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Imitation of complex social responses under conditions of prior positive social interaction and withdrawal of positive social interaction.

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IMITATION OF COMPLEX SOCIAL RESPONSES UNDER CONDITIONS OF
PRIOR POSITIVE SOCIAL INTERACTION AND WITHDRAWAL
OF POSITIVE SOCIAL INTERACTION

A thesis Presented

By

Leatrice M. Sherer

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ABSTRACT

The purpose of this study was to explore the relationship of social interactions to enhanced social reinforcer effectiveness. Previous research in this area was presented from the framework of social drive- anxiety arousal and expectancy - valence theories. The predictions were that both a prior social interaction that was consistently positive and one in which positive interaction was discontinued would facilitate subsequent social reinforcement, but that the discontinued interaction would facilitate it more. Forty-two second grade girls role-played a mother in a supermarket and were then scored for changes in style similar to the role E modelled. No significant differences in facilitation of reinforcement were found. Results were discussed in terms of procedural deficiencies.

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A major drawback in extending social learning principles to nonlaboratory situations has been the highly personalized and qualified nature of social reinforcement. Much research has produced few uniform conclusions about the kinds of demographic, personality, and situational variables which tend to facilitate the effectiveness of social reinforcement. Little is known about why one person is an effective reinforcing agent while another person with similar characteristics is an ineffective reinforcing agent. Moreover, the choice of tasks employed by previous studies indicates that the working philosophy has been that the complexities of social reinforcer effectiveness can be unravelled only in highly structured, cognitive, task-oriented situations.

The present study attempts to highlight the interaction between a child and a reinforcing adult as a crucial determinant of social reinforcer effectiveness. Specifically it compares a child's response after interacting with an adult who is first positive and then withdraws all positive contact. This study also attempts to show that facilitation of social reinforcement can be tested in a complex social situation by using increased rate of an instrumental social behavior as the index of social reinforcer effectiveness. Since imitation is the process through which much of

socialization is achieved it was chosen to be the dependent measure.

The experimental procedure approximates an actual socialization situation in which both role behaviors and social response tendencies are learned. Following an interaction sequence with an adult, each child observed that adult in a supermarket modelling several types of verbal responses a mother might make to a child's requests for food, attention, and chore-sharing. Although it was assumed that imitation would occur as a generalized learning approach if the opportunity were provided, it was also assumed that imitation is a type of behavior which can be instrumental in obtaining social reinforcement (See Gewirtz & Stingle, 1968). Viewed in this way, the amount that a child imitates an adult, following a social interaction with that adult, is indicative of that adult's potential as a reinforcing agent for that child. The type of interaction in which he engages facilitates or inhibits an adult's effectiveness in later reinforcement situations with a child.

Demographic Variables as Predictors of Social Reinforcer Effectiveness

The nature of the interaction between a child and a reinforcing agent was chosen for study because it is the most

interesting variable facilitating social reinforcer effects in complex social situations and because it can easily subsume facilitation effect elicited by more basic variables. Such variables, like sex (Gewirtz & Baer, 1958a, 1958b; Gewirtz, Baer, & Roth, 1958; Stevenson, Keen, & Knight, 1963) , age (Allen, 1966a; Dorwart, Ezerman, Lewis, & Rosenhan, 1965; Gewirtz & Baer, 1958a; Lewis, Wall, & Aronfreed, 1963; McGrade, 1966) socioeconomic class (Endo, 1968; McGrade, 1966; Rosenhan, 1966; Sgan, 1967), and race (Allen, 1966b; Rosenhan, 1966) of the child, have proved to be poor predictors of enhanced effectiveness of social reinforcement. However, when differences in sex, race, or socioeconomic class occur between the subject and the experimenter, social reinforcement is more consistently facilitated.

Several studies show that children are most affected by negative reactions from opposite-sexed agents (Gewirtz & Baer, 1958a, 1958b; Gewirtz et al., 1958; Rosenblith, 1959, 1961). In these studies copying in response to praise increased faster following isolation from or deprivation of positive reinforcement from a person of the opposite sex. Racial and socioeconomic class differences produce results opposite from those of sex differences. Children respond to praise from dissimilar adults with higher performance rates (Allen, Dubanoski, & Stevenson, 1966; McGrade, 1966;

Rosenhan, 1966) but perform better for similar adults who have withheld reinforcement (Allen et al., 1966).

The findings that sex, race, and socioeconomic class alone did not alter a child's responsiveness to an adult, but that differences within these variables between the child and the reinforcing agent produced differential responsiveness suggest that facilitation of social reinforcement effects is dependent on the social interaction. Differences in sex, race, and socioeconomic class actually serve as cues which alter the child's present responsiveness according to his previous experiences with such adults. In the case of race or socioeconomic class, one explanation is that children are inexperienced with and therefore deprived of positive reinforcement from dissimilar adults so that they are more responsive to reinforcement dispensed by them (Rosenhan, 1966). Explanations can also be made in terms of anxiety arousal. Basically, however, demographic variables elicit learned sets of behavior or expectations which alter the interaction and subsequent responsiveness to social reinforcement.

Social Interaction as a Predictor of Social Reinforcer Effectiveness

While the importance of the social interaction in enhancing social reinforcement effects seems clear and is

well documented, the type of social interaction that best facilitates social reinforcement is not clearly established. Social learning theorists have investigated this relationship from one of two major points of view. These two groups of theorists predict oppositely which type of interaction maximizes responsiveness to later reinforcement. One position is cast in a motivational framework and includes the work of Gewirtz on social drive (Gewirtz & Baer, 1958a, 1958b; Gewirtz et al., 1958) and Walters and his colleagues on anxiety arousal (Walters & Ray, 1960; Walters, Marshall, & Shooter, 1960). The social drive theory equates social reinforcement with primary reinforcement -- both are enhanced in effectiveness if they terminate a deprivation state for that class of reinforcers. Accordingly social reinforcers, like primary reinforcers, are rewarding through drive reduction. Gewirtz states that a social drive is acquired because of repeated associations of social stimuli with primary reward. Once social drive is acquired, however, it is as intense as but independent of primary drive and deprivation of social stimuli, by social isolation or by low availability of positive social stimuli, elicits behaviors aimed toward reinstating the deprived stimulation.

Walters' concept of reinforcement is similar to that of Gewirtz except that he expands it to include all social stimuli which tend to reduce anxiety. He also states that

social stimuli can reduce anxiety caused by many different classes of antecedent conditions. Social deprivation and isolation represent only one type of manipulation. They elicit anxiety because this is an emotional response conditioned to the removal of positive social stimuli. Anxiety is originally learned when separation from or low availability of the mother becomes associated with loss or delay of the satisfaction of primary needs. Isolation or social deprivation signals pain or discomfort and thereby arouses anxiety.

Although these two theories are distinct in focus and scope, both the social drive theory and the anxiety-arousal theory predict that a motivational state will follow removal of positive social stimuli and will be reduced only by the presentation of those stimuli. Concordantly, both theories predict that any person, who is already sufficiently responsive to rewards dispensed by social agents, will be most influenced by social reinforcement by a specific social agent if he has just been deprived of social reinforcement by that agent or by another agent. Both authors would predict that a period of prior deprivation for positive social reinforcement, induced by neutral, negative, or no interactions with a social agent, will enhance the effectiveness of positive social reinforcement subsequently dispensed by any social agent. A period of

prior exposure to positive social reinforcement will reduce the effectiveness of positive social reinforcement subsequently dispensed by any social agent.

The second major theoretical position concerning the role of social interaction in facilitation of reinforcement is cast in an expectancy or attitudinal framework (Bandura & Walters, 1963; Berkowitz & Zigler, 1965; Berkowitz, Butterfield, & Zigler, 1965). According to this position, a person is more likely to be influenced by an agent from whom he can expect reward than by an agent from whom the probability of positive social feedback is low. The probability of reinforcement from social agents in general is learned through experiences with past social agents, but each new encounter with a social agent provides information with which general expectancies for reinforcement can be adjusted for that agent. Concordant with these formulations, expectancy theorists predict that a person will be most influenced by the social reinforcement dispensed by a social agent if he has just received social reinforcement from that agent. A prior period of social reinforcement, experienced in the context of a positive interaction with an agent, will enhance the effectiveness of any positive social reinforcement subsequently dispensed by that agent.

