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Determinants of Agression between Mother and Child

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Publications

The contagion of cheating. Psychology in the Schools, 1966, 3, 359-360. (With R.E. Walker, G.E. Wiemeler, and W.P. Knake)

An empirical comparison of some techniques for the differentiation of handedness. Psychology in the Schools,1967, 4, 364-366. (With R.E. Walker)

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Table of Contents

List of Illustrations

Chapter I. Introduction

Aggression, according to White(1956), is always potentially present in the family circle. Aggression towards parents or the agents of socialization has been reported as a matter of developmental course. However, socially approved actions such as the punishment of a child's tantrums or inappropriate behavior by a parent are not ordinarily categorized as aggression. Aversive stimuli are delivered within the context of a recognized social role and ideally with certain preferred consequences.

If parent-child interactions are viewed as units which operate effectively as long as both members perform their accustomed roles and in expected fashion, a set of mutual and possibly predictable expectancies would develop(Sears,1963). When an expected outcome or consequence has failed to occur, or an end state has not been reached, or a course of action has not been carried through to its goal or conclusion, the person is in a state or process of frustration. The term frustration has been used as both "process" and "product"(Hall, 1961). Frustrations continually occur in the natural course of family life, within the various "dyads" or mother-child relationships.

Resolution or reaction to frustration within the context of arousal in such units has not been explored.

This study will focus on aggression as a possible outcome in response to frustration in a controlled laboratory situation which simulated a mother-child interaction. Although various hypotheses and correlational studies have related the association between parental control or socialization procedures to the child's aggression in the school and community(Becker, 1964), only one empirical study has been reported in the literature that focused on parental reactions to frustration and consequent aggressive behavior towards the child (Merrill, 1946).

Chapter II. Review of Related Literature

The experimental research on patterns of aggression between parent and child has been meager. Except for the Merrill(1946) study, the emphasis has been on parent reports of developmental patterns of aggression or on the child's aggressive behavior towards agents of socialization-models, peers, or objects. The following review has been restricted to studies focusing on children's behavior. The theoretical implications of major studies using college students or an adult clinical population will be reported but the details of their methodology will not be discussed since they are not pertinent to this study.

Theoretical approaches to aggression may generally be divided into two categories: (1) the instinctual and drive oriented and (2) action and learning theories.

Dollard, Doob, Miller, Mowrer and Sears'(1939) basic postulate stated "...the occurrence of aggressive behavior always presupposes the existence of frustration and contrariwise, that the existence of frustration always leads to some form of aggression(p. 7)." Miller (1941) later rephrased the statement: "Frustration produces instiga-

tions to a number of different types of responses, one of which is an instigation to some form of aggression(p. 338)." Dollard et al. described an act of aggression as an act whose "goal response is injury to another organism(p. 11)."

Sears interpreted aggression as an internal drive created by frustration which eventually required outward expression--the tension reduction effect(Maier, 1965). In a follow-up study of the children described in Child Rearing, Sears(1961) reported evidence to support expectations based on a theory of frustration-induced drive. The hypothesis suggested that punishment served as a form of frustration, increasing the total instigation to aggression. However, when punishment was so severe that it inhibited the specific actions punished, the increased aggressive instigation would be manifest only in forms of aggressive activity different enough from those punished not to suffer from inhibition by means of stimulus or response generalization(p. 474).

The child's expression of aggression is a function of his estimate of parental aggression determined by the degree of "counter-aggression" exercized towards himself. That is, the child's experience of control will tell him how much and when "aggression" will be tolerated. In an interactive relationship as described by Sears, attack or punishment by a parent should be expected when his/her needs can be met by causing discomfort to the child who in turn tries to reduce the discomfort by meeting the aggressor's needs. That is, the person has discovered or learned the instrumental value of aggression. Sears(1963) himself

has questioned whether the concept of drive instigation is an economical one; but, he has not discarded this hypothetical construct.

Haner and Brown(1955) stressed the distinction between habit strength and drive as components of excitatory potential. Thirty children of both sexes, grades 2 through 4, participated in their study. They developed a game-like apparatus with a clear starting point and goal which allowed the S to know at all times how near he was to the goal. The E could thwart the S at any desired distance from the goal without the S's awareness by sounding a buzzer which signaled the end of a trial. The Ss were required to place marbles in a 36 hole form-board. Completion of the marble placing task before the buzzer sounded was to be rewarded with a prize and candy. At the end of a trial, Ss pushed a plunger which reset the task, turned off the buzzer, and registered the amount of pressure by deflection. The authors regarded the increases in pressure as responses to frustration and as differentiated from instrumental responses. The use of the plunger response in addition to the marble placing requirement enhanced the interpretation of an increase in drive rather than a transfer of training effect which can be argued in the Bandura and Walters studies. Each trial was considered a "relatively independent" challenge reflecting immediate frustration rather than a cumulative effect.

Brown and Farber(1951) have presented a Hullian based, two-factor (drive and habit)-theory of frustration. Frustration, a hypothetical variable, is interpreted as a temporary process that is energizing and

directional. The consequences of frustration are an increment in general drive and/or frustration-specific stimuli(Brown, 1961). Related research by Marzocco(1951) concluded that heightened drive can be expected to increase the amplitude of any response evoked during "thwarting" provided stimuli accompanying frustration did not lead to excessively strong competing responses. Brown also raised the question that reduction in the "frustration" drive should be reinforcing. Therefore, the strength of a response might be expected to increase if that response followed a reduction of frustration.

Barbara Merrill's(1946) study is apparently the only investigation related to frustration-aggression theory according to Sears' interpretation that focused on mother-child interactions in an experimental situation. Thirty mothers were allocated to control or experimental groups by a matching process determined by a half-hour play session observation of mother and child. Behavior in two such sessions was recorded every five seconds according to a notational system for categories which permitted quantative and qualitative evaluation. The mother's behavioral characteristics assumed to have major theoretical significance as stimuli for the child were: "(a) the degree of contact between mother and child; (b) the degree of specificity of control of the child's behavior by the mother; and (c) the degree and manner of facilitation and inhibition of the child's ongoing behavior(p. 40)." After the first session, the mothers in the experimental group were told that their child was capable of higher achievement and that perhaps

his play would be more superior in the second session. The control mothers displayed consistent behavior in their management of the child in the second session. The experimental mothers, however, showed a significant increase in directing, interfering, criticizing, and structuring-a-change-in-activity types of behavior. Merrill's interpretation of her data suggested a mother's relationship with her child is influenced or changed by her own achievement motivation. When this motivation is restricted to a specific situation and is definable in terms of desired performance, the mother will assume direct control and impose her standards rather than interact in a way which fosters the child's autonomy. A wide range of individual behavior patterns was demonstrated; some relationships between maternal behavior and child personality were noted in three cases. Other interpretations of the experimental mothers' behavior which included responses of higher or more intense magnitude are: (1) response to frustration or thwarting of motivation which resulted in increased drive and "aggressive" behaviors; (2) instrumental aggression; or, (3) changes in activity level which the child did not view as punitive towards himself--the child not being an "appropriate target."

