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ABSTRACT

This study attempted to determine whether simple, naturalistic procedures could be used to increase the rate of physically affectionate behaviors directed at stuffed toy animals and at peers in the play of 4- and 5-year-old children. Procedures were developed for scoring affection and aggression during group play. The context of reading a story was used to facilitate affection. There were four modes of presentation of the story: Control (no reference to affection); Verbal Cuing (verbal stress on affectionate behaviors in the story); Modeling (modeling of affection during presentation); and Modeling/Practice (modeling reinforced with practice of affection). Measures of affection and aggression directed at toys and peers were taken during free play periods before and after story presentation. The last treatment was the only one to significantly increase affectionate behavior directed at toys in both sexes. In the same group, there was also a decrease in aggressive behavior by boys directed at toys. The results are discussed in terms of strategies for obtaining desired social behavior. (Author/SB)

Measurement and Facilitation of Affectionate Behaviour in the Play of Young Children

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The present study investigated physically affectionate behaviours in the play of young children. Behaviours directed at stuffed toy animals and at peers were studied. Affectionate, socially desirable, behaviours have received little experimental scrutiny. However, it appears that investigation and control of "nice" behaviours is at least as important as understanding of undesirable behaviours.

Learning how to facilitate affectionate behaviours could potentially lead to control of undesirable aggressive behaviours by increasing the rate of "nice" behaviours that are, to some extent, incompatible with the undesired behaviours. A strategy of increasing the rate of desired behaviours rather than, or in addition to, decreasing the rate of undesired behaviours is likely to be more effective and humane in light of our present behavioural technology. That is, punishment and extinction operations, and the often attendant respondent emotional behaviours, can be avoided or minimized. Also, increasing the probability of affectionate behaviours in the repertoire of young children may increase the likelihood that they will engage in these desirable behaviours to control and obtain the attention of others.

Recent discussion of affection seems to have been stimulated by Harlow's (1958, 1959) experiments on physical contact in monkeys.

Harlow demonstrates that for infant monkeys, physical contact (contact comfort) with a maternal figure is a powerful primary reinforcer. Later work (Harlow, Harlow, Dodsworth & Arling, 1966) indicates the importance of physical contact with peers for appropriate later social behaviour. Observational work by Bowlby (1958) indicates that physical contact is a vital aspect in the maintenance of affection between adult and infant humans.

Experimental work aimed at increasing the rate of affection in children has employed a variety of strategies. Acker, Acker, and Pearson (1970) used the generalized imitation paradigm. They found that imitative physical contact training increased the rate of physical affection directed at both a teddy bear and an adult human. However, they found that physical aggression increased as well with the physical contact training. Operant techniques have also been used to shape components of affection. Acker and Acker (1970) attempted to shape affectionate hugging in young children. The use of differential reinforcement for successive approximations did produce hugs. However, other components of the children's behaviour were incompatible with affection. These included failure to smile, frowns, lip-biting and furrowed eyebrows. Shaping by its very nature may be inappropriate for producing affection. The non-reinforcement inherent in almost any shaping program, along with extinction for previously satisfactory behaviours, could elicit respondent behaviour which is not conducive to affection. Fryrear and Thelen (1969) used a modelling approach with nursery school children.

Affectionate behaviours were presented by videotape. A weak modelling effect was obtained.

The present research took place in a play context because of the suggested importance of play in development (Berlyne, 1969; Erikson, 1963; Piaget, 1945). The research was carried out at day care centres. The basic purpose of the research was to determine if simple and familiar procedures could be used to increase the rate of affectionate behaviours. These procedures were presented in the context of reading a story. The story was presented in one of three modes to separate groups of S's: the story was read only (Verbal Cuing); the story was read and affectionate behaviours in the story were modelled by the reader (Modelling); the story was read, the behaviours modelled, and the S's were prompted to practice the affectionate behaviours (Modelling/Practice). There was also a control condition in which a parallel form of the story that omitted references to affection was presented. Each mode of presentation of the story is an analogue of methods typically used to obtain appropriate social behaviour from children in day care centres. The "affectionate" story stressed hugging, patting, kissing, and stroking behaviours directed at stuffed toy animals. The primary dependent measure was amount of affection directed at toys ("affection to toys") although data on "aggression to toys" were also analyzed and data on "affection to peers" and "aggression to peers" were also collected. Data were collected in free play periods before and after presentation of the story.