The differences between the two theoretical positions

focus on the issue of the type of interaction which better facilitates social reinforcement effects and on the generalizability of that facilitation. Motivational theories say that an encounter devoid of positive social interaction will enhance the potential of positive social reinforcement in subsequent interactions because of an increased social drive or elicited anxiety. Conversely, a prior positive interaction either satiates social drive or produces none of the anxiety which enhances performance. Expectancy theorists predict that a positive encounter alerts a person to the probability of continued positive reinforcement so that he is influenced by further positive reinforcement. Negative encounters signal decreased probability of positive reinforcement to a person who will then be less likely to attend to or be influenced by subsequent positive reinforcement.

For motivational theorists the important focus is the state of arousal. If a person is aroused, the effectiveness of reinforcement is mostly dependent on the choice of reinforcement suitable to his state of arousal; the reinforcing agent is secondary. Any agent, therefore, can effectively dispense reinforcement subsequent to the experimental manipulations of another agent. In expectancy theory, however, the important focus is the reinforcing agent. He serves as the discriminative stimulus for the

probability of reinforcement. Each new agent carries a different reinforcement potential dependent on his style of interacting in the situation. The effects of experimental manipulation, therefore, are not generalizable directly from one situation or agent to another.

Berkowitz (Berkowitz & Zigler, 1965; Berkowitz et al., 1965) summarizes the implications of the two viewpoints and adds a third dimension on which they differ. He expands expectancy theory from learned probabilities to the level of active evaluation by the person. He states that if an agent engages in positive interaction with an individual, the agent assumes a positive valence for that person and will therefore be an effective reinforcer for him. According to valence theory, the individual's attitude toward the agent is the determinant of that agent's reinforcer effectiveness. An individual, therefore, must be viewed as an active evaluator who is in control of his sources of reinforcement. If one adheres to a motivational viewpoint, then the person must be regarded as a passive recipient of learning principles which determine momentary fluctuations in reinforcer effectiveness (Berkowitz et al., 1965).

Berkowitz further states (Berkowitz & Zigler, 1965) that expectancy and valence theories account for long-term enhanced reinforcer effectiveness. He believes that reinforcer effectiveness immediately following reinforcement

is decreased because of satiation. Reinforcer effectiveness following deprivation is increased due to contrast effects or to anxiety because of confusion about the experimenter's valence. If, however, the satiation and anxiety effects are allowed to dissipate with time, the valence of the original interaction solely determines the effectiveness of subsequent positive reinforcement.

This attempt of Berkowitz to differentiate the two theories along the dimension of duration of effect is poorly founded. It is true that experimental effects dissipate with time, but they will completely disappear only if the two interactions are well spaced and if the reinforcing agent is different for each interaction. If, however, the agent is the same for both interactions, then he serves as a discriminative stimulus to elicit the original anxiety or social drive. This illustrates the inadequacy of trying to reduce real theoretical differences to variations in experimental parameters. On the other hand, two theories may be different yet can account for the same data. A second inadequacy of studies of facilitation of social reinforcement is an unspoken demand that only one theory be correct and therefore that only one pattern of results consistently occur. These extreme positions have prevented the establishment of more meaningful distinctions between the theories.

In order to appreciate the complexity of making these distinctions and to understand the crucial importance of social interactions in determining reinforcer effectiveness, it is important to review the research amassed to validate the motivational and expectancy theories of social reinforcer effectiveness.

Motivational Theories

Social Drive Theory

The social drive theory of social reinforcer effectiveness evolved from a series of studies by Gewirtz and Baer (1958a, 1958b; Gewirtz et al., 1958). Children who had either been treated coldly and then isolated, merely treated coldly, or treated warmly for the same period of time were then given social reinforcement to change their position preference on a marble-board task. Change was highest for the isolated children, slightly less for the coldly treated children, and much less for the warmly treated children. The frequency of nonreinforced, verbal bids for attention occurred in the same descending order for the three groups. The authors regarded these results as favoring a social drive explanation. Isolating children from social reinforcement deprives them of that reinforcement and elicits a drive for that reinforcement which enhances the subsequent effectiveness of social

reinforcers. Allowing children to receive abundant positive social reinforcement satiates them to this reinforcement and reduces the potential of that reinforcement to influence behavior.

Several studies have confirmed this ordering of results and the validity of a social drive explanation. Erickson (1962) found that children deprived of social reinforcement by an experimenter verbally conditioned to the reinforcer "Good" dispensed by that experimenter while he was completely obscured from view. Children who were given extensive reinforcement by the experimenter prior to the conditioning session responded poorly to his "Good".

Gewirtz and Baer have been criticized for their concepts of "social" deprivation and "social" drive. Hill and Stevenson (1964) originally believed that the increased performance to social reinforcement following Gewirtz and Baer's isolation procedure was due to increased responsiveness to all types of stimulation following stimulus deprivation. To validate their hypothesis they subjected one group of children to complete isolation but gave them toys to provide sensory stimulation. The completely isolated group was only slightly more responsive to social reinforcement, thus the authors concluded that social deprivation accounts for most of the increases in performance by children who have experienced social isolation or

sensory deprivation.

Endo(1968) criticized the Gewirtz and Baer studies by stating that social isolation enhances later performance by eliciting anxiety rather than social drive. He hypothesized that if a social drive were aroused by isolation, then isolated children would have higher performance rates to social reinforcers than would nonisolated children but would have similar performance rates to nonsocial reinforcers. If social isolation elicits anxiety, then isolated children would perform better to any type of reinforcement. His hypotheses were confirmed for middle class subjects and he concluded that "isolation acts as a motivational operation for a class of reinforcers and a class of subjects." Middle class children may be more sensitive to isolation or the loss of positive reinforcement since middle class parents dispense positive social reinforcement at higher rates than do lower class parents (Davis, 1943; Sears, Maccoby, & Lewin, 1957). Isolation would be perceived by middle class children as an extinction paradigm in which they would work harder to reinstate positive reinforcement.

The motivating properties of social deprivation have also been observed outside the laboratory. Bandura and Walters (1959) cite several studies that show that if rejection and nonnurturance are not extreme and if they are instituted after a child has learned to expect some affec-

tional rewards, then the child may develop withdrawal, overdependency, anxiety, and excessive conformity. Sears (Sears et al., 1957) reports that mothers who express underlying rejection through withholding of love as a disciplinary measure and who are intolerant of aggression have children of "marked dependency". Bandura and Walters (1959) summarize these studies with the statement that "once a dependency motive is established, any rejection or ignoring of a child serves to increase his dependency needs and to motivate attempts at obtaining gratification for these needs."

Additional confirmation comes from Hartup and Himeno (1959) who regarded approval-seeking as a dependency behavior and found that social isolation or disruption of a positive play interaction increased that behavior in children. They interpreted their results as showing that isolation from or disruption of positive interactions frustrates dependency behavior and increases its frequency. These results can be understood if "frustration" is translated into an extinction paradigm; then the increased "dependency behavior" can be seen as an attempt to reinstate the rate of reinforcement usually contingent upon these behaviors.

These latter studies expand the concept of social deprivation from Gewirtz and Baer's original social isolation to include rejection, withdrawal of love, and

inconsistency of interaction. Gewirtz and Baer also expanded their definition of social deprivation when they found that the low social availability of an adult, comprised by physical proximity with concomitant neutral (Gewirtz et al., 1958) or cold (1958a, 1958b) social interactions, produced results similar to, but not as great as, those of social isolation. They intended that their concept of social deprivation be broad enough to include anything that "sensitizes primarily those social stimuli which are in fact reinforcers for the child deprived...[The] effectiveness of a social reinforcer may be increased by its own deprivation (1958a)". In the remaining discussion the meaning of "social deprivation" will adhere to this broader definition.