Berkowitz(1958) has criticized the studies by the frustration-aggression theorists as being equivocal because they fail to deal with the following limiting conditions. The occurrence of an aggressive act reduces the instigation to aggression unless "(a) the frustration persists, adding further strength to the aggressive drive, (b) the aggressive

behavior becomes a learned response, or (c) implicit verbal responses are aroused or aggression anxiety is produced which lead to further frustration(p. 274)." Some experiments have failed to distinguish between aggressive responses and the instigation to aggression; therefore, a decrease in hostile behavior may be due to drive reduction or response inhibition.

Bandura and Walters'(1963) socio-behavioristic approach also defined aggression as a sequence in which the goal response is injury of the person to whom it is directed. Intentionality is not a property of the aggressive behavior but refers to inferred antecedent conditions. Frustrating situations are stressful stimuli that will elicit, according to the character of the stimuli present, response patterns that are currently dominant in the individual's response hierarchy. Frustration was defined as all operations or conditions that prevent or delay reinforcement. In contrast to the frustration-aggression group, frustration is not considered a necessary or sufficient condition for eliciting aggressive responses(Brown & Walters, 1963).

In Walters and Brown's(1964) test of high-magnitude theory, they hypothesized that training on high-intensity responses would lead a child to behave in interpersonal situations in ways that would be labeled aggressive. Training on a Bobo-doll apparatus and lever pressing were positively related to later activity in physical contact games rated by observers. Bandura and Walters have also contended that aggressive responses acquired through intermittent reinforcement in

nonfrustrating, nonpersonal situations may be used to overcome blocking or thwarting in interpersonal situations(p. 127). The transfer of aggressive responses learned under such conditions was also investigated by Walters and Brown(1963). After training for aggression on the Bobo apparatus with three schedules of reinforcement, 7-year-old boys were frustrated by the interruption of a movie and loss of candy. This was followed by vigorous body-contact games. The lack of significant difference in aggressive behavior between frustrated and nonfrustrated subjects indicated that the games may have elicited aggressive or at least high-magnitude responses as a function of the boys' response hierarchy. It cannot be considered however that "training" for aggression, the antecedent condition, was the major determinant of the boys' roughhousing. No premeasures of the boys' usual or response-dominant, free play were obtained.

Walters'(1964) discussion of the high magnitude theory of aggression stated that the classification of a given behavior as aggressive "involves both a value judgment and the identification of a response as possessing certain specifiable characteristics(p. 303)." Accordingly, the high magnitude response "increases the probability that the agent will be regarded as behaving in an aggressive manner(p. 304)." Lovaas, Baer, and Bijou(1965) have questioned the use of the Bobo-type apparatus since it is conceivable that the maintaining stimuli included kinesthetic feedback, noise generated by hitting, hitting hard without getting hurt or symbolic "hurts." A further qualification of the argument that high

magnitude responses will be interpreted as aggressive would be to limit its application to situations involving behaviors directed against some person or object where there is some probability of reaching that object, removing it or imparting a noxious stimulus to it(Kaufmann, 1965). Or, some association should be demonstrated between high-magnitude responses and consequent injury.

Berkowitz(1962) has combined the drive of frustration-aggression theory with pure stimulus theory(cf. Zawadski, 1948). Berkowitz's(1964) argument is that "anger and learned habits separately or together create a readiness to act in a hostile manner, and particular cues--stimuli associated with present or previous anger instigation--are necessary if anger responses are actually to occur(p. 104)." An activated aggressive response sequence does not attain completion until the anger instigator is injured. Prevention of completion of such an activated sequence leads to an increased strength of any subsequent aggressive responses and higher levels of tension experienced by the person. The requirement that some cue functioning as a releasor be present differs from drive formulations in which aggressive drive pushed aggressive acts toward whatever target happened to be available and safe to attack. Aggressive evoking stimuli or instigators are determined by (1) the extent that they are associated with previous anger or aggression instigators, and (2) associations with immediately preceding frustrator and with people with or from whom aggressive actions were learned(Berkowitz, 1962; Berkowitz & Green, 1962).

Levin and Turgeon (1957) used a doll play situation to study the effects of the presence of the mother or a stranger on children's aggression. If inhibitions were relaxed, the amount of aggression should have been a function of the instigation to aggression or how severely the child was punished at home (Sears' expectation). However, the data indicated that the presence of a familiar person, the mother, is associated with a relatively great release of overt aggression. The mother might also be considered a discriminating cue for certain types of behavior as suggested by the Berkowitz formulation. That the behaviors tended to be aggressive further suggests that the mothers have been associated with previous anger and/or are the persons from whom aggressive actions have been learned. The increased strength of such responses may also have been related to the interruption of an activated sequence of aggressive behaviors at home. The contradictory results of the study underscored the need for the specification of agents and objects of aggression especially in the analysis of fantasy situations in terms of similarity to approved and disapproved conditions for aggression. Doll-play measures have not had a high linear correlation with independently derived indices of aggression (Korner, 1951; Sears, 1950). Doll play procedures have placed limitations on ascertaining: "(1) the precise stimulus aspect of the situation affecting the child's behavior; (2) the function of these stimuli; and (3) the quantification of relations between stimuli and the child's behavior (Lovaas, Baer, & Bijou, p. 238)."

Berkowitz (1962) has cited evidence which indicated that the thwarted person may obtain some tension release, a feeling of pleasure or tension reduction, by attacking the frustrator. However, he has further stated that it is problematic whether overt hostility will lessen the likelihood of any further aggression against the frustrator. The "frustrator may acquire stimulus properties which, under the appropriate conditions, can cause him to evoke aggressive responses from his victim on some later occasion (1964, p. 111)." Such a formulation is in contrast to the catharsis hypothesis implying drive reduction or a lessening in the strength of the instigation to aggression.

Berkowitz (1968) has more recently emphasized the level of inhibitions in addition to high frustration and immediate cues as determinants of behavior. In reviewing related research, he has detected a "snowball effect" in which the person's own actions, even if they were not initially emotionally aroused, provided their own aggressive stimuli and pulled out further aggressive responses (p. 22).

Several issues raised in the previous discussion were investigated in the present study. This study involved a laboratory situation in which the mother's interaction with her child was restricted according to the conditions described in Chapter III. The mothers' aggressive behavior was operationally defined in terms of decrease in reward and by an increase in pressure, an intensity or magnitude measure. Frustration or an activated aggressive response sequence for mothers in the experiment was induced by the requirement of extra time and trials and an interpretation of the child's poor performance as a result of inattentiveness to mother's instruction, lack of cooperation,

or perhaps pokiness.