The aim of the study was to see if any of these naturalistic, familiar and simple manipulations would lead to increases in affection.

No specific hypotheses were made with respect to the respective magnitudes of treatment effects.

Method

Subjects

Subjects participating in the study were 4 and 5 year old boys and girls attending day care centres in Victoria, British Columbia. Observations were carried out in two sessions. Sixty subjects participated in the first (pretest) session and of these 48 completed the session after the manipulation (posttest). Five subjects were absent for the second session and a further 7 subjects were dropped as data for only 48 subjects were required.

Stimuli

The experimental story has approximately 1000 words and has four hand drawn and coloured illustrations. One of these illustrations depicts affectionate behaviours. The story repeatedly stresses the stroking, patting, hugging, and kissing behaviours of a young boy directed at animals. The control story has about 800 words and is presented with three of the illustrations, omitting the references to affection and the one illustration that depicts affectionate behaviour.

The four animals mentioned in the story and shown in the illustrations are close approximations to the four stuffed animals which the children have available in the free play situation. These were: a green puppy (60 cm long), a yellow bird (50 cm tall), a brown teddy bear (40 cm tall), a white rabbit (20 cm long).

Experimental Procedure

Pretest measures were obtained on 20 subjects at each of three day care centres. Subjects were observed in 5 groups of 4 subjects each (2 boys and 2 girls). Thus there were 60 S's in total. Approximately one week after the pretest session the second session involving the manipulation phase and posttest measurements was carried out. On this occasion subjects at each day care centre were placed into 4 groups of 4 subjects each, with the same group membership as in the previous session except that absentees were replaced by subjects of the same sex, from the fifth, unused group. Each of the 4 groups at each day care centre was randomly assigned to one of the four experimental conditions, such that there was one group for each condition. Thus there were 12 S's in each of the four conditions (4 in each of 3 day care centres).

There were 2 observers, one male and one female. Both had experience observing children. All instructions, reading, and modelling were presented by the male observer. The female observer was not present during each manipulation phase, entering the room just prior to the following free play phase and thus she scored "blind." The study was carried out in rooms approximately 3 x 4 meters in size.

In the Control condition, the observer read the control story and neither modelled nor directly prompted any behaviours. In the Verbal Cuing condition the observer read the experimental story and verbally stressed 14 instances when the behaviours "patted," "hugged," and "kissed" were mentioned. The observer did not model or directly prompt any behaviours. In the Modelling condition the observer read the story and modelled the same 14 behaviours at the appropriate stages in the story.

He stopped reading the story and modelled each behaviour for approximately 5 seconds. He modelled each behaviour on the animal that was referred to at that place in the story. In the Modelling/Practice condition the observer read the story, modelled the behaviours, and prompted each child to practice the affectionate behaviours on a stuffed animal. That is, at each mention of an affectionate behaviour he stopped reading the story, picked up the animal referred to, modelled the behaviour, handed the toy to a child, and prompted the behaviour by saying, "Can you do that?"; "Show me what the boy in the story did."; etc. After the child had performed the behaviours, the observer responded with one mild statement of approval such as, "That's good"; "That's fine"; "That's nice."; and so forth. Each child practiced either 3 or 4 times and, of course, may have observed the other three children in his group practicing. The amount of reinforcement given was not contingent on the quality of the affectionate behaviour displayed by the child and was in all cases one relatively mild statement that signalled both satisfactory performance and the end of the practice. The intention was not to shape the desired behaviour but to avoid extinguishing it by not responding to it at all.

Prompting was done without pressure and 11 out of 12 children in the condition responded to minimal prompting. One child did not perform the behaviours after prompting and he was not pressed further. His behavioural data are included with those of the others in the Modelling/Practice condition.