Anxiety Arousal Theory

Walters also tried to discredit the concept of social drive (Walters & Ray, 1960; Walters et al., 1960). He stated that assuming a social drive is unnecessary for explaining increased social behaviors following social isolation. He maintained that social isolation increases reinforcer effectiveness only to the extent to which it arouses anxiety. To test this hypothesis he (Walters and Ray, 1960) replicated the procedure for the Gewirtz and Baer studies with four groups of children differing on the amount of anxiety elicited by the experimental manipulation. Walking to the testing

room with a stranger was expected to arouse anxiety. Children were placed either in an isolation-anxiety, satiation-anxiety, isolation-no anxiety, or satiation-no anxiety condition. In this study social reinforcer effectiveness was more enhanced for the groups which had been isolated than for those which had been satiated. In addition, groups defined as anxious were slightly more influenced by social reinforcement than were groups defined as nonanxious. In this study, the dimension of anxiety was a better predictor of social reinforcer effectiveness than was the isolation-satiation dimension. Walters repeated this study (Walters et al., 1960) with teenagers but manipulated anxiety to be test and achievement related. Again, anxiety made subjects more susceptible to social influence.

This study, along with previous data that high dependent children were more anxious than low dependent children (Jacubczak & Walters, 1959) led the authors to postulate that all active dependency behaviors, like help-and attention-seeking, all passive dependency behaviors, like response-shaping through demand or approval, are motivated by anxiety. When anxiety has been directly elicited, as in the test anxiety study above, susceptibility to social reinforcers and anxiety show a direct relationship. If anxiety is an emotional response conditioned to a prospective loss of positive reinforcement or to the onset

of negative reinforcement than studies showing that strangers are more effective reinforcing agents than are parents (McCoy & Zigler, 1965; Patterson, 1959; Stevenson et al., 1963) validate the notion that anxiety increases susceptibility to social reinforcement. Other authors have cited the same relationship between anxiety and dependency. For example, Hartup (1958) found that dependent, pre-school aged children who were subjected to a "nurturance withdrawal" condition were more influenced by subsequent reinforcement. He concluded that the withdrawal of nurturance aroused anxiety in the children.

Within an anxiety arousal framework, reinforcement is defined as any contingent stimulus which serves to reduce anxiety. Endo (1968), however, found that only social reinforcers suffice to reduce the anxiety elicited by manipulation of social interactions. He also found that the state of arousal elicited by withdrawing social reinforcement is not completely comprised by anxiety. Anxiety has often been found to increase learning or performance on tests. Endo hypothesized, therefore, that if isolation produced anxiety, then isolated children would learn faster on a forced-choice test. Since this hypothesis was not validated, Endo concluded that social isolation probably elicits mostly a social drive.

Critique of Motivational Theories

Endo's work has contributed greatly to keeping social drive and anxiety arousal theories distinct. Although both theories are motivational in explanation and both predict and account for enhanced effectiveness of social reinforcers following social deprivation, neither theory can be subsumed under the other. Both theories, however, can be criticized for their lack of parsimony. It is unnecessary to posit an intervening motivational state to account for increased social reinforcer effectiveness following social deprivation. Removal of positive social reinforcement is equivalent to the beginning of extinction. At this point in conditioning, the behavior being extinguished increases in frequency to reinstate the withdrawn reinforcement. Since positive social reinforcement is so often contingent upon dependency behaviors, its withdrawal will elicit increased dependency behaviors. Susceptibility to social reinforcement can also be viewed as a dependency behavior. This interpretation also accounts for the greater increases in social reinforcer effectiveness for high dependent and high anxious children (Bandura & Walters, 1959, 1963; Endsley & Hartup, 1960; Exline & Messick, 1967; Hartup, 1958; Hill, 1967; Jacubczak & Walters, 1959; Konstadt & Forman, 1965; Walters & Ray, 1960; Walters et al., 1960; Witkin, Dyk, & Faterson, 1962).

With the refinement of how social reinforcer effectiveness is mediated, the motivational theories quite adequately expand the concept of social reinforcement. A recent study demonstrates pointedly, however, that not all social reinforcement is mediated by reduction of a deprivation or anxiety state. Hill (1967) delineated two types of positive social reinforcement -- reinforcement through anxiety-reduction and reinforcement through the incentive value of attention and approval. To test the existence of the two types of reinforcement he divided his subjects into two groups. One group received feedback of success of performance and the other received feedback of failure. Hill called the subjects in the first condition high anxious and those in the second condition low anxious. Both groups showed subsequent increased performance with social reinforcement. Hill interpreted both performance increases as favoring an incentive interpretation of reinforcement. In the case of the anxious-failure group, he believed that the "incentive value of supportive comments in evaluative situations where failure has occurred is more important than the anxiety-reducing property of social reinforcement in determining level of performance." He added that positive reinforcement reduces the need for making bids for supportive attention so that the subject can focus on the task.

Although these statements are designed to contradict motivational principles, they actually seem to paraphrase a motivational explanation for the same result. Only an incentive interpretation of social reinforcement, however, can explain the result of increased performance to social reinforcement following a period of positive evaluation. Motivational theory predicts the opposite result. Clearly some supplementary notions are required to explain how a prior positive social interaction can both decrease and increase the effectiveness of subsequent positive social reinforcement.

Expectancy-Valence Theories

Some social learning theorists explain this apparent paradox by stressing a time perspective. In general, they argue, a person is most likely to be influenced by a person from whom he has received positive social reinforcement. On the basis of his past experiences, a person learns to discriminate which reinforcing agents will dispense positive reinforcement in the future. Consonant with these formulations, a prior positive interaction with an agent enhances that agent's subsequent reinforcer effectiveness. Interactions involving no, neutral, or negative social reinforcement reduce the effectiveness of social reinforcement dispensed by the involved agent. Generally, a subject's

experience with a reinforcing agent determines the attitude or expectancy he has for that agent or it determines that agent's valence for him. Within short-term, circumscribed interactions, however, a negative encounter actually enhances the agent's reinforcing potential due to social deprivation or to an anxiety-producing contrast between that agent's two manifested valences (Berkowitz & Zigler, 1965).

The predictions about duration of effects of social interactions were tested by Berkowitz (Butterfield & Zigler, 1965). He hypothesized that testing social reinforcer effectiveness soon after a social interaction would tap the effects of social deprivation, social satiation, or anxiety. Delayed testing would tap the more durable effect of the experimenter's valence. The results of this study, however, do not support a strict interpretation of either motivational or valence theory. Social reinforcement best enhanced performance when dispensed immediately following a positive interaction or delayed after a negative interaction.

Berkowitz's explanations for the divergent results are weak. He stated that a positive interaction may immediately enhance a desire and a preference to interact and thereby insure increased receptivity to positive reinforcement. If reinforcement is delayed following a positive interaction, the child will feel totally accepted

and may be less "motivated" to perform correctly for reinforcement. This explanation is not directly testable because the concepts are cast in subjective terms. His explanation for the second result is that performance immediately following a negative interaction may be reduced by debilitating anxiety, but if the task is delayed, performance will be enhanced by anxiety dissipated to an optimum level. His two interaction sessions were one week apart. When he found enhanced performance, Berkowitz ascribed one week as the optimum time interval.

The most salient support for valence formulations comes from studies of imitation which have concluded that introducing prior nurturance facilitates imitation (see Bandura & Walters, 1963; Sgan, 1967). Sgan (1967) hypothesized that nurturance-withdrawal would facilitate imitation more than consistent nurturance and much more than a consistently neutral interaction. Confirmation for only the consistent nurturant interaction over the neutral interaction led Sgan to posit a "post hoc support for a valence theory." Actually there was a trend for middle class children to be most affected by nurturance-withdrawal. This trend again suggests that facilitation of social reinforcement is in part dependent on a previously learned pattern of reinforcement.

Marinho (1942) investigated the dimension of time in

social influence. Children subjected to a negative encounter with an overbearing or unpleasant peer model produced little immediate or enduring change in food preferences. Ninety per cent of the children who had experienced a positive encounter with an amusing or affectionate peer showed immediate change toward that peer's food preferences. Some of these changes persisted for at least one year.

Evidence confirming the importance of attitude in social reinforcer effectiveness comes from verbal conditioning experiments. Weiss, Krasner, and Ullman (1963) induced a positive or a negative atmosphere by having the experimenter comment either on the subject's success or failure with a task. The positive set, induced by the feedback of success, facilitated conditioning. A negative set produced a decreased rate of verbal responsiveness. Differences between the two manipulations decreased as time lapsed after the original interaction. These authors also found that withholding reinforcement produced the same negative atmosphere and lowered rates of verbal conditioning as did stressing a subject's failure. This study may not be directly applicable to the present discussion. While it is true that being told of failure induces a negative atmosphere, failure can be interpreted as a performance falling below a standard not necessarily set by the experimenter. Since he may not be viewed as a "free agent," the negative interaction

induced by the experimenter may be perceived differently from a negative interaction believed to be deliberately induced. As such, subsequent attempts at reinforcement by the experimenter may be received with differential responsiveness.