The study to be described was an exploratory one conducted within a controlled environment and with a well-defined task. The major focus was on the mothers' responses to the situation. However, the following expectations according to different theoretical formulations were considered.

a. Berkowitz. If poor performance is associated with inappropriate behavior by the child and these stimuli were associated with present or previous anger instigation, then such feedback on the child's behavior should initiate an aggressive sequence in the mother. The frustrator, the dild, may have acquired stimulus properties which under the appropriate conditions evoke aggressive responses on later occasions. Therefore, mothers in the experimental group should reward less when they are allowed to reward on the third template, the last of a series of tasks, even though their child's performance on this trial represents an improvement over the previous trial and is the same as his performance on the initial template. Intensity measures should increase on the second template (activated aggressive sequence) and reach a significantly greater intensity on the third trial when the mothers have access to the target via reward dispensation.

b. Sears. In accordance with drive formulation, aggressive responses should occur towards whatever target is available, providing accompanying stimuli do not inhibit such responses or lead to excessively competing ones. An increase in intensity is expected on the second template for the mothers in the experimental group. The instigation to aggression should increase until the mothers are allowed to "aggress" on the third template. A significant decrease in reward should be associated with a marked change or lowering

of intensity on the third template -- the tension reduction effect.

c. Learning theory. According to a reinforcement position and also consistent with the Sears' notion described on page 4, a decrease in reward could be considered an instrumental response in terms of the mother's past child-rearing experience. That is, decreasing reward is reinforced by the change or improvement in the child's behavior on template 3. According to Hullian based formulations, the consequences of frustration are an increment in general drive. But in a reinforcement conceptualization, the reduction of the drive should be reinforcing and therefore, the magnitude (or intensity) of the response might be expected to increase. Changes in either direction on intensity measures would be interpretable but not predictable.

d. If higher magnitude responses on template 3 occurred without significant changes in the amount of reward and higher magnitude responses were interpreted as indicative of frustration and stress, the data would not support the Sears' expectation. Such a result might also suggest that the child was not the appropriate cue to evoke aggressive behavior in the mother.

e. Becker. Mothers whose children are identified as highly aggressive should be significantly less rewarding or "punitive" (Sears) and have responses of higher intensity (Bandura and Walters) on initial comparison.

Chapter III. Method

Pilot Study. Six mothers and their sons were tested in order to verify equipment operation and programmed responses, to gain feedback on clarity of task instructions, types of questions and answers required in the explanatory period following testing, and to determine time allotments for various conditions. Results of this testing will be noted in the description of procedure.

Subjects. Forty-six mothers of boys 1½ to 6 years of age volunteered to participate in the study in response to a request letter describing a project on teaching machines (see sample letter in Appendix A). Only mothers of boys were asked to participate in view of the literature on sex differences in aggressive behavior and differential parental reaction(Buss, 1961; Sears, 1961). In response to the letter, a majority of mothers at each school responded with positive interest. Mothers included in this sample were those available at times specified by the examiner and limited by the school's allocation of time and space. The mothers are described in Table 1. All the schools contacted were privately organized with additional tuition fees.

Mothers were tested at the schools in which the examiner had use

Table 1

Description of Subjects - Mothers

Source	Number	Son's Age	Son's Class	Socio-economic
School H	6	4 1/2 - 5	Kindergarten (Senior)	Upper-class; college graduates
School V	19	5 - 6	Kindergarten	Middle class; high school graduates
School L	16	5 - 6	Kindergarten	Middle class; high school graduates
School U	5	4 1/2 - 5	Nursery	Upper-class; college graduates

of adjoining rooms or restricted foyers. Each mother was seated at her work area first; then her child was taken to his workroom in the adjoining area. Actually, at Schools H and L, the children were returned to their classrooms. They were initially asked by the examiner's assistant to come and see their mothers at work and told of the "game" which the examiner was playing with their mothers. For their part in the game--returning quietly to class--the children were promised a candy reward. A fancily wrapped package of assorted candy was given to each mother for her child. Children at Schools V and U were taken into an adjoining room where they were entertained by an assistant, allowed to watch the equipment, played a marble game with patterns, etc. They were encouraged to do so quietly for which they also received a candy reward. The mothers were isolated except for the times the examiner entered to give her instructions. The mother was told that she could knock on her door to signal any difficulty rather than to leave her work area. Because of the disruptions involved in asking questions, six mothers were dropped from the final results. Some of the necessary equipment was visible to the mother on her way to her position; some mechanical noises were also audible. The mothers were apprised of these devices and expected to hear timers and counters which were to be registering their child's performance. According to the pilot study mothers, seeing the equipment made the concept of working on a teaching machine more impressive. The noises were not distinguishable as to purpose, were not distracting or did not seem

to affect mother's reward or intensity measures.

Mothers were randomly assigned to control and experimental groups prior to meeting with the experimenter.

Task. The experimental design required measures of intensity-pressure and changes in amounts of reinforcement or reward which could be incorporated in a testing situation which was credible and personally non-threatening to the mothers. The design also required a situation in which the mother would supposedly interact with her son but such interactions would be channeled or limited by the experimenter. It was decided therefore, to present the mothers with a long-term project on simple teaching machines in which such issues as types of reward, sex differences, pattern perception, parental participation, etc., could be considered. Such a project also precluded any immediate reporting of results to the parents. Each mother was told that any information the experimenter would eventually be able to share with the schools would be of benefit to other younger children. This conception allowed for a "debriefing" or explanation of the deception involved--not actually working with their own child--in a setting that could be understood as necessary and as a contribution to educational research.

Apparatus. Mother's workboard consisted of a 16" square masonite pegboard on which the holes had been enlarged to 5/16" diameter to accomodate a marble, 5/16" diameter; translucent; red, blue, or yellow in color. The board was underlined with heavy aluminum foil to give the appearance that placement of the appropriate marble would establish

electrical contact and signal the child as to his task. This board was framed with a smooth wood border, 3 3/8" x 1 1/2". At the top of the board were two signal lights(Dialco 81-1059-0431-102 indicator lights) which were labeled red-wrong and green-right. At the bottom or side closest to the mother, in the center of the frame, was a push button identified as the "reset" button. This switch(GE #173C951-1 DPST) was modified to SPST and transducer, a wafer type micro-ducer, Clark Model CS-5-50, pressure cell 0-50lbs. This provided the intensity measure which was recorded by an Esterline Angus Graphic Ammeter Model AW, a single channel curvilinear recorder with a scale in D.C. milliamperes, 0-1.0. Pressing the reset button actually activated the following equipment that provided scheduled information to the mother. This program included time intervals and designation of supposed responses by the child as right or wrong. The program for individual templates is contained in Appendix B. The feedback equipment was contained on a wooden rack made to accomodate it. Included were:

a) Foringer equipment:

Unit Number	Description
1181-M11	timer(one)
1161	response translators(three)
1792	distribution sorter(one)
1191	contingency board(two)
1704	counter(one)
1153	low voltage power supply(one)

b) Grason-Stadler Model E1100H electronic interval timer(two)

c) Clarostat 5000ohm potentiometer, 2 watt, #53C1

The mother also had a small metal box with a push button, Grayhill

30-17B SPST switch, which was labeled reward. The box was independent of the board and had a long cord so that the mother could place it at her convenience or the experimenter could remove it during a non-reward trial. The button produced an audible click providing some feedback for the mother. Under reward conditions, the mother was required to reward at least once. This indicated that the mother was following instructions and had not simply forgotten part of her task(decided as a result of pilot study). The number of rewards was recorded on a Foringer 1704 counter contained on the equipment rack. The recording and programming equipment are shown in Figure 1. The apparatus as presented to the mother with a template already in place is shown in Figure 2. The colored marbles necessary for the task were in a round plastic container which the mother could leave on the table or hold as she preferred.