Scoring Procedure

Extensive previous observations with other subjects from the same population indicated that much physical contact behaviour involved

unclear or contradictory aspects. An example would be a child who tries to imitate snapping jaws with one hand while saying "bite, bite" and yet actually gently stroking the arm of another child. Another example would be children playing "footsie," that is kicking each other, yet smiling and laughing.

It became clear that explicit and coherent scoring rules would have to be established for reliable scoring to occur. In the absence of such rules different observers assigned different importance to the various types of cues and marked unreliability resulted. On the basis of the preliminary observations it was decided that the nature of the physical contact between the subject and the recipient of the action (a stuffed toy or another child) would be the primary cue used in arriving at scoring decisions. Thus clear instances of hugging, kissing, cuddling, snuggling, fondling, holding by hand, patting, gently bouncing up and down in lap, feeding, cleaning, and caring for an imagined injury were scored as affection. If the behaviour was a clear instance of hitting, slapping, choking, biting, throwing, stepping or sitting on, scratching, kicking, dragging by a part of the body other than the hands, and taking forcibly away from, the aggression was scored.

If physical contact behaviour occurred without it being a clear instance of the above behaviours, then, and only then, vocalizations that were directed at the toy or person with which there was physical contact were considered in making the scoring decision. Vocalizations that would result in a behaviour being scored as affectionate were verbalizations of affectionate, caretaking, or nurturant themes and

vocalizations such as "cooing." Vocalizations that would result in a behaviour being scored as aggression would be verbalizations of unfriendly, rejecting, or aggressive themes or aggressive vocalizations such as "snarling."

If the nature of the physical contact was not clear and if there were no vocalizations accompanying it or if the vocalizations that did occur were not useful in making a discrimination, then and only then, facial cues were used. Facial cues could be affectionate as in smiling or aggressive as in clenching jaws. If facial cues had to be resorted to and yet were not clear enough for a discrimination to be made, then the behaviour was left unscored.

Each instance of affectionate or aggressive behaviour was also scored with respect to whether the recipient of the behaviour was a toy or a child. Scoring was done on a 15 second interval basis. That is, the occurrence or non occurrence of each of 4 categories of behaviour (affection to toys, aggression to toys, affection to peers, aggression to peers) was recorded for each 15 second interval. Each child was observed for 16 of the 15 second intervals (4 minutes) in each of the two sessions. Each child has a score on each of the four categories of behaviour at each session. This score for each category represents the number of intervals during which the child engaged in behaviours scored in the particular category.

Results

The primary behaviour of interest was affection to toys. In order to assess whether there were significant differences in the amount of this behaviour, a 4 x 2 x 2 analysis of variance was performed. The

variables were treatment with four levels (control, verbal cuing, modelling, modelling/practice); pre-versus post-manipulation (designated "prepost"); and sex. Treatment and sex were between factors and prepost was a repeated factor in the analysis. Raw data entered into the analysis for each subject consisted of the number of intervals that affection to toys had occurred in each of the two sessions. Group means by treatment, prepost, and sex are reported in Table I. The results of the analysis of variance are reported in Table II. Significant main effects for treatment, prepost, and sex were found, indicating that all three factors contributed significant independent variance. The only significant interaction was treatment x prepost.

In the absence of hypotheses about the relative magnitudes of specific post-treatment means, the differences between all possible pairs of means, within each sex, were computed. These differences were evaluated for significance by the Newman-Keuls Test. Comparison of the eight (4 pretest and 4 posttest) means for each sex indicated that for both boys and girls, the only significant ($p < .05$) increases in affection to toys occurred in the Modelling/Practice condition. An examination of the treatment means reveals a trend toward increased affection to toys in both boys and girls in the Modelling condition; however, this trend did not reach the $p < .05$ level of significance.

The secondary dependent variable of interest was the behaviour of aggression to toys. A 4 x 2 x 2 analysis of variance, with the same parameters as for affection to toys, was performed. Group means for aggression to toys are reported in Table III. The results of the analysis of variance are reported in Table IV. The sex factor was the only significant main effect. The only significant interaction was again treatment x prepost.