In a more comprehensive study, Kanfer and Karas (1959) gave subjects prior experience with a positive, negative, neutral, or no social encounter and found no performance differences except between the groups with prior experience with the experimenter and the group with no prior experience. The only difference between the positive and the negative encounter groups occurred on questionnaires assessing experimenter preference. The negative encounter groups disliked their experimenter, but felt that they tried harder to perform better. These results are consonant with the formulations of Berkowitz (Butterfield & Zigler, 1965) who suggested that previous positive reinforcement may increase preference or desire to interact but decrease motivation to do well. These findings, however, may also be considered support for social drive theory. If a subject is deprived of positive social reinforcement -- by isolation, by negative evaluation, by withholding positive reinforcement, or by withdrawing positive reinforcement -- then he will initiate behaviors designed to obtain this reinforcement.

Lewis and Richman (1964) validated this position by subjecting children to a prior positive, neutral, or negative social interaction and then measuring their need for social reinforcement with a performance measure and a questionnaire. The subjects in the neutral and negative encounter groups worked harder for and received more social reinforcement, yet still answered more questions on the Edwards Personal Preference Schedule indicating needs for social approval and social desirability.

Critiques of Literature on Social Interaction and Social Reinforcer Effectiveness

As is apparent from this review of the literature, no single theory adequately explains all of the changes in social reinforcer effectiveness which follow different types of social interaction. Within motivational theory, the concept of social drive explains a more limited range of social interactions than does the concept of anxiety-arousal yet can not be considered a specific subtheory within an anxiety-arousal framework (Endo, 1968). Valence theory attempts to distinguish the theories along the dimension of duration of effect, but studies (Berkowitz & Zigler, 1965; Berkowitz et al., 1965) have not confirmed this distinction.

Investigations conducted previously have focused on theoretical distinctions in an attempt to enthrone only one

of the theories presented. It seems clear from the review, however, that the two theoretical positions are different both in formulation and in the data they explain. A question still remains, however: Is there a meaningful distinction between motivational and valence theories?

Several investigators have begun to question other types of distinctions. Paramount among these is the contention that there were real differences in experimental procedure that were overlooked in seeking theoretical distinctions. Specifically, they contend that results of increases performance following social interactions can not be compared because studies conducted by motivational theorists have tapped social measures of performance. In an ingenious study, Lewis and Richman (1964) "rigged" a forced-choice task so that it could be solved correctly only if reinforcement from the experimenter was not accepted. If reinforcement was accepted, the solution would be incorrect but the "performance" measure would be considered high. In this study social responsiveness and performance were synonymous and opposite to learning. With these distinctions, prior positive reinforcement elicited strategies for seeking solution and prior isolation or negative encounters elicited strategies for seeking social reinforcement.

This study makes the point that previous studies may have erred in equating performance measures, but does not

attempt to say how. Berkowitz (Butterfield & Zigler, 1965) more explicitly states that motivational theories have usually been tested with cognitive performance or reaction time measures while testing of valence formulations have relied upon social or persistence measures. Additional confirmation for this distinction is the fact that most of the results consistently favoring valence theory came from imitation studies.

While this latter statement may be true, this author believes that the cognitive-social split is not the essential distinction between motivational and valence theories. Further, it is presented that if other social behaviors increase as a result of withdrawing reinforcement, then imitation as a social behavior that has been instrumental in obtaining reinforcement, will also increase following withdrawal of reinforcement.

First, there are many indications in the literature that social behaviors increase as a result of withdrawing positive reinforcement both in the laboratory and in social situation. Gewirtz and Baer (1958a, 1958b) and Konstadt and Forman (1965) reported increased looking behavior as a direct bid for reinstating the attention withdrawn by the experimenter. Lewis and Richman (1964) found that children from whom reinforcement had been withdrawn reported more needs for social approval and social desirability. Finally,

children whose mothers show rejection through withholding of love are often dependent, anxious, or overly conforming (Bandura & Walters, 1959; Sears et al., 1957).

Second, this last finding suggests that imitation may be facilitated under conditions of withdrawal of reinforcement. Three studies of imitation have been conducted under the conditions of a consistent positive interaction and the disruption of a positive interaction and have partially confirmed this hypothesis. In two studies by Rosenblith (1959, 1961) only boys performed better with withdrawal of attention on a task-oriented or "instrumental" imitation measure and on a matched-dependent or "role" imitation measure. In a study by Stein and Wright (1964), however, both boys and girls showed matched-dependent imitation more often under the condition of withdrawal of attention.

The present study seeks to investigate the role of prior social interaction in facilitating imitation of complex social response categories. Thus, it attempts to clarify and extend the knowledge of how a consistently positive interaction and a discontinued positive interaction with an adult will affect a child's imitation of that adult. Its purpose is to undercut the distinction between motivational and valence theories that, respectively, they are applicable to cognitive situations and to social situations.

Secondly, its purpose is to designate another possible distinction between the two theoretical positions. This author believes that, within a circumscribed situation, withdrawal of positive reinforcement will facilitate imitation more than consistently dispensed positive reinforcement. This hypothesis is drawn from previous studies which favor withdrawal of social responsiveness.

The Task

Because differences in sex of the child and cross-sex differences between the child and the experimenter have previously produced differential responsiveness to social manipulations (Gewirtz & Baer, 1958a; 1958b; Gewirtz et al., 1958; Rosenblith, 1959, 1961), the present sample consisted entirely of girls. To further reduce confounding of treatment differences with differences in responsiveness produced by socioeconomic class (Endo, 1968; McGrade, 1966; Rosenhan, 1966; Sgan, 1967) or race (Allen, 1966b; Rosenhan, 1966), the subjects in the present sample were alike in these variables.

The best previous study of imitation under the conditions of "nurturance" and "nurturance-withdrawal" (Stein and Wright, 1964) presented predictions similar to those of the present study, but provided an equivocal

measure for testing them. These authors directly reinforced imitative behavior to establish a base level of imitation and also reinforced other social behaviors in their "consistent nurturance" condition. When the subjects in this group showed lowered rates of imitation and increased rates of other social behaviors, the authors concluded that the children " had developed a strong expectancy that direct attention-seeking would be immediately satisfied and therefore they did not need to rely on social reinforcement obtainable less directly through imitation."

The present study elicits imitation as a means of obtaining reinforcement but never actually reinforces it or any other attention-seeking behavior. Initially all of the subjects interacted with the experimenter in a positive encounter. The experimenter freely dispensed smiles, physical contact, friendly questions and conversation, and praise, but avoided making them contingent upon any of the girls' behaviors.

Each girl then enacted the role of a mother responding to her daughter in a supermarket and manifested her individual pattern of social response categories. While each girl played, the experimenter recorded her answers and choice of food items in a very busy manner designed to establish the experimenter as incapable of attending to or responding to direct bids for reinforcement.

During the next session the experimenter's way of interacting was characterized as a continuation or a disruption of her previous positive manner. The girls in the consistently positive interaction group received praise while performing a manual task. This praise was delivered at timed intervals and was not systematically contingent upon any specific behavior.

When the shopping sequence was repeated, the experimenter "played" first and indicated, thereby, the possibility of reinforcing any imitation of her way of responding. Because there was no opportunity to transfer reinforced behaviors from the manual task and because the experimenter again busily indicated that she could not reinforce direct attention-seeking behaviors while recording the girls' answers, imitation of the experimenter's responses became the only way of obtaining positive reinforcement.

Hypotheses

The present study takes the position that imitation of an adult model will occur in a situation which provides the opportunity for imitation but in which neither imitation nor any social behavior has been directly reinforced.

Moreover, imitation of complex social responses will occur if these responses are modelled. More specifically, it is predicted that:

(1) Imitation by a child of the verbal response categories and choice of food products of a model will occur regardless of the type of prior social interaction in which the child and the model have engaged.

Withdrawal of positive reinforcement will, however, facilitate imitation better. Specifically:

(2) Imitation by a child of a model's verbal response categories and choice of food products will increase more following a social interaction in which the model has withdrawn positive reinforcement than following a consistently positive interaction with the model.

