

70-18,180

BAKER, Jean Millicent, 1927-  
CHILDREN'S IMITATIVE RESPONSES AS A FUNCTION OF  
SOCIOECONOMIC CLASS, INCENTIVE-ORIENTED SET  
AND REINFORCEMENT.

University of Arizona, Ph.D., 1970  
Psychology, general

**University Microfilms, Inc., Ann Arbor, Michigan**

CHILDREN'S IMITATIVE RESPONSES AS A FUNCTION OF  
SOCIOECONOMIC CLASS, INCENTIVE-ORIENTED SET  
AND REINFORCEMENT

by

Jean Millicent Baker

---

A Dissertation Submitted to the Faculty of the  
DEPARTMENT OF PSYCHOLOGY

In Partial Fulfillment of the Requirements  
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

1 9 7 0

THE UNIVERSITY OF ARIZONA

GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my direction by Jean Millicent Baker entitled Children's Imitative Responses as a Function of Socioeconomic Class, Incentive-Oriented Set and Reinforcement. be accepted as fulfilling the dissertation requirement of the degree of Doctor of Philosophy

Ralph J. Wetzel  
Dissertation Director

1-29-70  
Date

After inspection of the final copy of the dissertation, the following members of the Final Examination Committee concur in its approval and recommend its acceptance:\*

<u>Ralph J. Wetzel</u>	<u>1-29-70</u>
<u>Vernon J. Ferguson</u>	<u>1-29-70</u>
<u>Ernest A. Rogers</u>	<u>1-29-70</u>
<u>George W. Johnson</u>	<u>1-30-70</u>
<u>Robert H. Brown</u>	<u>2-2-70</u>

\*This approval and acceptance is contingent on the candidate's adequate performance and defense of this dissertation at the final oral examination. The inclusion of this sheet bound into the library copy of the dissertation is evidence of satisfactory performance at the final examination.

STATEMENT BY AUTHOR

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this dissertation are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED:

Jean M. Baker

## ACKNOWLEDGMENTS

I would like to express my appreciation to Dr. Ralph J. Wetzel, Chairman of the dissertation committee for his encouragement and thoughtful advice throughout my graduate career. I am also very grateful for the guidance and encouragement of the members of my doctoral committee, Dr. George W. Hohman, Dr. Cecil Rogers, Dr. Vincent J. Tempone, and Dr. Robert L. Wrenn. Many thanks are also due to Nancy Luce for her assistance during a pilot study. The late Dr. Jack E. Capehart served as a consultant on statistical procedures and I am extremely grateful for his kindness and suggestions. My husband Jack deserves special appreciation for his patience and support during these many years.

TABLE OF CONTENTS

	Page
LIST OF TABLES . . . . .	vi
LIST OF ILLUSTRATIONS . . . . .	vii
ABSTRACT . . . . .	viii
INTRODUCTION . . . . .	1
RELATIONSHIPS BETWEEN REINFORCEMENT VARIABLES AND ACADEMIC FUNCTIONING . . . . .	4
INFLUENCE OF MODELS IN LEARNING . . . . .	8
Historical Background . . . . .	8
The Effects of Modeling on Aggressive Responses . . . . .	13
Other Behaviors Susceptible to Modeling Influences . . . . .	15
Effects of Response Consequences to the Model . . . . .	18
Modeling Procedures Versus Reinforcement Techniques . . . . .	19
Subject Variables in Imitative Learning . . . . .	21
Relationships Between Attention and Learning . . . . .	25
EXPERIMENTAL HYPOTHESES . . . . .	30
METHOD . . . . .	31
Subjects . . . . .	31
Reliability of Recording . . . . .	32
Procedure . . . . .	33
Part I . . . . .	33
Part II . . . . .	36
RESULTS . . . . .	38
DISCUSSION . . . . .	49

TABLE OF CONTENTS--Continued

	Page
APPENDIX A. RESPONSE RECORDING FORM . . . . .	60
APPENDIX B. SUMMARY OF RESULTS FROM PART II . . . . .	62
REFERENCES . . . . .	63

LIST OF TABLES

Table	Page
1. Summary of Results from Part I . . . . .	40
2. Analysis of Variance of the Class, Sex, and Instructions Variables . . . . .	41
3. Analysis of Variance for Simple Effects of Instructions . . . . .	44
4. Analysis of Variance, Reinforcement Versus Non-Reinforcement Two Trials . . . . .	48

LIST OF ILLUSTRATIONS

Figure	Page
1. Mean number of imitative responses for lower-class subjects under two instructional conditions . . . . .	43
2. Mean number of imitative responses for middle-class subjects under two instructional conditions . . . . .	43

## ABSTRACT

Bandura and other social learning theorists have demonstrated the important role which modeling and vicarious processes play in the transmission and modification of many response patterns. There is some research which suggests that children of lower socioeconomic class backgrounds may have poor imitative or modeling skills. If true, such a deficiency might well be functionally related to other behavioral deficiencies, cognitive, language and academic, which these children have demonstrated. The purpose of this study was to examine the effects of socioeconomic class and other variables upon the imitative responses of young children.

Experimental subjects were kindergarten children from two different socioeconomic backgrounds. One group, 16 boys and 16 girls attended a Head Start Child Development Center. Another group of 10 boys and 12 girls attended a private kindergarten and were from middle-class families. Each child was individually exposed to a female model who displayed certain verbal and motor responses while playing with toys. Half the subjects in each group received incentive-oriented instructions which were designed to increase attention to the model's behavior and half received neutral instructions. The subjects were then

allowed to play with the toys for a two minute period and any responses which were the same as those made by the model were recorded. At the end of this period they were instructed to imitate the model and their imitative responses again recorded. During the second part of the study, in which only lower-class subjects participated, half the children were reinforced with M&M candies for their imitative responses and half were not reinforced. The effects of such reinforcement upon subsequent imitation were investigated. The following hypotheses were made:

1. Middle-class children will display a greater frequency of imitative responses than will lower-class children.
2. Attention-directing cues in the form of incentive-oriented instructions will facilitate imitation for all subjects.
3. Instructions to imitate will increase the frequency of imitative responses for all subjects.
4. Lower-class boys will display fewer imitative responses than will lower-class girls or middle-class children of either sex.
5. Positive reinforcement of imitation will increase the frequency of imitative responses in lower-class children.

A 2 x 2 x 2 analysis of variance design examined effects of socioeconomic class, instructions, and sex. The first hypothesis was confirmed. The second hypothesis was not confirmed. However, an analysis of variance for simple effects showed that incentive-oriented instructions did have a significant positive effect for lower-class girls and a negative effect for lower class boys, suggesting that the latter may have been actively resisting social influence. The third hypothesis was confirmed and it was unnecessary to analyze the data statistically because so few subjects imitated unless instructed to do so (only 12 out of a total of 54). There was no overall significant sex effect but when lower-class boys were compared to all other subjects, a significant  $t$  was obtained thus confirming the fourth hypothesis. The analysis of the effects of reinforcement was somewhat inconclusive. A repeated measures analysis of variance showed that both the reinforcement and the non-reinforcement subjects significantly increased their imitative responses and that there were no significant differences between the groups. It was suggested that these results might be due to other reinforcers, for example, experimenter attention, operating for both groups or to an increase in attention to the model during the second phase of the experiment.

Several theoretical explanations for the effect of socioeconomic class variables on imitative behavior were

discussed. These were primarily concerned with class differences in child rearing procedures. Implications of the results for the education of culturally disadvantaged children were discussed.

## INTRODUCTION

The current atmosphere of disorder in the urban slums and the dissatisfaction shown by members of some minority groups, including those who are so defined only because of being poor in an affluent society, are indicative of the urgent demands being placed upon contemporary social institutions. Basic to any solution of these problems is the institution of the public school. However, American schools have typically been bastions of the traditions, mores, and values of middle-class society and have been woefully inadequate in educating the children of minority groups or culturally deprived backgrounds.

There is a good deal of evidence concerning social class differences in general intellectual functioning and it is usually assumed that a close relationship exists between such functioning and performance in school. For example, Bereiter and Engelmann (1966) in a review of the pertinent research found that children from lower socio-economic backgrounds usually scored from 5 to 15 IQ points below average on general intelligence tests. Also, The Institute for Developmental Studies at New York Medical College has developed an Index of Social Class which is based on the occupational and educational level of the main support of the family. Dividing the 12 levels into three

socioeconomic categories with I being the lowest and III being the highest, Deutsch and Brown (1964) found significant differences in IQ for each of these three socioeconomic levels, with the IQ increasing with ascending SES levels. However, of perhaps greater significance are findings which suggest that these class differences in intellectual functioning become increasingly marked as the child advances through school. Deutsch (1963) and Deutsch and Brown (1964) using the Index of Social Class just described have found that it is in the first grade of school that the smallest differences are found between socioeconomic and racial groups in intellectual, language, and conceptual measures and that in later grades the differences, which always favor the more socially advantaged, are much greater. Deutsch and Brown (1964) have referred to this phenomenon as a "cumulative deficit." Keller (1963), also using an index based on the occupational and educational level of the family breadwinner, reached similar conclusions when she found that IQ scores of children who came from the lower end of the socioeconomic continuum went down from a mean of 98.56 in the first grade to 88.57 in the fifth grade. Thus, the schools appear unable to offer remedies for counteracting the initial deficits of children from deprived backgrounds and may even contribute to a continuing pattern of failure and increasing deficit.