Templates. A white cardboard fitted into the mother's framed board and provided the mother with the color and sequence of patterns to be supposedly copied by her son. A series of three templates, each containing four designs, was used. The designs included geometric shapes, letters, and numbers of varying size. The designs were drawn from a pool of figures considered suitable(four marbles placed over holes arranged in straight columns and rows) and were randomly assigned to a template and position on it--upper right or left, lower right or left. The cut-out holes were circled in red, yellow or blue colored dri-marker. The sequence of holes was also designated in black numbers

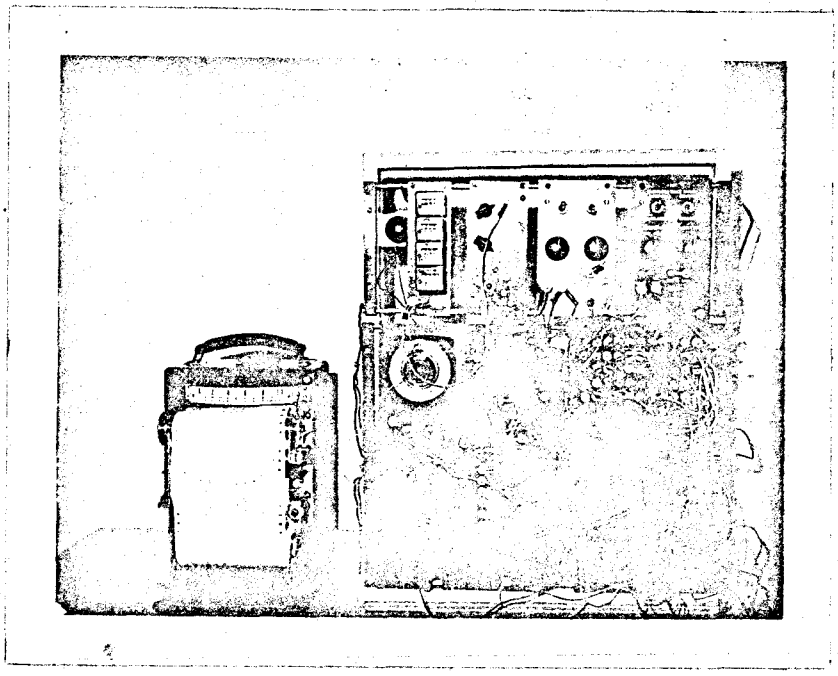


Figure 1. Recording and programming equipment.

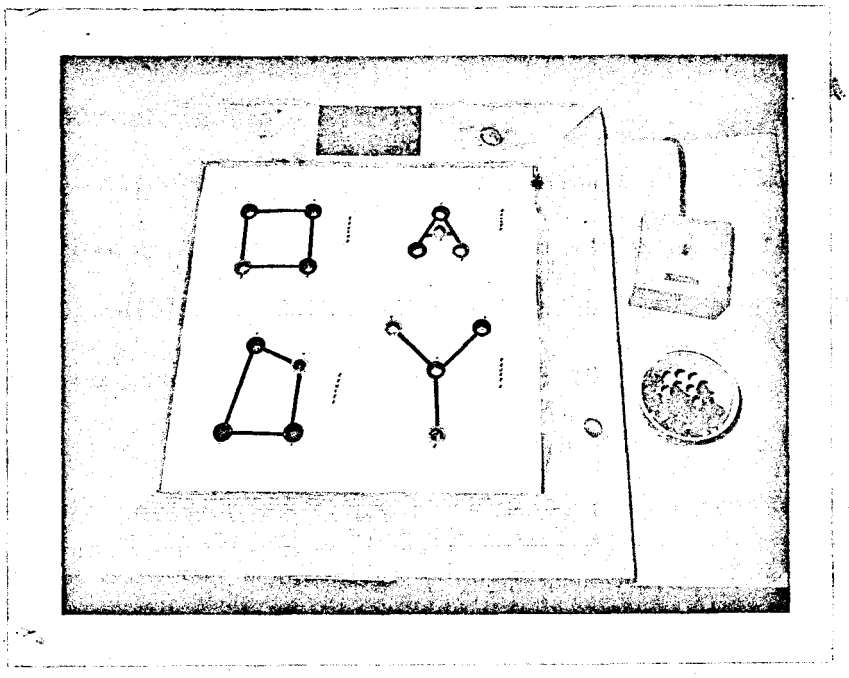


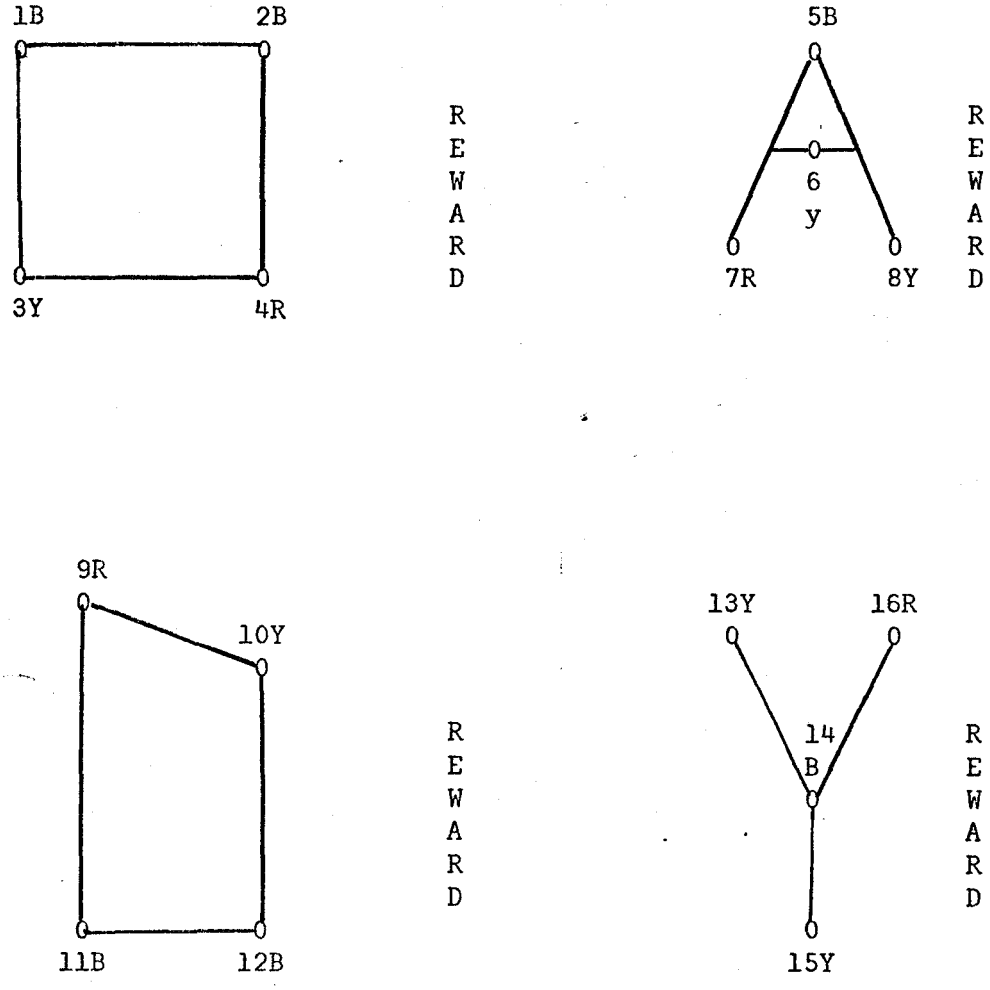
Figure 2. Mother's apparatus: workboard, reward box, marble container. Template 1 in place.