For boys, the only significant ($p < .05$) decrease in aggression to toys was in the Modelling/Practice condition. For girls, there are no significant differences in treatment means. However, an examination of the means reveals that for both boys and girls the lowest levels of aggression were in the post Modelling and post Modelling/Practice conditions.

Means for behaviours directed at peers are presented in Table V. Analyses of variance are not reported on behaviours directed at peers, as these data did meet the requirements of the Cochran test for homogeneity of variance (Winer, 1962). Many subjects had no affectionate or aggressive physical contact with peers during one or both of the sessions. An examination of the means reveals a slight trend toward increased affection to peers in the Modelling/Practice condition.

Interobserver reliabilities were: affection to toys - 85%; aggression to toys - 87%; affection to peers 85%; aggression to peers - 100%. These figures refer to instances when one or both observers recorded that a certain category of behaviour had occurred. Negative agreements - cases when both observers agreed that no behaviour of a particular category had occurred - were not used in arriving at the inter-observer reliability.

Discussion

The Modelling/Practice treatment was effective in producing increased affection to toys in both boys and girls. Boys in this group also showed significant decreases in aggression to toys. Girls in this group showed a trend toward decreased aggression which reached the $p = .07$ level of significance. Boys engaged in roughly twice as much aggression in pretest sessions as girls, thus the lower scores of girls

may have led to a "bottoming" effect which may have contributed to the lack of significance. It is also worth noting that pretest affection to toy levels were 3 to 4 times higher for girls than for boys. These differences are presumed to reflect differential reinforcement histories between the sexes for physically affectionate and physically aggressive behaviours.

The Modelling treatment groups did not show significant changes in either affection or aggression although both boys and girls showed pre to post increases in affection and decreases in aggression. The present study relates to the findings of Bandura and Walters (1963), dealing with the social-emotional behaviour of aggression. Modelling alone which caused increased aggression in the Bandura and Walters study did not produce significant increases in affection in the present study. It is possible that more extensive exposure to the model and greater experimental control could lead to significant increases in affection as a result of modelling alone. Also, since the strength of the modelling effect seems associated with the sex appropriateness of the behaviour modelled (Bandura, Ross, & Ross, 1961) and since models seem to have a greater effect on same sex subjects (Rosenblith, 1959), a greater magnitude of effect may be found, especially in girls, if a female model were used. In the present experiment, the lack of significant effects from the Modelling treatment may also be partly due to children being observed in groups rather than when alone, the latter pertaining in most other studies of modelling. The greater range of stimuli available to a child in a group may decrease the saliency of the model. However, on the basis of our ongoing research, it does appear that transmission of aggression by modelling is more effective than transmission of affection.

It may be that a greater range of stimuli have become discriminative stimuli for aggression than for affection.

A separate accomplishment of the present research is the scoring system. The scoring system is valuable in that it allows for objective scoring of a large proportion of physical contact behaviours in a relatively unstructured setting. The objectivity and completeness of the scoring system arise from the specificity of the behavioural definitions used and from the hierarchical rules that were developed for using physical contact, verbal, and facial cues in scoring decisions. The obtained interobserver reliabilities are in the same range or higher than the values recorded in comparable behavioural studies of pro-social behaviours (Shroeer & Flapan, 1971a, 1971b; Walters, Pearce, & Dahms, 1957).

Concern may exist with respect to the usefulness of the scoring system, especially the affection portion. The point can be made that subtle components of behaviour are important in actual interpersonal interactions and that the system of scoring used here doesn't take account of such a possibility. While it is true that subtle aspects of behaviour can be meaningful and can have different meaning for different individuals (witness the unreliability of untrained observers in scoring both affection and aggression), it is nevertheless necessary to devise an objective system for scoring any behaviour before it can be a subject of systematic study. The primary use of the most salient cues (nature of physical contact) and the secondary use of less salient cues is one objective system. It appears to have face validity as it would be difficult to minimize the importance of any clear physical contact in an interpersonal interaction.