Obviously, there exists a problem of great proportions and one in which professional educators may seek and accept the contribution of other disciplines. Psychology, in its role as a helping profession, has traditionally been aligned with the discipline of medicine. Current innovations in theory and practice suggest that a more fruitful association might be made with education. Albee (1966) has made just such a proposal and the work of Hobbs (1964b) with emotionally disturbed children certainly bears a closer similarity to the educational model than to the medical one. The broad implications of community psychology (Hobbs, 1964a; Albee, 1968) with its focus on primary prevention, remedial therapies, and the effects of social institutions upon the functioning of individuals also direct psychology toward a closer involvement with the educative process at every developmental level. M.P. Deutsch (1964) has condemned the schools for their failure to develop curricula which will enable the culturally disadvantaged child to achieve the basic academic skills and has further proposed that a cooperative partnership between the behavioral scientists and the educators can promote the evolution of educational institutions which can prepare all children for "optimal social participation."

RELATIONSHIPS BETWEEN REINFORCMENT VARIABLES  
AND ACADEMIC FUNCTIONING

That children from lower socioeconomic classes operate within different motivational systems than do middle class children has been suggested by the results of several investigations. Douvan (1956) found that achievement strivings of working class children dropped when a material reward was absent whereas middle class children showed the same achievement strivings in both the material reward condition and the condition in which the only reward was that of meeting a standard. Terrell (1958) found that when middle class children (from business and professional families) were asked to perform a discrimination task, a light flash indicative of a correct response was just as effective a reinforcer as candy or tokens to be exchanged for candy. When he carried out a similar study with children in a rural area (and presumably from a lower socioeconomic level) the groups receiving only the light flash required significantly more trials to criterion than did the candy or token reinforcer groups. Terrell, Durkin, and Wiesley (1959) using Warner's Index of Status Characteristics (Warner, Meeker, and Eells, 1949) as the measure of class position (this is a weighted index based on occupation of the head of the household, source of

income, housing, and dwelling area) compared children from upper-lower and lower-lower SES levels to children from upper-middle and lower middle levels on a discrimination learning task. They found that middle class children learned more quickly when the reinforcer was a light flash indicating correctness while the lower class children learned faster when reinforced with candy. Safer and Kornreich (1968) attempted to replicate the Terrell et al. (1959) study and were only partially successful in duplicating their results. In their first experiment, using upper class and middle class subjects (by Warner's Index) they found that the subjects in the light flash only group took significantly fewer trials in the learning task than did those in the light plus candy condition. This result was in accord with previous study. However, when they compared a middle class and a lower class group they found no differences between the light and the light plus candy conditions. These authors suggest that the study should be replicated using a different learning task because 42% of the subjects in the second part of the experiment (the part which seems to invalidate Terrell et al. findings) failed to learn the discrimination in the 40 trials.

Cernius (1968) examined the relationship suggested by Terrell's work by measuring the effects of tangible ("right" plus tokens to be exchanged for candy) and intangible ("right" or "wrong") reinforcement on concept

formation tasks with white lower class boys. He found no differential effects. The differences in results might be due to differences in defining the social class variable. The subjects in Cernius' study were merely described as being from a predominantly blue collar community and so might not be appropriately classified as from the lower-lower SES level as were the subjects in the Terrell studies.

Zigler and Kanzer (1962), also using Warner's Index of Social Characteristics, divided their subjects into lower and middle classes and compared them in a learning task. One class of reinforcers emphasized correctness and these reinforcers were most effective with middle class subjects. Verbal reinforcers emphasizing praise were more effective with lower class subjects. There was a tendency, though not a statistically significant one, for all verbal reinforcers to be more effective for middle class than for lower class children. These findings are particularly interesting in view of the suggestions by Gray and Klaus (1968) that culturally deprived children probably receive a relatively small amount of verbal reinforcement and that the reinforcement they receive may be quite diffuse, that is, a generalized approval or disapproval rather than specific feedback about adequacy of performance. Gray and Klaus suggest that Zigler and Kanzer's research may offer support for the view that the middle class child may receive more reinforcement which focuses on the adequacy of

his performance than does the lower class child. Bandura (1969) makes the following statement:

If rewards are recurrently and explicitly associated with cues that signify competency or correctness, then symbolic stimulus events that have informative value, and qualitative differences in performance, acquire secondary reinforcing properties (p. 238).

Thus, children from lower class backgrounds, who have not had such a reinforcement history may not find informative response feedback as positively reinforcing as do middle class children.

These investigations are all pertinent to an analysis of the educational problems posed by the consistent academic failures of children from economically deprived backgrounds. Such children may be less responsive to the rewards provided in school settings since these rewards are typically verbal or symbolic or involve correctness feedback on the child's performance.

## INFLUENCE OF MODELS IN LEARNING

### Historical Background

Though research evidence does suggest the need for using tangible reinforcers to facilitate the educative process with culturally disadvantaged children, there is a need also to determine effectively the nature of the skills in which these children are deficient. Deutsch and Deutsch (1968) have addressed themselves to the question: "On what level does one seek deficits?" and they contrast approaches in very complex areas such as reading with investigations which analyze only infinitesimal components of skills such as visual perception of the diagonal. However, an even more basic approach might evolve from the principles of social learning theory which emphasize the significance of models in the learning process. Behavioral changes which occur consequent to the observation of adult or peer models, even without the use of specific rewards and punishments, have been described by many theorists. Freud's (1921, 1923, and 1929) concept of identification is closely related to the phenomenon of imitative learning though he did not refer to imitation per se. Freud (1921) suggested that identification involved the expression of an emotional tie with another person, especially as exemplified in the early phases of the Oedipus complex. The little boy who

identifies with his father wishes to grow like him and to be like him. Freud's (1921) explanation is not in terms of the imitation of the observed behavior of the father or other adult but is described more abstractly as follows: ". . . identification endeavours to mould a person's own ego after the fashion of the one that has been taken as the model [p. 106]."

Contemporary theorists have elaborated upon the concept of identification. For example, Kagan (1958, 1968) stresses the affective component in identification as did Freud and further suggests that in order for the child to imitate a model, he must feel some similarity between himself and that person. Other attributes of the model which, according to Kagan, influence the adoption of his behaviors by the child are his command of desired goals, power, competence, and nurturance.

The term imitation has perhaps been a more popular one than identification for contemporary learning and behavior theorists, though the history of this concept is a long one. Early writers such as Morgan (1900), Tarde (1903), and McDougall (1908) attributed imitative behavior to instinctive tendencies. Miller and Dollard (1941), on the other hand, view imitative responses as resulting from instrumental conditioning. They were able to demonstrate that both children and rats rewarded for "matched-dependent" behavior in discrimination learning were able to imitate

models and generalize their responses to other stimulus situations. They consider imitation an acquired drive which is the result of early learning experiences in which imitative responses have been associated with rewarding or drive-reducing stimuli. An initial imitative response may occur fortuitously just at the moment that some drive is reduced or some reward is experienced. Through instrumental conditioning imitative responses are thereby learned.

Maccoby (1959) uses the terms imitation and role-taking and believes that these processes are no less important than instrumental learning in the child's acquisition of a behavioral repertoire. She states that children will practice both overtly and covertly the characteristic actions of the other people in their environments. The frequency with which the child will reproduce the behaviors of another person is related to the frequency with which interaction occurs and also to the power of the other person.

Mowrer (1950) suggested that imitation was identical to one form of identification, i.e., developmental identification, which involves the young child's efforts to reproduce the behaviors of a loved parent. Thus, Mowrer, like Kagan, emphasized an affective component in children's imitation of models and further proposed that the model's behavior acquired reward value because it had been paired with nurturance. In Mowrer's (1950) two-factor analysis he

used both "contiguity learning" or classical conditioning and instrumental or "reward learning" to explain imitation and especially language learning in human infants. The stimuli associated with the nurturant parent (for example, appearance and the noises he makes) begin to elicit positive emotions and through this process of classical conditioning the spoken words of the parent come to have reinforcing value. In the second stage of the process when the infant during its babbling happens to reproduce the sounds made by its nurturant parent these too will possess secondary-reward value. The infant is then able to administer his own secondary reinforcers simply by reproducing the sounds which had originally been produced by the nurturant model. Imitative responses may also come to function as instrumental responses since most parents tend to provide positive reinforcement for the child's imitation of their behavior.