(1 through 16). The holes were connected with black lines to accentuate visually for the mother the child's task of pattern perception. On templates 1 and 3, the experimenter printed the word "REWARD" vertically after each design to remind the mother of her task. The designs used are presented in Figures 3a, 3b, and 3c. Information as to the child's performance on templates 1 and 3, the reward trials, was the same. Over the series of 4 designs, 4 marbles each, the ratio of right to wrong signals was 64:36. This level of performance was acceptable to mothers in the pilot group when emphasis on pattern perception, following instructions, etc., was included in the instructions instead of describing a simple color matching task. On template 2, performance information was changed to a 50:50 ratio.

Instructions. Formal instructions to mothers were the same on the first template and different for the two groups on the following two templates. A somewhat open-ended explanatory period followed the formal trial conditions.

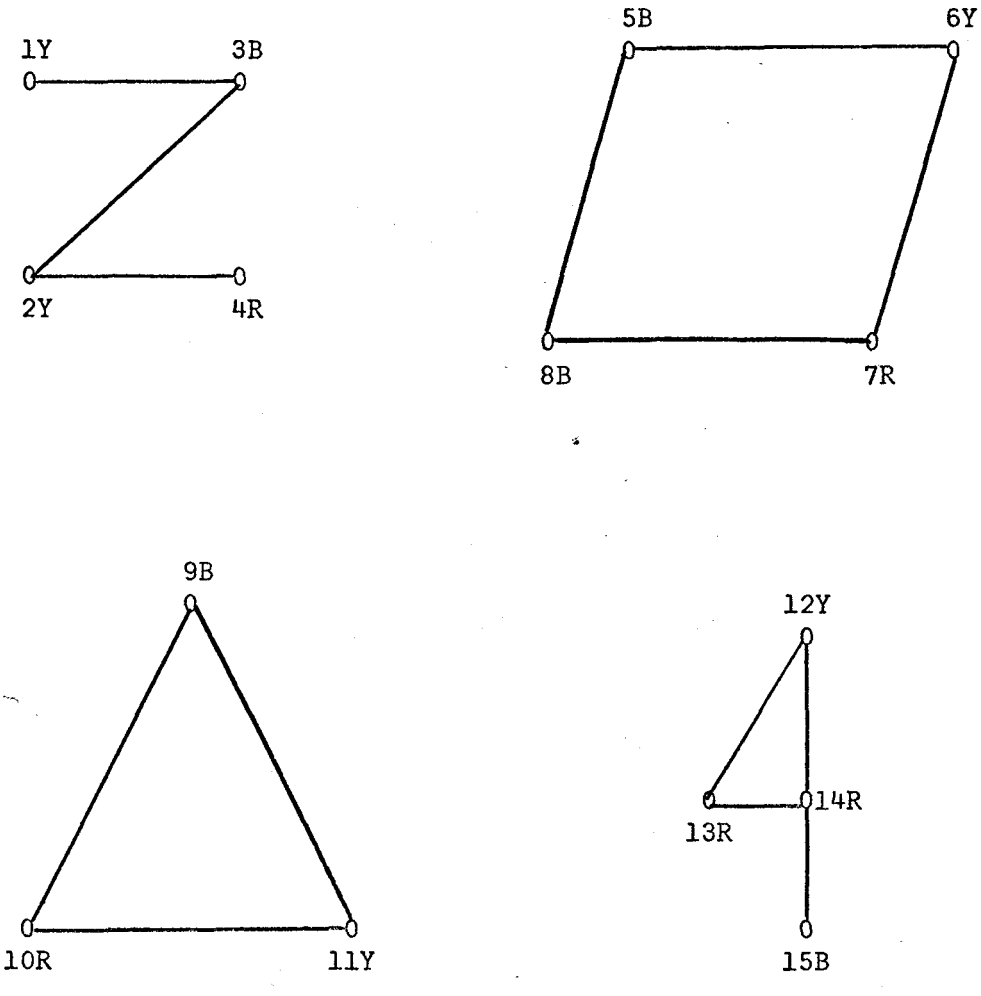
Instructions: Template 1. Both experimental and control Ss.

> "As you can see, this is a rough working model of a teaching machine. Your board has a metal sheet underneath while your son's board has colored lights under the holes. Your son has to match the color of the light when it goes one and place a marble in the right position to construct various patterns. He will know where to place his marble by the instructions you give him. You have the key to the patterns.(Shown template 1.) You must place the right colored marble in the hole, following the numbered order.(Demonstrated 1, 2, ...15, 16.) After you place a marble, push the reset button which will light his place. Then wait to see what he does. If he is right, the green signal will light; then place the next marble and push the reset button again. If he is wrong, the red signal will



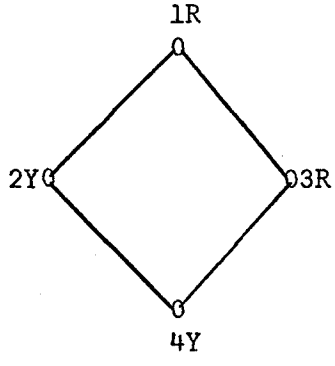
R = red
B = blue
Y = yellow

Figure 3a. Template 1.

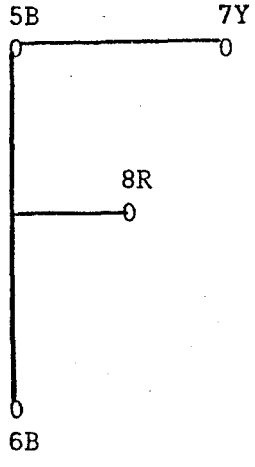


R = red
B = blue
Y = yellow

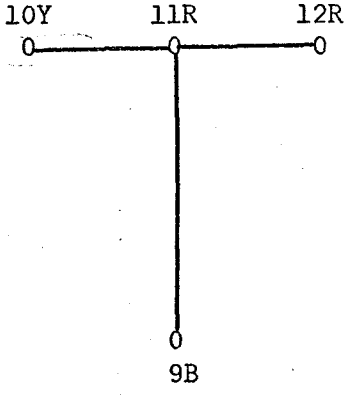
Figure 3b. Template 2.



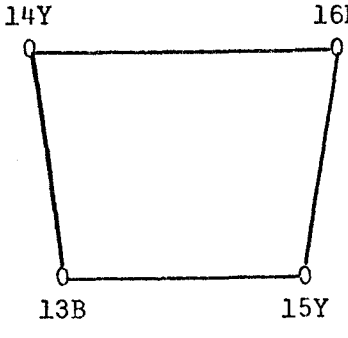
REWARD



REWARD



REWARD



REWARD

R = red
B = blue
Y = yellow

Figure 3c. Template 3.

light. We do not want him to continue until he corrects his mistake, so push the reset button again. He will then see that he is wrong and can correct his error. Continue working until you get a green light. Remember this is more than a color matching task; it is easier for you since you have the designs drawn for you. After the design like the square or "A" is completed, you are to signal the end of the design and can reward your son. We are also interested in knowing whether or not kindergarten(or nursery) children can be taught to work for a reward that can be dispensed by the machine. In school, your child is already learning to work for gold stars, "100's", etc.; we would like to see if he will work for a flashing light. Every time you push this button(demonstrated)his light will flash. We have told your son that so many flashes or points can be traded for candy. Actually, every child will receive the same package of candy. The word "REWARD" is printed on the card after every design to remind you to push the button at least once. You may reward him as many times as you like and may change the number of times you do after every design if you like. Remember, it is how many times you push the button and not how long you hold it."