Method

Subjects

Forty-two second grade girls from the Bondsville and Thorndike Street Schools in Palmer, Massachusetts comprised the sample. Both schools are located in predominantly white, lower-middle class, rural communities. The Ss' ages ranged from 7-9 to 8-5 years.

Apparatus

A cafeteria in each school was used as the testing room. The tables were arranged to represent supermarket aisles. Miniaturized plastic bottles, cans, fruits, and vegetables and cardboard boxes, simulating actual brand name products, were organized on the tables to represent departments in a supermarket. A toy scale, cash register, small paper bags and a bag rack, and miniature fruit and vegetable bins completed the supermarket apparatus. In addition, a small wicker basket, play money, and a canvas purse were supplied to facilitate each girl's assuming the role of a mother while shopping.

To facilitate each S's ability to completely assume the role of a mother, E provided a lifelike doll to represent a child. The doll is 36" tall, is dressed in schoolclothes, and is groomed like an eight year old girl. A pocket large

enough to hold the food products and a small pocket to hold money are sewn into the front of her dress.

The doll is mounted on a large skateboard which facilitates its movement but prevents it from toppling over. A HiTake cassette tape deck is implanted in its chest. The tape deck has only forward and volume controls so that the S was prevented from stopping it and repeating a section. Each S had to keep pace with the tape. The script for the tape was recorded by an eight year old girl directed to sound like a slightly impatient and demanding child. Since the child was supposed to be helping her mother to shop, the tape consists of 20 requests for food and shopping responsibilities and one statement indicating to the S that she should wait for the next request. Seventeen of the requests are separated by a ten second interval to allow for simple acts of compliance or noncompliance. Three tasks, however, require longer responses and are separated by a 15 or 30 second interval (see Appendix II).

At a fourth table in the testing room, two chairs were placed diagonal to each other. These chairs were one foot apart for Ss in the positive reinforcement group and four feet apart for Ss in the withdrawal of reinforcement group. On the table were placed 20 colored, octagonal, plastic chips from the Toppler game by Creative PlayThings. These chips are weighted differently and have varying

centers of gravity so that it is difficult to construct a stable tower using all of the blocks.

Procedure

Stage 1

This stage was the same for each S and served several purposes for the study. First it gave E the opportunity to establish herself as a friendly person. Second, it gave each girl a "rehearsal" so that later differences in imitation would not be confounded by "stagefright" or inexperience in playing a role in front of the E. Lastly, it was used to establish each S's unique pattern of social response in the role-playing situation.

E met each girl just outside of her school room and told her in an excited manner why E was there and what each S was going to do that day. E then escorted each girl to the testing room. During the walk E spoke in a warm, friendly manner and encouraged each S to talk by asking about schoolwork, her family, or by commenting on something unusual in her dress or appearance. E freely used physical proximity and contact to further induce a positive interaction.

In the room each S was told about the doll's ability to walk and talk and was then encouraged to practice walking it. Then E slowly led each S along the supermarket aisle naming products and demonstrating how the scale and the

cash register worked.

Each S was then instructed that she should pretend to be a mother who must shop in a hurry with her daughter. She was told to let her daughter help with shopping and to reply whenever her daughter spoke. She was asked to let the doll's suggestions guide her pace, but told that she could respond any way she liked (see Appendix I).

When each S finished the shopping sequence, she was thanked by E who said that it was fun playing with her and who promised to play again with her in three weeks.

Data Collection, Scoring, and Analysis

E recorded each verbal reply and each choice of food. E also noted what decision was made about holding the money, holding the food, working the scale, handing over the money, and carrying the packed bag.

The transcript of each S was then analyzed for four types of social response: (1) compliance of verbal and physical response; (2) noncompliance of verbal and physical response; (3) verbalizations having the characteristics of a command (after Patterson, Ray, Shaw, & Cobb, 1969); and (4) verbalizations having the characteristics of an explanation (see Appendix IV). These four coding categories were used because they accounted for all of the ways in which a parent might respond to a child's request in a socialization

situation.

When the frequencies of the verbal response codes were tabulated, all of the Ss showed a similar pattern of response. All of the Ss' response were mainly compliant; few Ss used commands or explanations. Although this pattern was probably in part due to the inhibiting presence of E, it was assumed that it would remain consistent so long as E remained and so long as E only observed the shopping. The pattern was assumed, therefore, to be a typical one for the situation. Because of the consistent pattern, E devised a single script that was in opposition to the girls' pattern of social response. E's script contained a noncompliant response and an explanation for each of the 20 requests. It was more difficult to devise commands that were appropriate to the situation, but 10 responses of the script also contained this coding category.

The Ss' choices of food products showed some similarity especially on items where the choice offered was several types of soda versus a can of juice or candy versus a box of raisins. Accordingly, in 11 of the 18 physical responses E's choice was the same for each girl yet different from the girl's original choice. In the remaining 7 responses, E's choice of a food product was more individualized for each S.

Although the girls did not differ greatly on the pattern of their social responses, they did differ in the

in the frequency of total responses and in the frequency of compliance responses. These differences were normally distributed and the Ss were therefore divided into three groups of high, medium, and low responders. All Ss were then randomly distributed among the three treatment groups.

Stage 2

This stage followed the first stage by three weeks. The Ss were assigned to one of three conditions. The two experimental groups were used to test the differences in imitation following manipulation of social interaction. The control group was used to observe what differences in patterning of social response occurred due to increased familiarity with E, to increased familiarity with role-playing, or to seeking novelty in a familiar situation.

Positive Reinforcement Group (PR). E again escorted each girl to the testing room using the same positive behaviors as in Stage 1 to reestablish herself as a friendly person.

At the test room E told each S that she would play two games. The first game was to build a tower using all of the colored chips on the table (see Appendix I). While the S played, E sat one foot away, leaned towards her in a relaxed manner, and smiled and nodded frequently. At a fixed interval of 30 seconds E randomly said, "Good," "This

is hard, but you're doing fine," "Fine," "That's very good," "Nice job," or "Very good." At the end of 3½ minutes, E warmly said, "Ok. Let's play the shopping game." E then walked to the supermarket tables with the S.

Withdrawal of Reinforcement Group (WR). E escorted each girl to the room with the same warm manner she used for for the first stage. When she introduced the tower game, however, her manner became cold and distant.

E's chair was four feet from the S. E sat back stiffly in her chair with her arms folded across her chest and with a cold, reproving expression on her face. At a fixed interval of 30 seconds E randomly said in a flat voice, "All these different colors," "You're building a tower," "The chips are pointy," "There goes a (color name) one," and "There are lots of chips." At the end of 3½ minutes, E coldly said, "OK. Let's play the shopping game." E then walked to the supermarket tables ahead of S.

Control Group (C). The E escorted the S to the room in a warm friendly manner and immediately began stage 3.

Stage 3

Positive Reinforcement Group (PR). E introduced the shopping task as in Stage 1 omitting only the introduction of how the doll walks and talks. E maintained the same warm and close contact with each S as she took her down the aisle.

She leaned close to her, handled food products, and touched her frequently to guide her along. After the introduction, E announced that, since the game looked like so much fun, she wanted to play. E told S that she would play as she wished when she was the mother and that S should do whatever she wanted to do when she was the mother.

E then asked to go first and requested that S follow her down the aisle. This insured that the S would see and hear all of E's responses.

Withdrawal of Reinforcement Group (WR). E's procedure was the same for both experimental groups, except that she maintained a generally cold and distant manner for the WR group. She physically distanced herself from the S and the food products and spoke with a flat, unenthusiastic voice.

Control Group (C). E followed the same procedure of introducing the game and the food products; however, she allowed each S to begin playing immediately. E maintained a warm and friendly manner towards each S.

Data Collection, Scoring, and Analysis

Verbal. E recorded each S's verbal responses and then submitted the protocols of both shopping sessions to two raters for coding. The raters did not know to which group the S belonged or which shopping session they were Scoring. E served as the third rater.

Physical. E recorded each S's choice of food products and compared them for differences between the two shopping sessions. Physical responses were scored: (1) zero points if no choice was made in either session; (2) one point if a choice was made but no change occurred between sessions; and (3) two points if a choice was made and if change occurred between sessions.

