procedure should encourage interested researchers, parents and caregivers to view this method as an easily employable and effective way to increase interpeer physical affection in selected settings. Although the present study utilized this procedure in story reading only, it need not be restricted to only this use. Perhaps, employing the fading method in the children's play settings while they engage in interpeer play would result in a facilitation of interpeer physical affection and gentleness in their play. In addition, the use of prompt fading in several such settings might produce a greater generalization across settings than was shown in the current study.

In the present study, the fading method was successful in facilitating interpeer physical affection and verbal appreciative responses during the story reading, with only the verbal appreciative responses showing any generalization to the posttreatment baseline contexts. The great reluctance on the part of the children to perform interpeer physical affectionate responses resulted in a kind of pleading by the experimenter (i.e., the Instructional Control Procedure) and a "con game" (i.e., Dog Assimilation Procedure) in order to produce the desired behaviours. The Dog/Assimilation Procedure may, in particular, offer a useful strategy, along with the prompt fading procedure, that could be employed by child caregivers in nursery school play settings. For example, having a number of children pretend to be favorite pet animals (i.e., Dog/Assimilation Procedure), along with the related costumes and props, may provoke a good deal of "interpeer" physical affection and gentleness. With subsequent careful fading of the costumes and props, and ongoing reinforcement from caregivers, high frequencies of interpeer affection may be maintained.

One explanation for the children's reluctance to engage in interpeer physical affectionate responses may, as pointed out above, be related to their having behavioural histories that reduce the probability of the physical affectionate responses occurring. For example, the

children's behavioural histories may contain interpeer physical affection resulting in punishment. Regardless of what the societal contingencies may be that decrease the probability of interpeer physical affection, they likely differ greatly from those contingencies involved with the probability of the occurrence of physical aggression. Children seem prepared to imitate physical aggression under a wide range of model characteristics, subject characteristics, and methods (e.g., Bandura, Ross, & Ross, 1961; 1963; Walters & Willows, 1968; Lovaas, 1961). Observational research of children in natural settings and the reactions of the parents, caregivers, and peers to the children's performance of interpeer physical affectionate responses is needed. This research could elucidate the dynamics which underlie the possible differences in the children's willingness to engage in aggressive as opposed to affectionate behaviours. In addition, the reactions of caregivers and peers are all the more important given that children this young are in a transition from playing in "parallel" with toys to more social type interactions (Barnes, 1971). Therefore, it is unlikely that peers will systematically provide enough reinforcement to support emerging behavioural repertoires and it may be up to teachers and parents to systematically apply reinforcement to further enhance and maintain the desired social behaviours.

There are surely some who would question the need for facilitating interpeer physical affectionate responses. They would warn us that young children become adults who must function in a social milieu where too much affectionate behaviour could be considered inappropriate and effeminate (Rekers & Lovaas, 1974). Conversely, others may view these same behaviours as not only appropriate, but "warm, loving and human" (Acker & Marton, 1984, p. 265). Furthermore, as Acker and Marton (1984) suggest, perhaps increased affection will become even more acceptable in future generations. In any case, long-term applications and possible prophylactic effects of encouraging affectionate behaviours as opposed to suppressive, crisis oriented interventions with aggressive behaviours, should be empirically examined. It may be important to note that in the present study, though aggression would have been recorded had it occurred, none was observed. Although the present research was not designed to directly address the hypothesis that aggression and affection are "incompatible" (Acker & Marton, 1984, Marton & Acker, 1982), the findings tend to support such a contention.

In summary, interpeer physical affection can be facilitated using a prompt fading technique. However, children display a reluctance to perform generalized interpeer physical affectionate responses. This reluctance was underscored when a toy dog was made the object of the

affection, which resulted in immediate higher incidences of affection. Additional procedures were employed that led to an eventual increase in frequency of interpeer physical affection. Further research should attempt to elucidate the sources for this apparent reluctance if social learning strategies for the development of affectionate and gentle behaviours in our children are to be realized.

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## APPENDIX A

## Generalized Imitation Paradigm

The generalized imitation paradigm (Baer, Peterson, & Sherman, 1967; Baer & Sherman, 1964; Peterson, 1968) has offered a way to produce affection without resorting to tedious shaping procedures. This procedure involves the child imitating a number of responses which are reinforced followed by observing the effect of this learning on another imitative response which was never reinforced.