In Mowrer's (1960) revised two-factor conception of learning he reduces all learning to classical conditioning but broadens this kind of learning to include conditioned sensations and images which were associated with primary and secondary reinforcement and which serve to mediate matching behavior. The response-correlated stimuli associated with imitative responses became associated with positive or negative emotions (due to reward or punishment) and thus what is usually called instrumental learning

becomes a case of classical conditioning according to Mowrer's view.

Sheffield's (1961) theory of observational learning resembles Mowrer's theory of imitation. He makes use of mediational responses which, however, are perceptual and cognitive rather than emotional like Mowrer's. These symbolic or perceptual responses provide the cues for eliciting the overt responses which have been previously observed.

Bandura (1962, 1969) regards imitation as synonymous with identification since he considers that both terms refer to the occurrence of matching the responses of a model. Since the word imitation carries less superfluous meaning than does the word identification, he chooses the former. In general, Bandura accepts Mowrer's theoretical explanation of imitation giving particular attention to his emphasis on response-produced, proprioceptive stimuli. However, environmental or external stimulus elements are considered by Bandura to be perhaps more important in influencing the imitative behavior of young children than are internal stimuli.

Bandura (1962, 1965a) believes that most learning theorists have placed too much emphasis on response-reinforcement contingencies and have not attended sufficiently to the influence of the behavior examples of the culture agents or models. He believes that imitation

involves learning which takes place through mere contiguity of sensory events with reinforcement merely determining the extent to which learned responses are actually performed. He thus distinguishes between performance and learning variables.

Experimental demonstrations of the efficacy of imitative learning have been reported for subprimates (Church, 1957; Miller and Dollard, 1941), primates (Hayes and Hayes, 1952; Warden, Fjeld, and Koch, 1940), autistic children (Hingtgen, Coulter, and Churchill, 1967; Metz, 1965), retarded children (Baer, Peterson, and Sherman, 1967), normal preschool children (Baer and Sherman, 1964; Bandura and Huston, 1961; Bandura, Ross, and Ross, 1961; Witryol and Alonzo, 1962), school age children (Bandura and Kupers, 1964; Feshbach, 1967), and adults (Kanareff and Lanzetta, 1958; Kanfer and Marston, 1963; McBrearty, Marston, and Kanfer, 1961; Schein, 1954).

#### The Effects of Modeling on Aggressive Responses

Many of Bandura's experimental investigations have concerned the influence of models on the aggressive behavior of children. Prior to his pioneer work very little attention had been directed toward the original acquisition of aggressive responses or to the social learning variables which might relate both to the acquisition and the maintenance of such responses. This was

primarily due to the general acceptance of the frustration-aggression hypothesis (Dollard, Doob, Miller, Mowrer, and Sears, 1939; Miller, 1941) which regarded aggression as a natural consequence of frustration. Bandura and Walters (1963) instead suggested that successful aggressive models and intermittent reinforcement of a child's aggressive responses will be more influential in producing a high frequency of aggressive behavior than will frequent exposure to "frustrating" environmental stimuli.

Bandura, Ross, and Ross (1961, 1963a) have demonstrated the efficacy of the transmission of aggression through modeling techniques. Nursery school children observed live adult models, filmed adult models, and cartoon models who exhibited certain unique aggressive responses toward an inflated Bobo doll. Other children observed non-aggressive, quiet, subdued models. Control groups were not exposed to models. In a new setting with the model not present the children were mildly frustrated and then observed to determine the amount of imitative behavior performed. Children who had been exposed to aggressive models, whether real life, human-film, or cartoon, displayed significantly greater numbers of aggressive responses than did either those who had observed non-aggressive models or controls. The children who observed human models on films displayed more aggression than did any of the other groups. Bandura (1962, 1965a,

1969) points out that such studies demonstrate the following different modeling effects: (1) transmission of novel patterns of behavior, (2) the elicitation of previously learned responses, and (3) the weakening of inhibitory responses. A related experiment (Lovaas, 1961) showed an increase in non-imitative aggressive responses following the observation of an aggressive movie.

#### Other Behaviors Susceptible to Modeling Influences

Many other studies have reported effects of the behavior of models on observer responses. One of the earliest of such reports is that of Duncker (1938). He demonstrated significant changes in children's food preferences following their hearing a story in which the hero preferred to eat certain kinds of foods.

Children's self-reinforcing responses have been shown to be affected by the observation of models (Bandura and Kupers, 1964). Seven to nine year old children who had observed models rewarding themselves with candy for reaching certain task performance levels matched both the performance standards and the magnitude of reward which had been displayed by the models. Control subjects rewarded themselves independently of task accomplishment. Mischel and Liebert (1966) have also reported significant effects of modeling procedures on children's self-rewarding responses.

O'Connor (1969) reports an interesting experiment concerning the effects of symbolic modeling (film mediated) in enhancing social interaction in nursery school isolates. He exposed the subjects, all of whom had shown extreme social withdrawal in school, to a film in which children were shown interacting in a nursery school setting. A child in the film is shown observing the social behavior of other children, then participating in the social interaction and finally being reinforced for his participation. This reinforcement involved attention from the other children in terms of smiling, playing, and generally reacting to him in a positive manner. Control subjects observed a film about Marineland dolphins. Post-experimental measures of social interactions showed significant increases for the experimental subjects, but not for the control subjects. Actually the post-test social interaction scores of the children who had viewed the modeling film were similar to those of non-isolate children who had been observed during the baseline period. There was some suggestive evidence for lasting effects based on teacher ratings at the end of the school year.

Various types of incidental verbal and motor responses have also been shown to be functionally related to the influence of the behavior of models. For example, Feshbach (1967) showed that children who had observed a filmed classroom sequence later imitated the teacher's

verbal responses and certain unique gestures when they were placed in a setting similar to that shown in the film.

Choosing among alternatives is another type of response which is influenced by modeling procedures. McDavid (1959) showed that children would imitate the choice of a model in a two-choice discrimination learning problem; Sgan (1967) reported changes in children's preferences among pictures; and Witryol and Alonzo (1962) demonstrated changes in children's choices among play objects after they were merely told that other children liked the paper clip best.

Berger (1961) used a vicarious reinforcement explanation of the effects of modeling on conditioned fear responses. Following the observation of models who were supposedly receiving an electric shock following the sound of a buzzer and dimming of a light, the experimental subjects displayed "vicariously conditioned emotional reactions" (measured by GSR's) to the sound of the buzzer.

Models have also been found to influence altruistic behavior (Rosenhan and White, 1967), resistance to temptation (Stein, 1967), syntactic style (Bandura and Harris, 1966), moral judgments (Bandura and McDonald, 1963), and phobic responses (Bandura, 1968).

Effects of Response Consequences  
to the Model

Though the studies just referred to have demonstrated that imitative learning can take place even when there are no reinforcing consequences either to the model or to the observer, it has been shown that response consequences to the model will affect the level of imitative learning. Bandura, Ross, and Ross (1963b) have found that children who observe a model who is rewarded for aggressive behavior will exhibit significantly more imitative aggression than will children who have observed an aggressive model whose aggressive responses are punished. As mentioned earlier, Bandura (1965a) believes that these differences may not represent true differences in learning but may be performance differences only since children who failed to display aggressive responses after watching an aggressive model being punished were able during post-experimental interviews to describe the model's responses. Bandura (1965b) reported that when incentives were offered for imitation of the model's responses the differences between model-punished and model-rewarded groups were no longer evident. Bandura notes that these data could be interpreted in terms of response generalization due to prior reinforcement of imitative behavior, and agrees that this could be the case. However, he believes that the results

do indicate that contemporaneous reinforcements are not necessary to guarantee acquisition of new responses.

### Modeling Procedures Versus Reinforcement Techniques

The effectiveness of modeling procedures in developing new behaviors and in bringing about behavior change cannot be questioned in view of the experimental literature now available. To assess the relative contributions to learning of instrumental conditioning and reinforcement versus modeling procedures is less simple. Bandura (1962, 1965a) emphasizes the usefulness of modeling techniques in developing new behavioral repertoires or in response acquisition and suggests that operant conditioning is principally effective in strengthening and maintaining responses which are already a part of the organism's behavior repertoire.