A similar analysis was made for choice of food products which complied with E's choice. This analysis more approximated a measure of imitation and, therefore, could only be made for the PR and WR groups. The scores assigned were: (1) zero points if no choice was made in either session; (2) one point if a choice was made that was unlike E's choice; and (3) two points for the same choice as E.

Social Distance

To check how the reinforcement conditions were perceived by each S, E introduced a social distance measure at the end of the procedure. E led S to the tower-building table and E duplicated the physical distance and posture she used during that task. E's distance and posture for the C group was relaxed but not as warm as for the PR group. E also sat a middle distance of $2\frac{1}{2}$ feet from each control S.

E presented a sheet of paper with the silhouette of a girl in the center. E said, "I want you to make believe

that this girl is me. Now I'm going to give you another girl. Make believe that this girl is you. Stick her on the page wherever you want. There's no right or wrong place."

E measured the Ss' placements in millimeters. It was hypothesized that if social distance were the analog of emotional distance, then the distance between the figures would be smallest for the PR group, next smallest for the C group, and largest for the WR group.

Results

The data were analyzed in a 3(groups) x 2(test sessions) x 3(raters) x 4(coding categories) x 20(items in doll's script) analysis of variance. This type of analysis provided a complete assessment of the task, the coding system, and the experimental hypotheses.

Since the data entered were frequency scores, tests of heterogeneity of variance and covariance were performed¹ to test the appropriateness of using parametric statistics. No violations of homogeneity occurred and analysis of variance was used.

 Insert Table 1 about here

Table 1 shows that all of the main effects and many of the interaction effects were significant. The magnitude of the F's and the number of significant terms suggested that small differences were being magnified by the large numbers of data. To counteract this trend, all hypotheses were tested by Tukey's multiple comparison method ($p=.05$) which provided a final conservative test of statistical significance.

¹ Hartley's F max Statistic and Box's conservative F test described in Myers (1967)

Table 1

Five-Way Analysis of Variance of Frequency Scores
 Incorporating Groups, Coding Categories, Test
 Sessions, Raters, and Test Items

Source of Variance	df	Mean Square	F	p
Group (G)	2	14.5138	9.34	<.01
Code (C)	3	189.3508	127.35	<.01
Test (T)	1	99.3167	141.05	<.01
Rater (R)	2	0.2510	24.13	<.01
Item (I)	19	2.3429	10.47	<.01
S(G)	39	1.5539		
GC	6	16.1154	10.83	<.01
GT	2	14.0902	200.11	<.01
CT	3	69.3895	106.78	<.01
GR	4	0.0620	5.09	<.01
CR	2	0.1024	4.10	<.01
TR	2	0.0316	3.32	<.05
GI	38	0.2672	1.02	ns
CI	57	2.5534	6.27	<.01
TI	19	0.9446	5.02	<.01
RI	38	0.0074	1.21	ns
SC(G)	117	1.4869		
ST(G)	39	0.7041		
SR(G)	78	0.0104		
SI(G)	741	0.2218		

Table 1 (cont.)

Source of Variance	<u>df</u>	Mean Square	<u>F</u>	<u>p</u>
GCT	6	18.0098	27.70	<.01
GCR	12	0.0708	2.88	<.01
GTR	4	0.0326	3.43	<.05
CTR	6	0.1764	6.06	<.01
GCI	114	0.5713	1.13	ns
GTI	38	0.2045	1.08	ns
CTI	57	1.9749	5.34	<.01
GRI	76	0.0055	0.90	ns
CRI	114	0.0149	1.02	ns
TRI	38	0.0091	1.37	ns
SCT(G)	117	0.6498		
SCR(G)	234	0.0245		
STR(G)	78	0.0095		
SCI(G)	2223	0.4068		
STI(G)	741	0.1881		
SRI(G)	1482	0.0061		
GCRI	228	0.0129	0.89	ns
GTRI	76	0.0068	1.03	ns
CTRI	114	0.0150	1.07	ns
GCTR	12	0.0637	2.18	<.01
SCTR(G)	234	0.0291		
SCTI(G)	2223	0.3693		
SCRI(G)	4446	0.0145		

Table 1 (cont.)

Source of Variance	<u>df</u>	Mean Square	<u>F</u>	<u>p</u>
STRI(G)	1482	0.0066		
GCTRI	228	0.0142	1.01	<.01
SCTRI(G)	4446	0.0140		

Shopping Task as a Reliable Test of Imitation

Items

The 20 items did not consistently elicit verbal or physical responses from the Ss. For physical responses involving choice of a food product there was no pattern of more frequently answered items. For verbal responses, however, nine items were most consistently answered by all Ss. These items were all phrased in terms of a direct question. Less frequently answered items were phrased as declarative sentences. These last items were often "answered" only by a physical response.

The significance for this "answerability" of items lies in the nature of a role-playing task and in the choice of imitation as a dependent measure. Although the items were consistently answered over groups, "answerability" differences increased after the modelling session. Imitation of role behaviors was facilitated by items directly eliciting these behaviors. Similarly these items were requests demanding a reply and facilitating an explanation. Only one item, "Tell the people to hurry up," directly elicited a command.

Coding System

 Insert Tables 2, 3, & 4 about here

Tables 2, 3, and 4 show that the social response categories of compliance, noncompliance, and explanation were reliably coded and easily imitated. Noncompliance became slightly more difficult to rate as its frequency increased and explanation was slightly more difficult to reliably rate of these three categories, probably because it involved more complex judgments. None of these differences, however, approached significance.

 Insert Table 5 about here

Table 5 shows that command was least imitated and significantly less reliable to rate ($p < .05$) than the other coding categories. In part, command should have been least imitated because it was modelled in only half of E's script. However, since the raters had difficulty in judging whether a command had occurred, it is probable that the Ss had the same difficulty. The judges later discussed the degree of explicitness each required before rating a command. E accepted implicit commands and devised the original script accordingly. It is quite possible that eight girls perceive only explicit commands and therefore actually perceived E

Table 2

Comparison of Means and Standard Deviations of Raters' (R)
Frequency Scores of Code Compliance by
Group and Test Session

Group	Pre Test			Post Test		
	R1	R2	R3	R1	R2	R3
PR	12.92	12.92	12.85	8.35	8.42	8.35
	2.36	2.46	2.65	2.53	2.47	2.27
WR	13.00	13.00	13.00	6.28	6.14	6.21
	3.28	3.28	3.28	1.97	2.14	2.00
C	13.07	12.92	12.42	13.92	13.92	13.92
	2.20	2.12	2.13	3.49	3.49	3.49

Table 3

Comparison of Means and Standard Deviations of Raters' (R)
 Frequency Scores of Code Noncompliance by
 Group and Test Session

Group	Pre Test			Post Test		
	R1	R2	R3	R1	R2	R3
PR	1.28	1.28	1.21	11.35	11.28	11.14
	2.23	2.23	2.25	2.43	2.33	2.44
WR	1.92	1.92	1.92	12.64	12.71	12.50
	2.30	2.30	2.30	2.67	2.75	3.34
C	2.35	2.50	2.42	3.78	3.78	3.78
	2.64	2.68	2.65	3.74	3.74	3.74

Table 4

Comparison of Means and Standard Deviations of Raters' (R)
 Frequency Scores of Code Explanation by
 Group and Test Session

Group	Pre Test			Post Test		
	R1	R2	R3	R1	R2	R3
PR	1.78	2.14	1.57	10.28	9.71	10.14
	3.04	3.32	2.40	4.56	4.12	4.68
WR	0.92	0.92	0.78	8.78	8.21	8.28
	1.73	1.73	1.67	4.17	4.02	4.19
C	1.57	1.57	1.21	2.00	1.71	1.71
	2.47	2.50	1.52	2.90	2.67	2.58

Table 5

Comparison of Mean and Standard Deviations of Raters' (R)
Frequency Scores of Code Command by
Group and Test Session

Group	Pre Test			Post Test		
	R1	R2	R3	R1	R2	R3
PR	1.92	2.07	1.92	5.64	6.71	3.71
	2.20	2.30	2.09	3.22	3.45	2.09
WR	0.92	1.00	1.07	3.07	3.85	3.35
	0.91	1.03	1.07	2.52	2.47	2.92
C	0.71	0.92	0.85	0.92	1.07	0.71
	1.20	1.32	1.65	1.26	1.81	1.06

modelling fewer than ten command responses.