Template 2. Experimental Ss.

"As you could tell, (NAME) is not doing as well as could be expected. Since we think he is capable of doing much better work, he is going to be given a practice set. (Template 2 put in place.) We have reminded him to pay attention and to be more careful about his work. He has also been told that you are in here working very carefully to give him the right instructions so he should try to "shape up" and do his work. Since this is an extra practice set, we cannot allow you to reward him. (Reward box taken off worktable.)"

Control Ss.

"Here is the next set of patterns. (Template 2 put in place.) This time we would like to see how he does without the reward light. Usually, the children's performance drops. So, you can expect your son not to do as well as he did on the first set. (Reward box removed.)"

Template 3. Experimental Ss.

"I'm afraid practicing didn't help much. (Most mothers nodded in agreement and/or verbalized that he had done worse. The experimenter did not disagree.) We will have to continue with the regular testing sequence. (Template 3 in place. Reward box replaced and instructions repeated as for Template 1.) If the mother questioned what her child was doing or wondered if he lacked special skills, the E repeated that she was certain that (NAME) had the ability to do the task well but for various reasons was just not concentrating and working as well as he could. Mother was also told that he was reminded of her participation and told to try and 'get with it'."

Control Ss.

"I'm sure you noticed that he did go down some in his work. However, compared to the other children, his performance really held up quite well. On this last pattern set, you will work as you did on the first series. (Reward box replaced and instructions repeated as in Template 1. Template 3 in place.)"

Following the trials, each control mother was told that she was not actually working with her child; that is, not receiving reports on his answers but a set of programmed answers determined by what children "usually do" on the task. If her child was returned to his class, she was so informed. If the child played with the patterns, she was told that he completed the patterns very quickly and had had time to play. The experimenter apologized for the deception and explained that it was necessary so that every mother was working in the same situation or with the same set of answers. It was further explained that her work was number coded and would be added to the normative data. The mothers were reassured that they were not being tested but that the experimenter wanted to see how mothers worked on the average with their

children. Such information might also be used to make changes in the "machine." The Ss were reminded that this was a long term project to determine if such a device would be feasible for home use under parental direction. The Ss usually asked questions at this point; for example, the restriction to boys only. The E replied that mothers tended to work differently with their sons as compared with their daughters and that the E wanted to determine if their was an effect on the task performance. This explanation appeared acceptable to most mothers. If an S continued to ask questions about the technique, pattern perception, teaching reading, etc., the E re-stated her question as an issue to be explored in the project. If the Ss commented on the apparatus or offered suggestions, the E accepted them graciously and thanked the mother for mentioning it. The S was then thanked for her time and interest in the project and given her child's candy package.

Mothers in the experimental group were debriefed similarily. The E went more slowly over the reasons for the deception and apologized most sincerely if the instructions had made her feel disappointed or temporarily angry with her son. Each S was allowed to express her reaction. No S was dismissed until the E felt she had understood the reason for the deception, felt comfortable about her performance, and had some sense of "doing a good thing" by giving her time to the study. The E also invoked the university's appreciation of her participation. This procedure varied in time from a minimum of 20 minutes to 35 minutes with each mother.

Aggression Index. The teachers at all the schools agreed to rate the children whose mothers participated in the study. A modified form of the sociometric index developed for classroom use by Eron, Banta, Walder, and Laulicht (1961) was used. The specific and general behavioral items were reworded for scoring on a 5-point scale according to frequency of occurrence; 1(never) through 5(very frequently). The index contained 22 specified aggression items divided into clusters: 1) teacher as object of aggression; 2) peer as object of aggression; 3) acquisitive aggression, i.e., "takes other children's things without asking." The form also contained three aggression anxiety items. The index is presented in Appendix C. Each child's score for aggression was the sum of the ratings for the 22 items. This material was number coded to correspond with the mothers' measures and to insure confidentiality.

Chapter IV. Results

The dependent variables were intensity/pressure measured in milliamperes and reward measured in integers. Both measurements were obtained on interval scales. A p x q repeated measures factorial design was used to evaluate the following variables: factor A--experimental (frustrated) and control (non-frustrated) groups; bactor B--conditions for templates 1 and 3 for reward scores and templates 1, 2, and 3 for intensity measures.

Reward scores which ranged from the required minimum of 1 to 11 were averaged across designs for templates 1 and 3. The mean reward scores are reported for the groups on each template in Table 2. The summary table for the analysis of variance for the reqard scores is contained in Table 3. The main effect due to different groups (frustrated and nonfrustrated) were significant ($F = 7.89$, $p < .01$). Tests of significance among the means for the groups on templates 1 and 3 are reported in Table 4. However, the nonsignificant difference between the two groups on template 1 ($t = .53$) indicates the two groups were comparable at the start of the experiment. Mean reward scores for experimental and control Ss were significantly different ($t = 2.41$, $p < .05$) on template 3. Changes between mean reward on templates 1 and 3 by the experimental Ss were significant at the $p < .01$ level.

Table 2

Mean Number of Rewards(N=17 per group)

Group	Template 1	Template 3
Control	2.79	3.50
Experimental	3.10	2.10

Table 3

Analysis of Variance for Reward Scores with Templates 1 and 3 as Repeated Measures

Source	SS	df	MS	F
Between Ss	25.44	33		
A (groups)	5.03	1	5.03	7.89**
Ss within groups	20.40	32	.64	
Within Ss	175.12	34		
B (templates)	.37	1	.37	.00
AB	12.37	1	12.37	2.44
B x Ss within groups	162.39	32	5.08	

**$p < .01$

Table 4

Tests of Significance among Means for Control and Experimental Groups on Templates 1 and 3 (Reward)

Means	df	t
Template 1: Control and Experimental Ss	32	.53
Template 3: Control and Experimental Ss	32	2.41*
Control Group: Templates 1 and 3	16	1.62
Experimental Group: Templates 1 and 3	16	3.91**

* $p < .05$
** $p < .01$

The median values of the intensity measures for each design on each template were averaged and are reported in Table 5. Initial intensity measures, template 1, for all Ss had a mean value of .516 m.a., SD = .289. The summary table for the analysis of variance for intensity scores is presented in Table 6. Inspection of the mean intensity values indicated a decrease in pressure for template 2 for all Ss. On template 3, there was a more marked increase in pressure for the experimental group compared to the control group but not as great as for template 1. A statistical procedure to provide control for an initial measures bias (assuming a linear effect) was completed for the intensity measures. An analysis of variance and covariance, 2 X 2 repeated measures design, with values on template 1 as the covariate is reported in Table 7. Analysis of the data including this method of control for variability due to experimental error did not result in any significant findings.

Relationships Between Measures. The product-moment correlation between intensity and reward measures for all Ss (template 1) was not significant ($r = .24$, $p > .05$).