Suggestive evidence for the relative superiority of modeling over instrumental conditioning in a particular learning situation comes from a study which examined the validity of Piaget's stage theory of moral development (Bandura and McDonald, 1963). This investigation tested the influence of direct social reinforcement versus the behavior of models in changing children's moral judgments from objective to subjective or vice versa. Models were able to change children's judgmental responses significantly whereas operant conditioning techniques were not. Bandura points out that operant techniques were probably less

effective partially because the responses being reinforced were often totally absent from the subjects' repertoires and so there was little opportunity to reinforce them. Thus, modeling may be particularly effective in situations where there are no reliable eliciting stimuli to provide cues to the desired response.

Kagan (1968) makes an important point in regard to this issue concerning the comparative efficacy of reinforcement and modeling procedures. In his view the more meaningful question is one of whether or not the reinforcement pattern is congruent with the model's behavior. A learning situation in which the significant model demonstrates certain behaviors himself and also rewards the child for these same behaviors is that which is most predictive of behavioral outcome in the child. When reinforcement and modeling are incongruent the outcome will be more uncertain. Mischel and Liebert (1966), in a study referred to earlier, examined the effects of inconsistency between direct training and modeling. Adult models observed by child subjects rewarded themselves for task performance according to a rigid or lenient criterion. In one experimental condition these criteria were very stringent and were identical for the model and for the child. These children consistently adopted these same rigid criteria even in the model's absence. However, when the model rewarded performance by the child according to a stringent criterion but

rewarded herself for a lesser performance, the subjects were less stringent in their self-reward patterns. Even more lenient in their self-reward responses were those children who observed a model reward herself for a high level performance, but who then rewarded the subjects for lower levels. The experimenters believe that this study demonstrates the potency of combining modeling and reinforcement procedures. However, they feel that further investigation is necessary in order to understand the differences in subject performance when modeling and reinforcement are inconsistent. For example, when the child was rewarded by a very stringent criterion and the model was lenient in rewarding herself, half of the children used the imposed stringent standards and half used the observed lenient standards. The subject variables related to these differences in performance should be investigated further.

#### Subject Variables in Imitative Learning

If social models and the consequent imitative responses which they precipitate are so significant to the learning process as experimental evidence seems to suggest, the possibility of some deficiency in imitative skills in culturally disadvantaged children should be considered.

There are data to indicate that certain subject characteristics may influence imitative learning. One of these variables which may be important in understanding the

academic failures of culturally disadvantaged children is that of dependency. Several studies have offered evidence which suggests that dependent persons tend to be easily influenced by other people (Cairns, 1961; Cairns and Lewis, 1962; Feshbach, 1967; Jakubczak and Walters, 1959; Kagan and Mussen, 1956). The relationship between children's dependent behavior and their socioeconomic background is somewhat unclear but certain class differences in child rearing practices may be significant in clarifying this relationship. Bronfenbrenner (1958) reviewed the major reports of such research covering the period from 1930 to 1955. He found that middle class mothers tend to be more tolerant of their children's expressions of dependence than were working class mothers and also that working class mothers use more physical punishment. Ausubel and Ausubel (1963) have suggested that the lower class parent provides less succorant care than does the middle class parent, exerts less careful supervision of activities, and resorts more frequently to harsh physical punishment with little positive reinforcement. Gray and Klaus (1965, 1968) have suggested that lower class children receive a lesser amount of positive reinforcement and that the source of their reinforcement may come from peers and their own sensations and less from adults. Similarly, Deutsch (1963) noted that the child-adult interaction in culturally disadvantaged homes is such that positive reinforcement is too infrequent.

All of these findings point to a very significant issue in terms of the effects a model may have on the responses of children who observe that model's behavior. These early experiences may, in fact, determine the value or potency of social reinforcement from adults. If adults have been nurturant, loving sources of positive reinforcement they will be more powerful secondary reinforcers and thus their behavior will take on more salience for the child than is the case when the adults in his environment have rejected his help-seeking behavior (i.e., failed to meet his dependency needs) and have been sources of punishment rather than sources of reward. Guerney, Stover, and Andronica (1967) have proposed that young children may strive for achievement in school not because of any satisfaction in learning but in order to please adults and to obtain attention and praise from their parents and from their teachers. Gavalas and Briggs (1966) have attempted an analysis of dependency in terms of concurrent schedules of reinforcement and have suggested that the amount of value which becomes attached to social reinforcement may be a function of very early nurturance and cuddling. If, as the literature suggests, lower class children have not had the necessary early reinforcement of dependency they may not respond to adults as sources of reinforcement, may not seek or respond to their attention and may thus fail

to utilize a powerful source of learning--that of the teacher as a model.

Experimental evidence of the effect of nurturance on imitative behavior has been reported by Sgan (1967). She found that a nurturant interaction with an adult prior to a situation in which the child could match or fail to match that adult's responses resulted in a greater number of matching responses than when the previous interaction involved unresponsive attention or withdrawal of nurturance. Bandura and Huston (1961) reported a facilitating effect on imitation when the model was nurturant.

There is also some research evidence to indicate that subjects who have been previously rewarded for displaying matching responses will be more attentive to the cues of others (Lanzetta and Kanareff, 1959; Schein, 1954). One might then hypothesize that if disadvantaged children have received less positive reinforcement generally from adults they have also been less frequently rewarded for imitative responses and that reward should function to increase the frequency of such responses.

Experimental evidence supportive of the hypothesis that children from lower socioeconomic backgrounds may be less susceptible to modeling influences is offered by two recent investigations. Feshbach (1967) found that disadvantaged boys imitated cinematic teacher behaviors (gestures and verbalizations) significantly less frequently

than did middle class boys. Sgan (1967) reported that working class boys displayed fewer imitative responses (changes in preferences for pictures) than did working class girls, middle class girls, or middle class boys. The generality of these findings has not been established.

Thus, it appears possible or even probable that the early experiences of the culturally deprived child have led to his being less attentive and less responsive to the adults in his environment and therefore less likely than his middle class counterpart to model his behavior after that of his teachers. One of the purposes of the present investigation, therefore, will be to examine differences in imitative or modeling responses between middle class and lower class children and further to test the hypothesis that lower class boys may be even less likely to imitate an adult model than are lower class girls. The contribution of such differences to relative levels of academic functioning has yet to be assessed, but certainly seems an important issue should such differences be definitively established.

#### Relationships Between Attention and Learning

Bandura (1962, 1965a, 1969) has pointed out that mere exposure to a model is not sufficient to guarantee learning and has emphasized the role of observing responses or attentiveness. If the cues provided by the model are not attended to by the observer there will obviously be

little if any imitative learning. The possible influence of early learning experiences which might reduce attentiveness to adults has already been discussed. Some writers have postulated other experiential factors which might affect the skill of attending to environmental stimuli. For example, M. P. Deutsch (1963) and C. P. Deutsch (1964) have hypothesized that certain environmental factors in the disadvantaged home (for example, the low "signal to noise ratio") may be conducive to a "tuning-out" process of learned attention. Gray and Klaus (1965) have also speculated that in the lower class home the child may not attend to relevant stimuli because there are so many conflicting sources of stimulation. Kohlberg (1968) reported finding that culturally disadvantaged preschool children had lower scores than did their middle class classmates on both a rating and an experimental measure of attention.

Kagan (1967) has defined attention as a central variable in all learning and has proposed that the functional significance of the stimulus is dependent on the level of attention which the subject directs toward it. He also pointed out the necessity of maximizing the organism's level of attention in a learning situation and conceptualized cultural deprivation in terms of the relative lack of focusing on the distinctiveness of the available stimulation. There are several investigations which suggest the

important role of attention in differing learning situations. Mayers (1965) found that a rating of attentiveness was the best predictor of improvement for children in a psychotherapy treatment program. Aronfreed (1964) found that children learned self-critical comments most effectively if they were first punished and then heard a model speak self-critical statements. Theoretically, punishment could raise the attention level of the subjects and thus facilitate learning. Kohlberg (1968) while evaluating the effects of a Montessori preschool program with a small group of culturally disadvantaged Negro children, discovered that gains in IQ achieved during the program were correlated (.65) with increases in level of attention.