Interrater Reliability

Winer (1962) presents a formula for converting analysis of variance terms into a correlation coefficient. When the data presented in Tables 2 - 5 were analyzed according to this formula, the overall interrater reliability was $r=.95$. Although the rater main effect was significant ($F 24.13, p<.01$), the only significant contribution to this effect was disagreement among the raters in scoring commands. Rater 2 accepted a low degree of explicitness and scored more commands than the mean of the raters combined. Conversely, because of this tendency, Rater 2 tended to score fewer verbalizations as explanations. This tendency, however, was not significantly different from that of the other raters. Rater 3 accepted only explicit commands and rated this category significantly fewer times than the mean of the raters.

There was a slight but nonsignificant tendency for reliability to decrease as frequency of noncompliance and explanation increased. Explanation, because it was a more complex category to score, showed slightly less interrater reliability in both pre- and post-modelling test sessions.

 Insert Table 6 about here

The actual percentages of agreement between raters are presented in Table 6. These scores depict the same relationships between coding categories, raters, and test sessions discussed above. This table indicates that the compliance, noncompliance, and explanation data against which the experimental hypotheses were tested are highly reliable.

Shopping Task as a Valid Test of Imitation

Providing Ss with a model significantly changed (F 141.05, $p < .01$) the frequency and the patterning of their responses in the verbal categories modelled.

 Insert Table 7 about here

As Table 7 shows, the differences occurred between the two experimental groups and the control group in all four coding categories. Control Ss increased slightly from the first session to the second. The magnitude and the direction of

 Insert Table 8 about here

these changes is better seen in Table 8. This pattern suggests that increased frequency occurred as a result of familiarity. That the experimental groups' scores changed

Table 6

Percentage of Agreement Between Rater (R) Dyads by Coding Category and Test Session

Dyad	Compliance		Noncompliance		Command		Explanation	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
R1R2	99.5	98.9	99.7	98.9	98.5	95.5	98.5	96.4
R1R3	98.5	99.0	99.7	98.9	98.5	93.2	97.2	93.2
R2R3	98.5	98.9	99.7	98.9	97.6	92.2	97.2	91.9

Table 7

Mean and Standard Deviation of Frequency Scores Averaged
Over Raters by Coding Category and Test Session

Group	Compliance		Noncompliance		Command		Explanation	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
PR	12.87	8.38	1.26	11.26	1.97	5.35	1.70	9.72
	2.46	2.47	2.23	2.43	2.30	3.22	3.04	4.56
WR	13.00	6.21	1.92	12.61	1.02	3.42	0.88	8.22
	3.28	2.00	2.30	2.75	1.03	2.52	1.73	4.17
C	12.80	13.92	2.42	3.78	0.80	0.92	1.44	1.80
	2.15	3.49	2.65	3.74	1.40	1.30	2.20	2.67

Table 8

Differences in Frequency Scores Following Modelling by
Groups and Coding Categories

Group	Compliance	Noncompliance	Command	Explanation
PR	-4.49	+10.00	+3.38	+8.02
WR	-6.79	+10.69	+2.40	+7.34
C	+1.12	+ 1.36	+0.12	+0.36

greatly and in the direction of the modelled script suggests that imitation of social response categories occurred.

Informal questioning following the last session revealed that the Ss in the two experimental groups were often aware of a change in response but either did not know why they had changed or said that they "just wanted to" change. None of the Ss reported thinking the E wanted them to imitate her.

Changes in Imitation Dependent on Prior Social Interaction

Verbal Imitation

When the conservative Tukey Test ($p=.05$) was applied to the data, there were no significant differences in the amount of imitation between the WR and the PR groups in any of the four coding categories. When, however, a slightly less conservative test, the Newman-Keuls ($p=.05$), was used, then the Ss in the WR group had significantly lower frequencies of compliance responses than the Ss in the PR group. Table 8 shows the magnitude and direction of changes in scores. The two groups' frequencies differed by less than one for noncompliance, command, and explanation. This difference more than doubled for the category of compliance.

The PR groups' pattern suggests that these Ss imitated E's responses as if noncompliance, command, and explanation were new ways of responding in addition to their previously

used category of compliance. The pattern of the WR Ss suggests that they were more aware of the actual patterning of E's responses and imitated them as a substitute to their previous way of responding.

Physical Imitation

A one-factor completely randomized design was used to analyze the data for physical imitation. In Table 9 the

 Insert Table 9 about here

data are presented so that change in food choice can be viewed as a simple function of repeating the task and as a function of imitation. The change scores are higher because change from no choice to any choice was scored. The imitation scores are lower because change from no choice to a choice, even if it matched E's choice of food product, was not scored. Because no former choice had been made, it could not be assumed that a response matching E's was a deliberately matching response.

No significant differences occurred between the WR, PR, and C groups by either method of scoring physical imitation.

Social Distance as a Test of Experimental Manipulations

Table 10 shows that the differences between the three

Table 9

Difference in Choice of Food Products Between Test Sessions
Expressed as Functions of Simple Change and Modelling

Group	Change		Group	Modelling	
	Mean	SD		Mean	SD
PR	26.07	3.24	PR	23.00	2.96
WR	28.00	3.98	WR	24.71	2.91
C	21.93	2.84			

groups in placing a facsimile of each S near the facsimile of E. A one-factor completely randomized design of these

Insert Table 10 about here

data yielded an $\bar{F} = .93$. This small \bar{F} is partly due to the large variance within the groups. No pattern of distancing dependent on experimental manipulations occurred consistently within a group. It is difficult to conclude from these data, however, whether the large variance is due to a failure of the experimental manipulations to differentially affect Ss or due to a failure of the social distance technique used to tap the differences in emotional distance produced by the experimental manipulations.

Table 10

Distance in Millimeters From E's Figure to S's Figure
by Groups

Group	Mean	SD
PR	73.14	44.80
WR	56.25	33.45
C	65.64	28.80

Discussion

Complex social situations are clearly capable of being simulated in a laboratory situation and of being useful in testing principles of social learning. The shopping task used the present study is a valid method for studying imitation but is not completely reliable. To make it a more effective tool, all of the items in the doll's script should be rephrased as direct requests. These revised items will maximize the probability that a child will respond both spontaneously and in imitation of an adult.

The coding category of command needs to be reformulated so that a command is an explicit order. With this more refined and accepted definition, a command response will be more easily perceived by a child and more consistently rated by an adult. This change will markedly increase the reliability of the coding system used in this study.

The present results indicate that imitation of complex social response categories occurs in a situation which elicits imitation but which does not provide reinforcement for it. That imitation is a behavior which, once learned and maintained by positive reinforcement, generalizes to a situation in which social behaviors may

obtain reinforcement is confirmed by the verbal imitation results. The present study, however, did not adequately test that verbal imitation increased in order to obtain positive reinforcement. Imitation of verbal response categories may have occurred simply because the opportunity was provided and not because prior social interaction signalled the possibility or elicited the need for obtaining reinforcement. To test this latter hypothesis, a further study should be conducted to include a control group whose Ss are sent to the experimental room to interact with E only minimally during the task. If imitation occurs, it will be due only to the opportunity provided.

There are few clues in the present study to explain why imitation of verbal response categories occurred but imitation of physical responses did not. Rosenblith's (1961) use of "role" imitation and "instrumental" imitation may be applicable respectively to imitation of verbal response categories and to imitation of food choice in this study. It may be that when the task is to "pretend you are a mother," a girl is more likely to copy those behaviors relevant to the role required. Food choice may be perceived as a matter of preference and not so crucial to the role of mothering as are ways of responding to a child.

It is unclear from the frequencies of verbal response whether the two types of prior interaction were actually

different but equally effective in facilitating imitation or whether the two conditions were perceived as similar by the girls. The social distance measure was of no aid in making this discrimination. There are indications that withdrawal of reinforcement was not only perceived as such but facilitated slightly more imitative behavior. When the most stringent method of comparing the group means was replaced by a less conservative test, the WR group showed more imitation of compliance responses than the PR group. In addition, the Ss in the WR group seemed to respond behaviorally to withdrawal of reinforcement. During the interaction, they seemed more restless and looked puzzled. They spent as much time in observing E as in building the tower. During the following shopping sequence, Ss in the WR group more frequently looked at E, offered help or conversation, and maintained close physical proximity.