Scores on the Aggression Index ranged from 88 to 24 with a median score 36.5. Sons' aggression scores were correlated with intensity and reward measures for all Ss on the initial template. The relationship between amount of son's aggression and mother's intensity score was not significant ($r = -.19$, t test of $r = 1.21$, $df = 32$, $p > .05$). However the relationship between level of son's aggression and the amount of mother's reward on the initial template was significantly negatively related to son's aggression ($r = -.41$, t test of $r = 2.58$, $df = 32$, $p < .02$).

Table 5

Mean Intensity Measured in Milliamperes (N =17 per group)

Group	Template 1	Template 2	Template 3
Control	.46	.42	.43
Experimental	.58	.49	.53

Table 6

Analysis of Variance for Intensity Scores with Templates 1-2-3 as Repeated Measures

Source	SS	df	MS	F
Between Ss	5.36	33		
A (groups)	.24	1	.24	.91
Ss within groups	5.12	32	.26	
Within Ss	2.90	68		
B (templates)	.06	2	.03	5.84
AB	.01	2	.01	.11
B x Ss within groups	2.84	64	.04	

Table 7

Analysis of Variance and Covariance for Intensity Scores with Templates 2 and 3 as Repeated Measures

Source	SS	df	MS	F
A (groups)	.22	1	.22	1.66
Ss within A	4.29	32	.13	
B (templates)	.01	2	.00	.00
AB	3.03	2	1.58	
Residual	.95	63	.02	
A-adjusted	.13	1	.13	1.06
Ss within A-adjusted	3.60	32	.12	

Possible changes in the relationship among sons' aggression scores and the mothers' intensity and reward scores were explored between templates 1 and 3 within each group. These correlations were tested for significant differences; the results of these tests are reported in Table 8. None of these values was significant.

Table 8

Tests of Significance between rs on Templates 1 and 3 (df = 14)

r	t
Aggression and Reward	
Control	.56
Experimental	.28
Aggression and Intensity	
Control	.53
Experimental	.92

Chapter V. Discussion

The significant change in reward scores for the experimental group of Ss on template 3 confirmed theoretical expectations of reaction to frustration by aggression or a decrease in reward. The significant decrease in rewards on template 3 as compared with template 1, both templates having the same right/wrong ratio, was in marked contrast to the control Ss' maintenance of level of reward and tendency in some Ss to minimally increase the amount. Changes in the control group's behavior were in the opposite or positive direction but were not significantly different from their initial or baseline measures. Although these results are supportive of the contention within the Berkowitz frame that the child is the cue or target for attack since the Ss did have the option of not changing their level of reward, a more conclusive demonstration would have been to include some other target. It should be noted however, that the behaviors of this sample of mothers always seemed child-directed; that is, no comments were made about a possible defect in the apparatus or that the E had not sufficiently explained the task to the child or supported him. Some of the Ss commented on their reluctance to administer even one reward flash which was required

by the procedure.

The changes in the reward scores also reflected the impact of the experimental instructions and the Ss reaction to the situation. The lack of relationship between the initial reward and intensity measures suggested two distinct behaviors were being measured.

Interpretation of the changes in intensity scores was confounded by possible experimental effects related to: Ss' relaxation following successful completion of a task on template 1; fatigue(response requirement = 80 pushes); a "finishing-up" effect on the last design of template 3. Both groups of Ss decreased in average level of intensity on template 2. However, inspection of the means on templates 2 and 3 demonstrated different trends between groups which were not statistically significant. The more marked increase in pressure on template 3 by the experimental Ss can be variously interpreted. The increase may have been a function of frustration which enhanced drive level. However, the measures used may have been inadequately sensitive to changes. Within this sample of Ss it may or may not be reasonable to assume that a finer calibration of intensity would result in a "significant" difference. Among a different population of mothers(of sons with behavior problems, different socio-economic class, etc.), evaluation of intensity measures might have been more informative. The minimal increase might also have been considered a function of the snowball effect described by Berkowitz. A more pronounced effect in the experimental group may have been diminished by the opportunity to aggress or decrease reward.

It might also be argued that a carthartic effect was demonstrated. However, the more supportive data for such a conclusion would have been a marked increase in intensity on template 2 and subsequent decrease on template 3.

A possible revision of the task to explore this issue further would be the use of templates with fewer response requirements, possibly one larger design per template, in which the E also maintained control over the reward given the child on the third template. That is, the mean number of rewards or largest number of rewards originally dispensed by the mother on the first template would automatically be administered to the child on the third template despite any changes the mother might want to make. The mother however would still be required to push or "reset" the device. Such a procedure should maximize differences between experimental and control Ss on the intensity measure and provide a better test of the increased drive assumption.

In the mothers' spontaneous reports of their reactions to their sons' supposed behavior, various verbal and gestural indicators of increased or more intense response were noted. For example, some of the mothers clenched their fists or made such comments as "Has he gone out to lunch?", "Is he goofing off again?", etc.

The relationship between sons' aggression outside the home--in the classroom--and the amount of reward dispensed by the mothers was significant and consistent with Becker's review. The low rewarding mothers had sons who were more aggressive in school. This relationship

did not significantly change under either group condition or from template 1 to template 3. Low rewarding mothers were limited by the experimental situation in terms of being able to be more "withholding The original baseline for many of these mothers was "1"; they were required to reward at least once. In a comparable everyday situation, complete withholding of rewards or other aggressive behaviors might occur.

The implication of these results is that mothers, when frustrated by their child's performance, will aggress towards their child or decrease their usual level of positive response(reward) in their interaction immediately following the frustrating experience especially when the task is similar. Mothers may have learned that such a procedure is "necessary" or instrumental in gaining the required performance. Incidents paralleling the laboratory study in the home would include interactions related to such tasks as homework or household chores. Such interactions might produce negative reactions to the whole learning situation dependent on the child's level of tolerance for such behaviors and other available positive reinforcement. One might further speculate about the frequency and/or intensity of such interactions in the homes of children identified as severe behavior problems in the classroom.

Chapter VI. Summary

Thirty-four mothers who volunteered to work on a teaching machine task were randomly assigned to two groups: experimental and control. Ss worked on a series of three templates for which they received feedback controlled by the E on the supposed right/wrong performance of their sons. Aggressive behavior was operationally defined in terms of decrease in reward and magnitude of response or pressure increase. These measures were obtained on both groups to establish a baseline on the first template. Experimental Ss were then frustrated by the E's report of her child's poor behavior.

Changes in the Ss' amount of rewarding on the third template which had the same ratio of success as the first template confirmed the theoretical expectations of a decrease in reward. No specific conclusions could be drawn in regard to the intensity measure due to possible confounding effects.

The relationship between sons' aggression, rated by teachers, and mothers' reward scores was significant and stable through the three templates; low rewarding mothers had sons who were more aggressive in the classroom.

References

Bandura, A., & Walters, H. H. Social learning and personality development. New York: Holt, Rinehart, & Winston, 1963.

Becker, W. C. Consequences of different kinds of parental discipline. In M. L. Hoffman, & L. W. Hoffman (Eds.), Review of child development research. Vol. I. New York: Russell Sage Foundation, 1964.

Berkowitz, L. The expression and reduction of hostility. Psychological Bulletin, 1958, 57, 257-284.

Berkowitz, L. Aggression: A social psychological analysis. New York: McGraw-Hill, 1962.