One can examine both attentive and imitative responses in terms of the social learning history of the individual. How frequently and efficiently have such behaviors been modeled and reinforced by the significant persons in the developing child's environment? Evidence has already been presented which suggests that when imitative responses are positively reinforced they will tend to increase (Lanzetta and Kanareff, 1959; Schein, 1954). In addition, Solley and Murphy (1960) have suggested that attentional acts have response properties which are capable of being conditioned through positive reinforcement. There are also several experimental demonstrations of the efficacy of conditioning of attention (Fisch and

McNamara, 1963; Santos, Farrow, and Haines, 1963; Walters, 1958). Thus, the possibility of increasing both imitative and attentive responses in individuals who are deficient in such skills seems to exist. Bandura (1962) has suggested that one way to facilitate imitation or modeling is through the use of incentive-oriented sets directed toward focusing the viewer's observing responses. In a study examining the effects of incentive-oriented sets, Bandura (1965c) was unable to demonstrate such learning effects, but felt that this failure was due to the extreme external stimulus control for all subjects, who were in a dark room in front of a television screen. The present study which does not involve this much stimulus control will also examine the effect on imitative responses of instructions designed to direct attention to the model's behavior.

Bandura (1965a) has also raised the question as to whether imitative responses may be learned but not performed. Perhaps the learning effects of modeling procedures can be enhanced by providing information to the subject about when and where it is appropriate for him to imitate. Klauk (1966, 1969), for example, observed that preschool children's imitative responses were significantly increased in frequency by the use of a simple verbal command to imitate. This very obvious and simple procedure may be necessary if the optimal learning potential of models is to

be realized. This study will then also examine the influence of instructions to imitate.

A final question evoked by this review of the literature is whether positive reinforcement will function to increase imitation.

## EXPERIMENTAL HYPOTHESES

The general questions being asked in this investigation have been formulated in the preceding paragraphs. Answers to these questions will be sought in terms of testing the following specific hypotheses:

1. Middle class children will display a greater frequency of imitative responses, in the form of reproducing the verbal and motor responses of a model, than will lower class children.
2. Attention-directing cues in the form of incentive-oriented instructions will facilitate imitation for all subjects.
3. Instructions to imitate will increase the frequency of imitative responses for all subjects.
4. Lower class boys will display fewer imitative responses than will lower class girls or middle class children of either sex.
5. Positive reinforcement of imitation will increase the frequency of imitative responses in lower class children.

## METHOD

### Subjects

The lower socioeconomic class subjects were kindergarten children from the Child Development Centers. These centers are sponsored by Head Start and only accept children from families whose incomes place them at or below the poverty level as defined by that organization. The annual income level may vary according to the number of children in the family and other factors. There were 16 boys and 16 girls and this group comprised all of the children in the two local Child Development Centers who were between the ages of 5 years, 5 months and 6 years, 5 months and who were expected to enter the first grade within approximately four months. This group included Anglo, Mexican-American, and Negro children.

The middle class subjects were 12 girls and 10 boys attending the Jewish Community Center Shanhouse Pre-School. The majority of these children were not from families of the Jewish religion, however. They were in the same age range as were the children in the lower socioeconomic group and were also expected to enter first grade within approximately four months. The director of the school asked that parental permission be obtained in order to carry out this study and the 22 children included in the study were those,

out of a total of 40 children, whose parents had returned signed permission for their children to participate in the study. An additional five girls whose parents had returned permission slips were used in a pilot study as described below. All girls were used in the pilot study because there was a greater number of girls whose parents had returned permission slips.

#### Reliability of Recording

In order to determine whether the experimenter could reliably record the children's imitative responses, a small pilot study was conducted at the Jewish Community Pre-School with the aid of a fellow graduate student. The data for measuring recording reliability were obtained in the room where the experiment itself was conducted for middle class subjects. The same toys were used and they were arranged in the same manner as in the experimental situation. The subjects were girls from the same classes as the experimental subjects and they were selected randomly from the total list of girls. It was necessary to use girls only because of a shortage of boys all of whom were used as experimental subjects. The experimenter sat in the same position as she did during the experiment, i.e., across the table from the subject. The co-recorder sat to the left of the child and slightly in back of her. The procedures used were identical to those used with experimental subjects. Using the response recording form

especially devised for this study (see Appendix A), both observers recorded incidental and then directed imitative responses by simply making a check in the appropriate place on the form. There was 100% agreement between the two recorders in their response recording for five subjects.

### Procedure

#### Part I

This section will describe the experimental procedure to which both lower and middle class subjects were exposed.

Subjects from both socioeconomic classes were separated by sex and then randomly divided into two equal groups. All children were to individually observe a female model (the experimenter) performing certain verbal and motor behaviors, but there were two different sets of instructions given prior to that observation. Group A children received instructions designed to increase attention to the model by producing an incentive-oriented set. Group B children received neutral instructions.

The experimenter in each case went to the child's room and asked the child to come with her to another room to look at some toys. The experimenter and the child then proceeded to a small room near the child's regular classroom. The child was asked to sit down at a table upon which some toys were displayed. These toys were an abacus

with wooden beads on a large wooden frame, a toy automobile, a plastic horse, a doll, and three large colored plastic blocks. These toys were always arranged in an identical pattern for each child.

The following procedure was then carried out: After the child was seated he was told that he could play with the toys. This was done to put the child at ease in a new situation. After one minute of playing with the toys, the experimenter said, "Will you please stop playing now because I am going to do something with the toys." The toys were then rearranged into their original position. For children who were in the incentive-oriented condition, the following instructions were given: "If you watch me very carefully and listen to me very carefully I will give you some of this candy when I am finished." A bag of M&M candy was in sight on the table. Children in the neutral instructions condition were given the following instructions: "Watch me very carefully and listen to me very carefully." The experimenter, who was seated across the table from the child, then went through the following procedure:

1. She stood up and then sat back down at the table.
2. She selected blocks from the other toys and moved them directly in front of her.
3. She said, "I like blocks."
4. She pushed the red block in front of the others.

5. She said, "I will put the red block here."
6. She then placed the blue block on top of the red block.
7. She said, "I will put the blue block on the red block."
8. She then placed the yellow block on the blue block.
9. She said, "I will put the yellow block on the blue block."
10. She clapped her hands.
11. She said, "I made a good tower."

Following this procedure children in the incentive-oriented set group were told, "You watched me and listened to me very well so here is the candy I promised you." The neutral instructions subjects were just given the candy but told nothing.

After the child finished eating his candy he was told that he could play with the toys again. He was observed for a period of two minutes and a recording of the number of imitative responses which the child displayed during this time was entered on the form devised for this purpose (see Appendix A). These responses were recorded as incidental responses in the appropriate column on the form. There was a total of 14 possible imitative responses. Approximations of the model's verbalizations were counted as imitative responses. For example, partial reproductions

such as "I put blue here," "I put this one here," or "I put here" were counted as imitative responses. The category "other verbalizations of model" included verbal responses which the experimenter had made while giving preliminary instructions prior to the actual modeling procedure, as for example "Watch me carefully."

After the child had been observed for two minutes and his incidental imitative responses recorded, he was given instructions to imitate as follows, "Now will you play with the toys the same way I did and say the same things I said." These instructions were the same for the children in both the incentive-oriented set condition and the neutral instructions condition. The child was again observed for two minutes and his imitative responses recorded in the directed imitation column on the form shown in Appendix A. This was the end of the experimental procedure for middle class subjects. Lower class subjects then were exposed to experimental conditions designed to measure the effect of positive reinforcement of imitative responses.

## Part II

Only lower class subjects participated in this part of the experiment. They were randomly divided into two groups, a reinforcement group and a non-reinforcement group. At the end of the procedure described in Part I, the

children in the reinforcement condition were told by the experimenter, "You did so well in saying the things I said and doing the things I did that I am going to give you some candy." The child was then given M&M candy. After he ate his candy, the experimenter gave him the following instructions, "Now please watch me again very carefully and listen to me very carefully." The experimenter then carried out modeling procedures identical to those in Part I of the experiment.

Children in the non-reinforcement condition were merely given the above instructions but without the preceding reinforcement. In both experimental conditions children were observed, as in Part I, during two 2 minute periods. During the first 2 minute period incidental imitative responses were recorded. During the second 2 minute period children were observed following instructions directing them to imitate.

## RESULTS

The results of the study will first be summarized and then discussed in more detail.

Middle class subjects displayed significantly more imitative responses than did lower class subjects. The mean number of imitative responses for all middle class subjects was 9.00 whereas the mean number of such responses for all lower class subjects was 6.88.

Attention-directing cues, which here took the form of incentive oriented instructions, did not have a uniform effect for all subjects. Lower class boys and upper class girls exhibited fewer imitative responses in the incentive oriented instructions condition than in the neutral condition. Lower class girls and upper class boys demonstrated the predicted effect of incentive oriented instructions.

Instructions to imitate had a very powerful effect as evidenced by the fact that only two out of 22 middle class and 10 out of 32 lower class subjects displayed any incidental imitative responses. (Incidental responses were those which occurred prior to instructions to imitate.) Thus, only 12 out of a total of 54 subjects imitated the examiner unless specifically instructed to do so.