If the conditions were perceived differently but were equally effective in facilitating imitation, then they could be viewed as providing equal "incentive" for the child to seek reinforcement. Although this concept was originally presented by Hill (1967) to favor valence formulations about supportive praise, this author believes that withdrawing positive reinforcement and dispensing it consistently do produce different incentive conditions even though they may equally facilitate social reinforcement.

This author still believes, however, that withdrawing positive reinforcement provides greater "incentive" in some situations. It remains for future studies to better investigate these issues.

If the conditions were not perceived as very different, the fault lies with the condition of withdrawal of reinforcement. Since one of the objects of this study was to test the effect of social manipulations in a situation that closely resembled nonlaboratory situations, the type of withdrawal of reinforcement used was selected because it resembles the more subtle kinds of rejection that occur when a mother is annoyed, tired, impatient, or in any state that makes her react to a child in an aloof manner. In the Gewirtz and Baer studies (1958a, 1958b), the Rosenblith studies (1959, 1961), and the Stein and Wright study (1964), withdrawal of reinforcement consisted of an adult completely removing himself or sitting back with no physical or verbal relating to the child. Gewirtz, Baer, and Roth (1958) noted, in addition, that low social availability seemed to have the same effect on a child's behavior as isolating him from an adult. From these observations, this author generalized that emotional aloofness would signal low availability of a reinforcing agent.

It may be that emotional and physical aloofness do not signal the same thing to a child or that emotional

aloofness of the present type is too subtle for an eight year old girl to discriminate as withdrawal of reinforcement. It is possible that if the perception of withdrawal of reinforcement was weak, positive cues from the situation were deliberately generalized by the child to the interaction. In other words, given that S noticed that E was paying some attention to her, it was more comfortable for S to maintain the image of E as "the nice lady who let me play that fun game."

For either reason, the present study should be replicated with three conditions of low social availability to investigate the continuum of withdrawal of reinforcement. These three conditions should be, in descending order of hypothesized effectiveness in facilitating subsequent social reinforcement, social isolation, critical evaluation by an adult, and the emotional and physical aloofness used in the present study.

Since the consistent positive reinforcement condition used behaviors commonly accepted as being positively reinforcing, these results can be compared with other studies. Stein and Wright (1964) found that withdrawal of reinforcement greatly facilitated imitation, but had equivocal results for the effect of a consistently positive interaction. Their results were confounded because the authors presented several ways in which a S could obtain reinforcement. In

the present study imitation was the only viable way in which a S could obtain reinforcement. Since Ss who received consistent positive reinforcement from the E greatly increased their pattern of verbal response to conform to E's pattern, it is concluded that a prior positive interaction facilitates imitation. The combined results of the present study and the Stein and Wright (1964) study support the notion that imitation will increase following either a consistent positive interaction or an interaction in which positive reinforcement has been dispensed and then withdrawn.

Summary

The results of this study do little to clarify the role of prior social interaction in facilitating imitation. They do indicate, however, that purely social behaviors and situations are subject to the same experimental manipulations as more cognitive tasks. They also indicate that imitation is a valid index of dependency behavior and that it can be used to investigate the role of social interaction in increasing behaviors initiated to reinstate reinforcement.

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Appendix I

Directions

Shopping

(Stage 1) "Remember I told you about the supermarket? Well, here it is. This is the doll. See how she walks (rolls doll by arm)? I'll show you how she talks in a minute but first let me tell you what you are going to do today."

(Stage 1 & 3)"You're going to make believe that you are a Mommy and you have to go shopping with your daughter. You can make believe that this doll is your daughter. You have to go shopping in a hurry so it might be nice if you let your daughter help you. She will ask some questions and suggest some things to take from the shelf. Remember, you're the mother, so you can say or do anything you want. Just remember to wait until she suggests something before you decide and to answer her whenever she talks.

One of the things she will ask is if she can hold on to the money. If you say she can, you put the money in the little pocket (shows little pocket). If you decide you want to hold on to the money, you take this purse. She will also ask if she can hold on to the food. If you decide she can, you put the food in this big pocket (shows big pocket). If you want to hold on to the food, you take this yellow

basket.

OK. Now we'll start. Remember you can say or do anything you want. Just remember to answer her whenever she talks."

Toppler

"For this game you have to build a tower by piling up all of these chips on the table. Sometimes it's tricky and it takes a while to figure it out. Here, I'll show you (piles four chips into a tower). OK. Go ahead and try it. I'll sit here and watch."

Appendix II

Doll's Script With Intervening Time Intervals

Mom, can I help get the food? Let me shop with you. I
will tell you what to get. I will do it real good.

(10)

Can I hold on to the money?

(30)

I want to hold on to the food. Let me do it. Let me take
care of it.

(15)

Oh, soda! Can I get soda?

(10)

I'm tired of that old cereal. I want a different kind.

(10)

Let's get corn.

(10)

I want peaches. Get it.

(10)

Get some stuff for you and Daddy to drink. Get coffee or
tea.

(10)

Oh, Mommy! Can I get some candy or gum?

(1)

There's potato chips and cookies. I want a treat. Can

I get one?

(10)

I want grapes. Get them for me.

(10)

Get carrots.

(10)

I want corn. Let's get some.

(10)

Can I get beets?

(10)

Mommy, what is that scale for? I want to work it. Let me
put something on it.

(15)

Let's get stuff for peanut butter and jelly sandwiches.

(10)

Get toothpaste that tastes good.

(10)

Now we wait in line.

(20)

Mommy, I'm tired of waiting in line. Tell the people to
hurry up.

(10)

I want to give the money to the girl. Can I?

(10)

Let me carry a bag to the car. I can do it by myself.

Appendix III

Coding of Verbal Response Categories

A response is considered all verbalizations in reply to a single request. A single statement can be double scored. Two statements having the same coding content are scored only once; for example, "No. I'll do it." is scored only once as noncompliance. Some verbalizations consist of self-direction or verbal asides and are not scored.

Compliance(C).

A verbalization that shows assent to or compliance with the request of the doll. These verbalizations include the usual phrases of assent ("Yes," "OK"), permission ("You can"), statements of explicit positive intent ("I'll get it"), or repetitions of the request that show implicit positive intent ("Carrotts").

Noncompliance(NC).

A verbalization that shows dissent from or noncompliance with the request of the doll. These verbalizations include the usual phrases of dissent ("No"), forbidding ("You can not"), statements of explicit negative intent ("We'll get another kind"), or statements showing implicit negative intent like choosing a product different from that in the request ("I'll get peas ").

Command(Cm).

This is scored when a direct, reasonable, and clearly-stated request or command is made to another person. Questions are considered commands because they are understood to mean "Tell me what..." or statements like "Just one..." are understood to mean "You take only one...".

Explanation(Ex).

This is scored when the child makes some attempt to explain or expand on her decision to the doll. These elaborations add something more than a simple repetition of the original request; for example, "no" and "no carrots" are both scored simply NC while "No. You can't have any carrots" is scored NC and Ex. (Although this statement shows no actual explanation, it does show that the child is trying to expand on her decision. The implied message is that there is a reason behind the decision.)

Explanation involves the attempt of the child to orient herself to the doll. This includes any attempts to relay information, description of intent, feeling -- in other words, any statement, not necessarily in response to a request that shows that the child is aware of the doll as a "thinking individual". It also includes attempts to instruct or persuade the doll.

Appendix IV

Experimenter's Script

No thank you. I'll do it. Shopping is for grown-ups to do.
I'll take care of it. You might drop it.

No. I'll hold it. It might be too heavy.

Soda is bad for your teeth. Let's get orange drink.

The old kind is the best kind. I'll get it again.

No. We'll get string beans.

Fruit cocktail has all kinds of fruit in it. Everyone will
like it.

No. We have enough coffee and tea. We need sugar.

It's too close to dinner. Come on. Let's go.

Not those. Get raisins. They taste good and they are
healthy for you.

Grapes are expensive. We'll get apples.

Not carrots. But we need lettuce.

Stop asking for corn. You can't get it.

More of us like peas.

The scale is for weighing, but let the manager do it. He's
supposed to.

We already have some at home.

We'll get a different kind. I know you will like it.

I can't do that. They were here first and they have to
get their turn too.

It's better if I do it. I can count it right.
Maybe next time. Today we're in a hurry.