Berkowitz, L. Aggressive cues in aggressive behavior and hostility catharsis. Psychological Review, 1964, 71, 104-122.

Berkowitz, L. Impulse, aggression and the gun. Psychology Today, 1968, 2, 18-22.

Berkowitz, & Green, J. A. The stimulus qualities of the scapegoat. Journal of Abnormal and Social Psychology, 1962, 64, 293-301.

Brown, J. S. The motivation of behavior. New York: McGraw-Hill, 1961.

Brown, J. S., & Farber, I. E. Emotions conceptualized as intervening variables -- with suggestions towards a theory of frustration. Psychological Bulletin, 1951, 48, 465-495.

Buss, A. H. The psychology of aggression. New York: Wiley, 1961.

Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. R. Frustration and aggression. New Haven: Yale University Press, 1939.

Eron, L. D., Banta, T. J., Walker, L. O., & Laulicht, J. H. Comparison of data obtained from mothers and fathers on childrearing practices and their relation to child aggression. Child Development, 1969, 32, 457-472.

Hall, J. F. Psychology of motivation. Philadelphia: Lippincott, 1961.

Haner, C. F., & Brown, P. A. Clarification of the instigation to action concept in the frustration-aggression hypothesis. Journal of Abnormal and Social Psychology, 1955, 51, 204-206.

Kaufmann, H. Definitions and methodology in the study of aggression. Psychological Bulletin, 1965, 64, 351-364.

Korner, A. F. Relationship between overt and covert hostility-- economy and dynamics. Personality, 1951, 1, 20-31.

Levin, H. & Turgeon, V. F. The influence of mother's presence on children's doll play aggression. Journal of Abnormal and Social Psychology, 1957, 55, 304-308.

Lovaas, O. I., Baer, D. M., & Bijou, S. W. Experimental procedures for analyzing the interaction of symbolic social stimuli and children's behavior. Child Development, 1965, 36, 237-247.

Maier, H. W. Three theories of child development. New York: Harper and Row, 1965.

Marzocco, F. N. Frustration effect as a function of drive level, habit strength, and distribution of trials during extinction. Unpublished doctoral dissertation, State University of Iowa, 1951.

Merrill, B. A measurement of mother-child interaction. Journal of Abnormal and Social Psychology, 1946, 41, 37-49.

Miller, N. E. The frustration-aggression hypothesis. Psychological Review, 1941, 48, 337-343.

Sears, R. R. Relation of fantasy aggression to interpersonal aggression. Child Development, 1950, 21, 5-6.

Sears, R. R. Relation of early socialization experience to aggression in middle childhood. Journal of Abnormal and Social Psychology, 1961, 63, 466-492.

Sears, R. R. Dependency motivation. In Nebraska Symposium on Motivation. University of Nebraska Press: Lincoln, 1963, 25-64.

Walters, R. H. On the high-magnitude theory of aggression. Child Development, 1964, 35, 303-304.

Walters, R. H., & Brown, M. Studies of reinforcement of aggression: III. Transfer of responses to an interpersonal situation. Child Development, 1963, 34, 563-572.

Walters, R. H., & Brown, M. A test of the high-magnitude theory of aggression. Journal of Experimental Child Psychology, 1964, 1, 376-387.

Zawadski, B. Limitations of the scapegoat theory of prejudice. Journal of Abnormal and Social Psychology, 1948, 43, 127-141.

Appendix A

Loyola University
Date

Dear Mother:

Your son's school is co-operating in a normative study on the learning patterns of nursery and kindergarten children developed at Loyola University, Chicago. An important part of the program is the use of simple teaching machines which are adaptable for home and/or class use. One of the objectives of this study is to see how well the children will do when they can work with their own mother's help on a mechanical device. The children will probably feel more comfortable in their work if they know they can rely on their mothers for instruction. Information on the children's rate of learning, ability to follow directions, etc., will be added to the current standards already in use. Such information will ultimately be of value to your child's school.

I am asking you to volunteer to work with your child on the project. Working on the machine should not be unpleasant or too demanding for your son. Some of the children really enjoy the pattern "games". It will take approximately 15 minutes of your time. I will explain the testing procedure before you begin working. Each child's record will be identified by a code number assigned at testing.

(Details of meeting times and place with examiner)

Thank you in advance for your co-operation. Your participation in this program will be a real contribution to the educational community.

Sincerely yours,

Margaret R. Procyk

(Time schedule--preferred time to be indicated by mother)

_____
Mother's Signature

PLEASE RETURN TO TEACHER by (Date)

Appendix B

TEMPLATES 1 and 3

Design	Time in Seconds	Signal: Right/Wrong
A1	20	R
2	15	W
2	10	W
2	10	R
3	10	W
3	5	R
4	10	R
B1	15	R
2	5	R
3	5	W
3	10	R
4	10	W
4	5	R
C1	5	W
1	15	W
1	10	R
2	10	R
3	5	W
3	5	R
4	5	R
D1	10	R
2	10	R
3	5	W
3	5	R
4	10	R

TEMPLATE 2

Design	Time in Seconds	Signal: Right/Wrong
A1	15	R
2	10	R
3	5	W
3	10	R
4	5	W
4	5	R
B1	20	R
2	10	W
2	10	R
3	10	W
3	5	W
3	10	R
4	5	W
4	5	R
C1	5	W
1	10	R
2	10	W
2	15	W
2	5	R
3	10	W
3	5	R
D1	20	W
1	15	R
2	10	R
3	10	W
3	10	R
4	15	W
4	10	W
4	10	W
4	5	R

Appendix C

NAME: #:

55

CHECK THE FREQUENCY OF OCCURRENCE OF THE FOLLOWING BEHAVIORS FOR THIS CHILD AS COMPARED TO OTHER CHILDREN YOU HAVE KNOWN AS A TEACHER.

	1 NEVER	2 SELDOM	3 OCCASIONALLY	4 FREQUENTLY	5 VERY FREQUENTLY
1. Disobeys the teacher					
2. Is a pest					
3. Starts a fight over nothing					
4. Makes it hard for the other children to get things done					
5. Is rude to the teacher					
6. Takes the teacher's things without permission					
7. Tattles to the teacher					
8. Gets into trouble					
9. Says mean things					
10. Pushes or shoves other children					
11. Does things that bothers others					
12. Forgets to return borrowed things					
13. Says "Give me that!"					
14. Takes other children's things without asking					
15. Complains to the teacher when she tells him what to do					

#:

56

	1 NEVER	2 SELDOM	3 OCCASIONALLY	4 FREQUENTLY	5 VERY FREQUENTLY
16. Grabs things from other children	/	/	/	/	
17. Gives dirty looks or sticks out tongue at other children	/	/	/	/	
18. Fights back if someone else hits him first	/	/	/	/	
19. Gets very, very mad	/	/	/	/	
20. Uses bad words when another child bothers him	/	/	/	/	
21. Marks on the desk or other things	/	/	/	/	
22. Makes up stories and lies to get other children in trouble	/	/	/	/	
a. Is polite	/	/	/	/	
b. Argues when he is right	/	/	/	/	
c. Fights when picked on	/	/	/	/	

APPROVAL SHEET

The dissertation submitted by Margaret Rose Procyk has been read and approved by members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

6-23-70
Date

Joanne Foley
Signature of Advisor