## APPENDIX B

## Pilot Study Method

Before describing the method of the pilot study, it is important to discuss the definition of affection that was employed. The limited research of affectionate-like behaviours has utilized a variety of definitions of affection. Many studies only included physical contact, such as hugging and kissing (e.g., Lovaas, Schaeffer, & Simmons, 1965; Tracy & Ainsworth, 1981) whereas others also included verbal expressions such as endearments (e.g., Acker, Acker, & Pearson, 1973; Acker & Marton, 1984). White (1978) also included smiling, laughing and sharing. Walters, Pearce and Dahms (1957) employed a definition of affection that was so broad that it included most prosocial behaviours. Twardosz and Nordquist (1983) suggested that physical contact is the only mode of affectionate behaviour about which most researchers agree. The present research supports the latter contention and, therefore, employed a definition that involved physical contact.

The Pilot Study method was based upon the previous successes of similar procedures and proceeded in the following manner. Twelve children, attending a day care centre, participated and were divided into 6 pairs. After

the children became familiar with the "teacher" (experimenter), a pretreatment baseline condition was begun in which the rate of interpeer physical and verbal affectionate and aggressive behaviours were obtained while the children played three games (these will be discussed in more detail below). Physical affectionate responses included hugging, cuddling, patting, arm around a peer's shoulder, hand holding, kissing, and snuggling. Following this baseline, a treatment phase was instituted in which the "teacher" read a story heavily laced with affectionate content (Appendix C contains a typical story). The "teacher" then modelled the affectionate behaviours and prompted each child to assume the role of a character in the story and to perform the described response. At the end of each day's training, measures of interpeer physical affection were obtained in the three baseline games.

The three games employed to measure the occurrence of affection (both during the baseline and treatment phases) were referred to as Structured Story Play, Structured Non-Story Play, and Unstructured Free Play. The first measurement condition (Structured Story Play) was structured to include a game that required the children to interact. The game involved a topic from one of the stories that were read during the training phase. For example, one of the stories dealt with a picnic, therefore, during baseline the children were provided with picnic

props (e.g., picnic basket, plastic forks and knives etc.) and told to go on a picnic. This measurement condition was deliberately made very similar to the stories (in the training phase) in an attempt to increase the likelihood of generalization from the training stories to this measurement condition during the training phase.

The second measurement condition (Structured Non-Story Play) was also a structured game that required the children to interact but had no relationship to any of the stories (e.g., taking care of a sick friend). Finally, Unstructured Free Play allowed the two children to play with any of the toys found in the room.

## APPENDIX C

Picnic Story Containing Affectionate Content  
Employed in Pilot Study

One morning, mommy looked out her window and she saw that the sun was shining brightly and she said to daddy, "My, what a beautiful day. Why don't the two of us go on a picnic?" Daddy said, "That is a wonderful idea!!!! I would love to go on a picnic with you because I like you soooo much," and with that he gave mommy a big hug. Mommy then said, "Thanks for the big hug, I love hugs. Hugs make me feel soooo good. Can I hug you back?" Daddy said, "I love hugs too -- of course we can hug." And so mommy and daddy hugged and hugged and hugged each other. (And what were they doing? That's right, they were hugging.) Then off they went holding hands to the kitchen where they quickly made some peanut butter and jelly sandwiches and gathered together some cakes and cookies, and drinks and some dishes and put them all in their picnic basket.

Mommy gently took daddy by the hand and led him to the picnic area. He spread their blanket out on the ground and mommy sat down on it. Daddy sat down next to mommy and gently put his arm around her. Mommy then gave daddy the picnic basket and asked him to take out the food, dishes

and drinks. When he was finished, Mommy said, "Thank you. You are such a wonderful and nice person, I really like you," and with that she gave daddy a gentle pat on the back. "Would you like a sandwich?" daddy asked mommy. "Yes please," mommy said. Daddy gave mommy a sandwich (and what kind of sandwich?) and a big hug. "That was such a great hug," mommy said, "and I like you soooo much, can I hug you back?" Daddy said, " why certainly, I love to be hugged by you because you are such a wonderful person and I like you soooo much." And mommy and daddy hugged and hugged and hugged.

Mommy and daddy sat down and finished their sandwiches. Then mommy gently put her arm around daddy's shoulder. Daddy really liked mommy being so nice to him and to show her how much he liked it, he gave her a gentle pat on the back. (And what did daddy do to mommy? That's right, he gave her a gentle pat on the back.) "Why, thank you, I like being patted," mommy said, and with that she also gave daddy a gentle pat on the back. Just then, their dog Spot came running up to them wagging his tail and barking, "RAWF, RAWF, RAWF..." He was soooo happy to see them and he began kissing their faces. He had been running around, jumping in the water and playing with some other dogs in the area. Soon he was lying on his back and mommy and daddy were patting and rubbing Spot's tummy and he loved it. It was getting late and the sun was setting so they

packed up all their things and went home holding each other's hands as they walked.



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