Lower class boys gave significantly fewer imitative responses (mean of 6.06) than did all other subjects (lower

class girls, middle class girls, and middle class boys) grouped together (mean of 8.45).

Positive reinforcement of lower class subjects' imitative responses did not show the predicted effect since both the reinforcement and the non-reinforcement subjects showed significant increases in imitation when a second trial was compared to a first.

No hypotheses were made regarding sex differences except for the one that lower class boys would imitate less frequently than all other groups. Overall sex differences were not found to be significant.

Table 1 summarizes the data from Part I of this study. This table presents the total and the mean number of incidental and directed imitative responses of each experimental group.

The effects of socioeconomic class, sex, and incentive oriented instructions on directed imitative responses were examined by means of a 2 x 2 x 2 analysis-of-variance design. (Incidental imitative responses were so few that an analysis-of-variance was not possible. Forty-two out of a total of 54 subjects gave no incidental responses.) Since the cell frequencies were unequal, Winer's (1962, pp. 241-244) procedure which computes an harmonic mean of the cell frequencies was followed. Table 2 summarizes these results.

Table 1. Summary of Results from Part I

		Neutral Instructions		Incentive Instructions	
		Incid. Imit.	Direc. Imit.	Incid. Imit.	Direc. Imit.
<u>Lower Class Subjects</u>					
Girls	Total	24	Total 54	Total 28	Total 69
n = 16	Mean	3	Mean 6.750	Mean 3.5	Mean 8.625
	n = 8			n = 8	
Boys	Total	7	Total 57	Total 6	Total 40
n = 16	Mean	.88	Mean 7.125	Mean .75	Mean 5.00
	n = 8			n = 8	
<u>Middle Class Subjects</u>					
Girls	Total	0	Total 61	Total 10	Total 54
n = 12	Mean	0	Mean 10.167	Mean .83	Mean 9.00
	n = 6			n = 6	
Boys	Total	0	Total 39	Total 0	Total 44
n = 10	Mean	0	Mean 7.800	Mean 0	Mean 8.800
	n = 5			n = 5	

Table 2. Analysis of Variance of the Class, Sex, and Instructions Variables

Source of Variation	SS	df	MS	F
Instructions (I)	.14	1	.14	
Socioeconomic Class (C)	55.38	1	55.38	7.38**
Sex (S)	27.43	1	27.43	3.68
I X C	.00	1	.00	
I X S	2.69	1	2.69	
C X S	.36	1	.36	
I X C X S	30.97	1	30.97	4.14*
Error	344.69	46	7.49	
Total	472.37	53		

\*p < .05.

\*\*p < .01.

The separate sources of variance do not add up exactly to the total because of the use of the harmonic mean in computing the sums of squares for all sources of variance except the within-cell. Winer (1962) uses the unadjusted values in calculating the within-cell sum of squares when cell frequencies are unequal and that was the procedure used here.

The predicted socioeconomic class effect was significant ( $F = 7.38$ ,  $df = 1$ ,  $p < .01$ ); there were no significant effects of sex though the  $F$  approached significance ( $F = 3.68$ ,  $df = 1$ , an  $F$  of 4.08 would be significant at the .05 level); the predicted effect of incentive oriented instructions was not found, although the interaction effect of Instructions x Class x Sex was significant ( $F = 4.14$ ,  $df = 1$ ,  $p < .05$ ) indicating that the effect of instructions varied depending upon the class and sex of the subject. These relationships are shown graphically in Figures 1 and 2. Inspection of these figures shows that lower class boys and middle class girls gave fewer imitative responses in the incentive oriented instructions condition than in the neutral instructions condition and that middle class boys and lower class girls showed the predicted more frequent imitation under the incentive condition. (See Table 1.)

Thus, it can be seen that the non-significant main effect of instructions must be interpreted cautiously and that these instructions may have different effects on

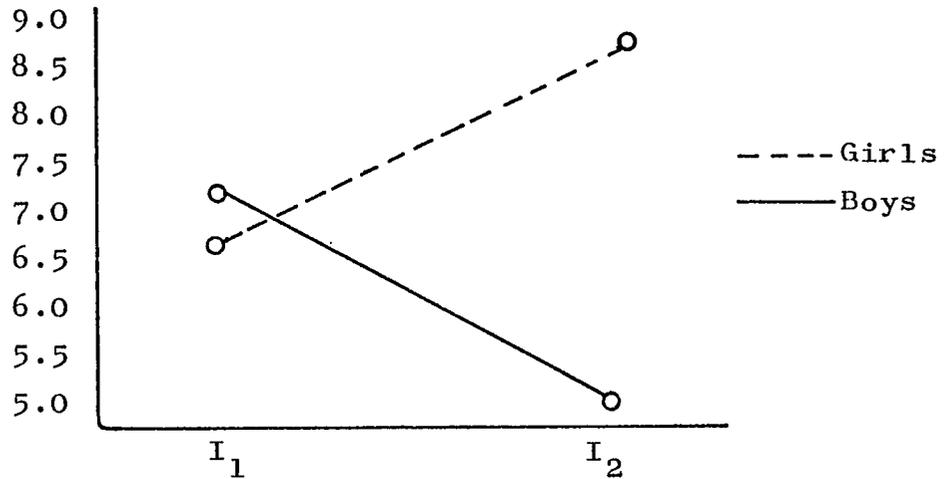


Figure 1. Mean number of imitative responses for lower-class subjects under two instructional conditions -- I<sub>1</sub> represents neutral instructions and I<sub>2</sub> represents incentive oriented instructions.

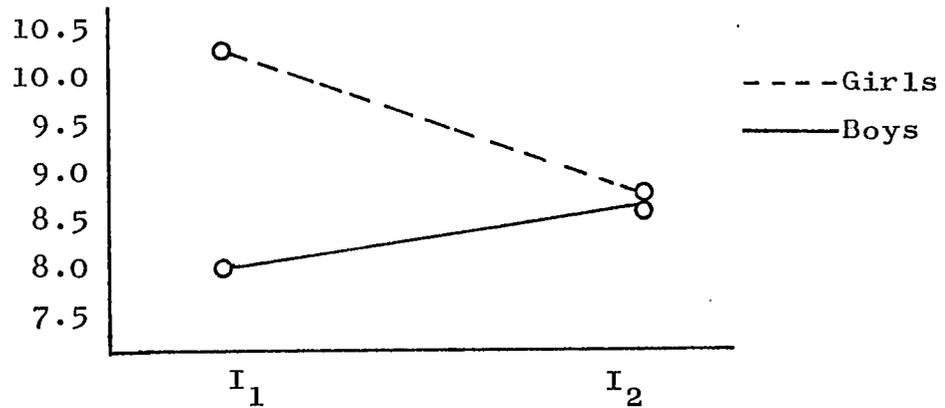


Figure 2. Mean number of imitative responses for middle-class subjects under two instructional conditions -- I<sub>1</sub> represents neutral instructions and I<sub>2</sub> represents incentive oriented instructions.

different subjects. For example, the mean number of imitative responses for lower class boys in the incentive oriented instructions condition was 5.0 whereas the mean number for lower class girls was 8.625. The results were reversed when neutral instructions were given (7.125 mean responses for boys and 6.750 for girls). In effect, the effects of instruction are masked by the three-way interaction. Therefore, an analysis of the simple effects of instructions was done and is presented in Table 3.

Table 3. Analysis of Variance for Simple Effects of Instructions

Source of Variation	SS	df	MS	F
Incentive-Oriented Instructions for LC <u>Ss</u>	45.24	1	45.24	6.04**
Incentive-Oriented Instructions for MC <u>Ss</u>	.13	1	.13	
Neutral Instructions for LC <u>Ss</u>	.45	1	.45	
Neutral Instructions for MC <u>Ss</u>	15.04	1	2.01	
Within cell error	344.69	46	7.49	

\*\*p < .025

The analysis of simple effects was computed in accordance with Winer's (1962, p. 244) formula for unequal cell frequencies. An inspection of the table shows that only the simple effects of the incentive oriented condition on lower class subjects was significant. These results suggest that the incentive oriented instructions had a significant negative effect on lower class boys and a significant positive effect on lower class girls. Possible explanations for this effect will be offered in the discussion section.

It was hypothesized that lower class boys would display fewer imitative responses than would lower class girls or middle class children of either sex. The results indicated that the mean number of imitative responses for lower class boys was 6.06; for lower class girls the mean number was 7.69; for middle class girls the mean was 9.58; and for middle class boys the mean was 8.30. The combined mean for all groups except for lower class boys was 8.45. The weighted mean of lower class boys was compared to the weighted means of the other three groups (by the method of comparison on treatment means described by Edwards, 1968, pp. 125-137). The resulting  $t$  of 3.01 with 46 degrees of freedom (Edwards suggests using the degrees of freedom associated with the within treatment mean square of the analysis of variance) is significant beyond the .01 level.