Concern may also exist over the behaviours that are being increased in the Modelling/Practice condition. Are the behaviours that are being scored as affectionate the same as the produced in other situations? These behaviours were typically hugs, pats, strokes, holding hands, kisses, and snuggling. It is possible that behaviours that appear affectionate at a gross level may be found to differ in subtle yet important ways from affectionate behaviours in other situations, when subjected to a closer analysis. Such results have been found when attempting to shape affection. Whether this was true in the present study can only be answered by taking much finer grained observations, however there was no observational evidence to suggest that such inconsistencies were occurring. Neither is there any reason from learning theory to expect differences in the quality of affectionate behaviours produced in the present study from those produced in other situations.

The main value of the manipulation phase of the research lies in the demonstration that a simple procedure can increase affection in boys and girls and can decrease aggression in boys and possibly in girls. It appears that the Modelling/Practice treatment provides a response set towards affectionate behaviour; thus an alternative and somewhat incompatible behaviour to aggression is increased and aggressive behaviour is decreased. Increasing positive behaviours, behaviours that enhance the likelihood that a person will be reinforcing to others may increase the pleasantness of that persons relationships (Stuart, 1969). A child with a high probability of pro-social behaviours in his repertoire may be successful at exerting control over his environment by engaging in these desirable behaviours and thus may be less likely to engage in undesirable behaviours. Development and use of naturalistic methods

of increasing affectionate behaviours has the potential to greatly improve the quality of life for children.

TABLE I

Mean Number of Intervals During which Affection to Toys Occurred

Treatment	Boys		Girls	
	Pre	Post	Pre	Post
Control	1.67	.83	6.00	5.50
Verbal Cuing	1.17	1.00	4.83	3.67
Modelling	1.33	2.83	7.83	9.17
Modelling/Practice	2.00	4.67	5.33	9.50

TABLE II

Summary of the ANOVA* for Affection to Toys

Source	*df*	MS	*F*	*p*
Treatment	3	43.31	3.30	.030
Sex	1	495.04	37.78	.001
Treatment x Sex	3	11.24	.86	.471
Error	40	13.10		
Prepost	1	18.38	5.31	.027
Treatment x Prepost	3	23.01	6.65	.001
Prepost x Sex	1	.17	.05	.827
Treatment x Prepost x Sex	3	1.64	.47	.703
Error	40	3.46		

*Cochran's C = .291; critical value for *df* (3, 45) is .360. Thus homogeneity of variance assumptions are satisfied.

TABLE III

Mean Number of Intervals During which Aggression to Toys Occurred

Treatment	Boys		Girls	
	Pre	Post	Pre	Post
Control	7.00	8.17	4.67	5.17
Verbal Cuing	7.50	8.33	4.83	4.67
Modelling	5.83	4.67	3.67	1.83
Modelling/Practice	8.00	4.83	4.17	2.50

TABLE IV

Summary of the ANOVA* for Aggression to Toys

Source	*df*	MS	*F*	*p*
Treatment	3	30.59	2.12	.113
Sex	1	195.51	13.52	.001
Treatment x Sex	3	.16	.04	.988
Error	40	14.46		
Prepost	1	11.34	3.41	.072
Treatment x Prepost	3	14.01	4.21	.011
Prepost x Sex	1	.26	.08	.781
Treatment x Prepost x Sex	3	1.98	.60	.621
Error	40	3.32		

*Cochran's C = .165; critical value for *df* (3, 45) is .360. Thus homogeneity of variance assumptions are satisfied.

Table V

Mean Number of Intervals During Which Affectionate and Aggressive Behaviours Directed at Peers Occurred

Scores for Boys				
	Affection		Aggression	
Treatment	Pre	Post	Pre	Post
Control	.67	.50	1.50	1.67
Verbal	.17	.33	.33	.50
Modelling	.50	.67	1.00	.67
Modelling/Practice	1.83	2.50	1.17	.17
	Scores for Girls			
Control	1.17	.83	.50	1.00
Verbal	.67	.67	1.00	.67
Modelling	1.33	1.33	0	0
Modelling/Practice	.67	1.50	.17	0

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