The differences between incidental imitative responses and directed imitative responses was not analyzed statistically because of the extremely large number of subjects who showed no incidental imitation (42 out of 54). It seems obvious without the use of statistics that instructions to imitate produced a very large effect. There were a total of 418 directed imitative responses and a total of 75 incidental imitative responses. See Table 1 for a further breakdown of these figures. Since 10 out of 32 lower class children gave incidental imitative responses and only 2 out of 22 middle class children did so, it seemed reasonable to find out if these frequencies differed significantly. The  $\chi^2$  test for independent samples was used to analyze the data (Siegel, 1956) and the obtained  $\chi^2$  of 2.59 was not significant as a  $\chi^2$  of 3.84 is needed to be significant at the .05 level.

It was predicted that reinforcement of lower class subjects with edible reinforcers for their imitative responses during Trial I should significantly increase such responses on a second trial. The effect was not as predicted since subjects in both reinforcement and non-reinforcement displayed a higher frequency of imitative responses in the second trial than in the first. In fact, this increase appeared to be greater in the non-reinforcement condition in which the total number of responses on the first trial was 96 and the total number on the second

trial was 125. In the reinforcement condition these figures were 124 and 145. (See Appendix B for more detailed figures.) Appendix B shows that the greater frequency for the non-reinforcement condition was due solely to the differential performance of the boys. The explanation for the apparent positive effect of the non-reinforcement condition may be the result of the very low baseline performance in Trial 1 of the boys exposed to this condition. Since the other three groups started at a much higher baseline, a ceiling effect may have prevented their showing as great an increase. In order to make a more accurate comparison of the changes in frequency of imitation for both the reinforcement and the non-reinforcement groups, the analysis of variance used only 10 subjects from each group, matching these subjects on their baseline performance in Trial 1. Thus, the group of 10 subjects used in the non-reinforcement condition gave a total of 69 responses on the first trial and the group of 10 subjects from the reinforcement condition gave a total of 70 responses. Table 4 shows the results of a repeated measures analysis-of-variance. Inspection of this table shows that there were no differences between the reinforcement and the non-reinforcement groups and that there was a significant trials effect ( $F = 9.415$ ,  $df = 1$ ,  $p = < .01$ ), the mean number of responses for Trial 1 being 6.95 and the mean for Trial 2 being 8.60. Though there was a significant

Table 4. Analysis of Variance, Reinforcement Versus Non-Reinforcement Two Trials<sup>a</sup>

Source of Variation	MS	df	F	P
Between	8.2882	39		
Groups	.0250	1	.003	
Error (G)	8.7472	18		
Within	3.9750	20		
Trials	27.2250	1	9.415	< .01
G x T	.2250	1	.078	
Error (T)	2.8917	18		

<sup>a</sup>Analysis-of-variance performed by the Numerical Analysis Laboratory at The University of Arizona.

increase in the frequency of imitation during the second trial, it cannot be said that this was a function of the specific reinforcement of imitative responses during the first trial. It might be hypothesized that there were other reinforcers operating in the situation which were effective for both groups, for example, attention by the experimenter. However, the data do not answer this question. Another possible explanation for these results will be offered in the discussion section.

## DISCUSSION

One of the major questions which prompted this investigation arose out of a consideration of the nature of the skills in which children from disadvantaged backgrounds might be deficient. Problems of academic failure could perhaps be solved more readily if there were more exact knowledge of the specific deficits in behavior which characterize these children. The research which has been conducted within the social-learning theory framework and which has been summarized in this paper has called attention to the significance of modeling and vicarious processes in the acquisition and modification of behavior. The powerful influence of social models on the behavior of observers has been demonstrated repeatedly by this research and must, therefore, be given consideration in any study which relates to possible learning deficits. This study has demonstrated possible differences in imitative behavior as a function of socioeconomic class membership. Lower frequencies of imitative behavior will obviously reduce the amount of learning from social models and may thus be related to demonstrated class differences in academic and cognitive functioning.

The long range effects of academic failure in our society are profound and may permanently confine the

individual who so fails to that subculture of poverty which Harrington (1962) has called "The Other America." That membership in this subculture may have effects other than economic has been suggested by such research as that of Hollingshead and Redlich (1958) who have examined the relationship between social class membership and psychopathology. Their data show a much higher incidence of severe psychiatric disorder among the lower social classes, defined principally by educational and occupational accomplishment, than in the middle or upper classes. Srole, Langner, Michael, Opler, and Rennie (1962) also reported a strong relationship between socioeconomic status (SES) and psychiatric impairment, finding that nearly one person in ten from the bottom SES stratum was functionally disabled by psychiatric symptoms whereas in the highest stratum no cases were found to be so disabled. Harrington (1962) has also discussed the elevated levels of delinquency and of poor mental and physical health among the poor. Since educational and occupational accomplishment have consistently been used as indices of socioeconomic status, it appears that failures in these endeavors also may mean failure in many other aspects of living. If methods can be found to raise the academic functioning of children from economically deprived backgrounds, then in turn their overall social functioning may also be raised. Such a view would give high priority to attempts to offset what Gray and Klaus

(1968) have described as ". . . the progressive retardation in school achievement and general cognitive development that is the usual fate of the culturally deprived child as he passes through the elementary school [p. 63]."

The results of this study contain implications for the education of the economically disadvantaged and suggests techniques which might be useful in the educative process. The finding that the children in this study who were from lower socioeconomic class backgrounds imitated less frequently than did those from middle class backgrounds defines a variable which could be related to social class differences in academic functioning. The influence of social models, especially teachers, may be less potent for lower class children and thus they may miss many opportunities for the learning of academic and language skills which might be achieved through observational processes.

Possible explanations of the lower frequency of imitative responses by children from lower socioeconomic backgrounds have been discussed earlier, and if relevant may help in planning effective intervention programs. Subcultural differences in early socialization and child rearing practices were suggested as possible antecedent variables. However, the concept of social class has not yet been clearly defined and it is difficult to determine which specific early childhood experiences differ on the basis of socioeconomic class membership and how these

differences relate to later academic and cognitive functioning. If the problem is approached by conceptualizing imitative behavior as a manifestation of susceptibility to social influence, then some tentative hypotheses emerge. We have already referred to the literature which suggests that dependent persons are more easily influenced by others and to the related findings (Bronfenbrenner, 1958) of a greater tolerance for dependency in their children by middle class than by working class mothers. Also relevant may be the suggestions (Ausubel and Ausubel, 1963; Deutsch, 1963; Gray and Klaus, 1965, 1968) that the child from a disadvantaged home receives less positive reinforcement from adults than does the middle class child. Rejection of dependent responses and infrequency of positive reinforcement may then reduce the reinforcing value and thus the potential for social influence of the adults in the child's environment. Bandura and Walters (1963) support such a view in their suggestion that parental rewards of dependency may be related to the development of affiliative tendencies and consequently of responsiveness to social influence.

It may then be necessary, in the case of the lower socioeconomic class child, to increase the teacher's reinforcing effectiveness and thus in turn her potential for influence as a model of appropriate behaviors. Baer and Wolf (1968) discussed the frequent failure of social

reinforcement contingencies with culturally deprived children and the probability that tangible reinforcers would be more effective. Perhaps then the teacher's early use of tangible reinforcers in the school setting should not only increase the specific school related behaviors which are being reinforced but should also make the teacher a more powerful secondary reinforcer and thus a more salient model. In effect, the child is taught to be responsive to adults.

Another avenue of approach in obtaining more powerful modeling effects in schools might lie in a more effective utilization of peer models. Gray and Klaus (1968) believe that the culturally disadvantaged child has been more apt to receive reinforcement from peers than from adults. Also, Ausubel and Ausubel (1963) have remarked on the "exaggerated socializing influence of the peer group" among lower class white and Negro children. These children might then be more susceptible to the influence of peer models than would their middle class counterparts. Training somewhat older children to serve as teacher aides and helpers might be an effective teaching technique with the culturally disadvantaged child, thus capitalizing upon the social influence which peers already may be exerting.

The present finding that lower class boys may be particularly deficient in imitative behaviors supports similar previous findings (Sgan, 1967; Feshbach, 1967,

though her study only compared boys from different socio-economic backgrounds and had no girls in the sample). The antecedent or contemporary variables which might explain these findings cannot be determined from this study. Tentatively, it might be proposed that female models are less effective for lower class boys since this study and the two previous studies (Feshbach, 1967; Sgan, 1967) which examined the social class variable as related to imitation all used female models. Bandura et al. (1961) found some evidence which suggested that male models influenced nursery school subjects, boys and girls, to a greater extent than did female models. It is possible that the sex of the model is even more important for lower class boys than for other children. A further hypothesis might be that boys in lower class homes have received differential parental response to dependent behavior. If boys have received more punishment for dependency they may have failed to develop strong affiliative tendencies toward adults and thus become less sensitive to their social influence. The need for the teacher to become a more reinforcing figure and thereby a more salient model may be even more significant for lower class boys than for the girls. Sgan (1967) proposed that the working class boys in her sample were actively resisting both social reinforcement and social influence. The finding from the present study that lower class boys displayed more imitative responses in the neutral

instructions condition than in the incentive-oriented instructions condition might be interpreted as support for such a viewpoint, since there was a negative effect under conditions designed to raise the level of attention.

Part II of this investigation attempted to determine whether reinforcement of the imitative responses of lower class subjects would increase the frequency of occurrence of such responses. The results were not definitive since children in both the reinforcement and the non-reinforcement conditions showed significant increases in imitative responses. It has already been suggested that there may have been a reinforcement variable operating in both conditions, i.e., attention by the experimenter, which confounded the results. A second possibility concerns a possible increase in the experimenter's secondary reward value in accordance with Mowrer's (1950) theory of imitation. In the first part of the experiment, following the initial instructions and modeling procedures, all children received candy from the experimenter. This association of the model with the reinforcement could have increased her secondary reinforcement value and thus her saliency as a model in the second observational period. A third possibility is that the significant variable responsible for the increase of imitation in both groups was level of attention. On the first trial, the subjects, though asked to watch and listen to the model were unaware that they

would be asked to imitate and, therefore, perhaps did not attend sufficiently to the relevant cues provided by the model's behavior. The experience of having been asked to imitate during the first trial may have resulted in directing attention toward the appropriate cues during the second trial.

These results would suggest that perhaps if the incentive-oriented instructions in the first part of the study had contained information suggesting that the subject was going to be asked to imitate following his observation of the model, then the effect of these instructions might have been enhanced. The teacher who wishes to increase the learning potential from imitative or modeling behaviors in her classroom might then be very careful to inform her students in advance that they will be expected to reproduce behavior sequences, verbal or motor, which they will observe her, their fellow students, or television and movie figures performing.

One finding of this study suggests a readily available means of increasing the probability that adaptive imitative responses will occur. It was found that very little imitation was displayed when there was no cue given to the child that he was expected to imitate. Optimal imitative learning should then be encouraged by social sanctions for modeling. Children are often given conflicting cues concerning their imitation of adults in their

environments. Imitation has been followed by both rewarding and punishing stimuli and the tendency to imitate may be stronger in some children than others depending upon, among other factors, the relative frequencies of these consequences. Regardless of the past reinforcement history, however, the individual probability of the occurrence of imitation should be increased by the use of clearly stated and defined instructions or permission to imitate. Though this point seems so obvious as to need no emphasis, it will be accomplished only if the model is aware of the power of imitative learning. The teacher, for example, who is unaware of the learning potentiality of social models, will certainly not think to point out to her students when it is and is not appropriate to imitate. In fact, the emphasis in schools on the evils of cheating may subtly suggest that one should never copy what another person says or does, thus relegating a powerful learning variable to the status of deviance.

Bandura (1969) has elucidated an important issue for education by pointing out that though social learning often occurs as a result of behavioral modeling cues, once language is adequate, verbal modeling cues become more significant. Obviously, in the typical school setting verbal forms of modeling are used with a good deal of frequency though perhaps not conceptualized as such. An example of the kinds of such modeling that might take place

is suggested by Slobin's (1968) research. He found that when children's verbalizations were repeated by an adult in a more grammatically complex form, the children often reproduced this more complicated form. Perhaps children from lower socioeconomic backgrounds who may be less apt to imitate than other children, tend not to reproduce these more complex, adult forms spoken by their teachers, and thus fail to reach the levels of language development necessary for academic success. To increase the teacher's valency as a model then might greatly increase her ability to influence the language development of these children.

The importance of learning which takes place through the observation of social models has been increasingly recognized recently and research carried out within the social learning framework has demonstrated conclusively the pervasive influence of such models on the behavior of their observers. Viewing modeling behavior as an indication of responsiveness to social influence permits inferences regarding the failure of our schools to successfully educate a large group of the population they were designed to serve. Effective techniques and methods must be developed which will provide all children in our society with the opportunity to reach their optimal level of academic functioning, and it may prove helpful to think of this problem in terms of increasing the influence or the impact which the school has upon the child. If the

disadvantaged child, as has been suggested by this study, does not frequently attend to or model his behavior after his teachers, how will these teachers influence his behavior appropriately, that is, how will they educate him?

Possible techniques and methods for increasing the influence of social models in the school setting have been proposed in this paper, based upon the suggestive findings of the study. The nature of our contemporary society demands high levels of skill from its citizens if they are to function as successful members. Failure in school so limits the future possibility for learning these necessary skills that it is essential to increase our efforts to attempt to prevent many of these failures. The great effectiveness of modeling procedures, particularly when used congruently with positive reinforcement, in developing behavioral competencies suggests that more skillful and planned uses of such procedures in the schools could facilitate and increase their influence on the behavior of the culturally disadvantaged child.

APPENDIX A

RESPONSE RECORDING FORM



Plays with blocks first.								
"I like blocks."								
Selects one block for tower.								
If first block is red.								
"I will put the ( <u>color</u> ) block here."								
Puts 2nd block on the first.								
If second block is blue.								
"I will put the _____ block on the _____ block."								
Puts 3rd block on 2nd block.								
If 3rd block is yellow.								
"I will put the _____ block on the _____ block."								
Claps hands.								
"I made a good tower."								
Other Verbal.								

APPENDIX B

SUMMARY OF RESULTS FROM PART II

Reinforcement Condition

<u>Total Responses - Trial 1</u>			<u>Total Responses - Trail 2</u>		
Girls	Boys		Girls	Boys	
62	62	T = 124	73	72	T = 145

Non-Reinforcement Condition

<u>Total Responses - Trial 1</u>			<u>Total Responses - Trial 2</u>		
Girls	Boys		Girls	Boys	
61	35	T = 96	70	55	T = 125

## REFERENCES

- Albee, G. W. The dark at the top of the agenda. Clinical Psychologist, 1966, 20, 7-9.
- Albee, G. W. Conceptual models and manpower requirements in psychology. American Psychologist, 23, 1968, 317-320.
- Aronfreed, J. Origin of self-criticism. Psychological Review, 1964, 71, 193-218.
- Ausubel, D. and Ausubel, P. Ego development among segregated Negro children. In A. H. Passow (Ed.), Education in depressed areas. New York: Teachers College, Columbia University, 1963. Pp. 109-141.
- Baer, D. M. and Sherman, J. A. Reinforcement control of generalized imitation in young children. Journal of Experimental Child, 1964, 1, 37-50.
- Baer, D. M. and Wolf, M. M. The reinforcement contingency in preschool and remedial education. In R. D. Hess and R. M. Bear (Eds.), Early education: Current theory, research and action. Chicago: Aldine Pub. Co., 1968. Pp. 119-129.
- Baer, D. M., Peterson, R. F., and Sherman, J. A. The development imitation by reinforcing behavioral similarity to a model. Journal of Experimental Analysis of Behavior, 1967, 10, 405-416.
- Bandura, A. Social learning through imitation. In M. R. Jones (Ed.), Nebraska symposium on motivation. Lincoln: Univ. of Nebraska Press, 1962. Pp. 211-269.
- Bandura, A. Behavioral modifications through modeling procedures. In L. Krasner and L. P. Ullman (Eds.), Research in behavior modification: New developments and implications. New York: Holt, Rinehart and Winston, 1965a. Pp. 310-340.
- Bandura, A. Influence of models' reinforcement contingencies on the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965b, 1, 589-595.

- Bandura, A. Vicarious processes: A case of no-trial learning. In L. Berkowitz (Ed.), Advances in experimental social psychology, Vol. II. New York: Academic Press, 1965c. Pp. 1-55.
- Bandura, A. Modeling approaches to the modification of phobic disorders. In Ciba Foundation Symposium, The role of learning in psychotherapy. London: Churchill, 1968. Pp. 201-223.
- Bandura, A. Principles of behavior modification. New York: Holt, Rinehart and Winston, 1969.
- Bandura, A. and Harris, M. B. Modification of syntactic style. Journal of Experimental Child Psychology, 1966, 4, 341-352.
- Bandura, A. and Huston, A. C. Identification as a process of incidental learning. Journal of Abnormal and Social Psychology, 1961, 63, 311-318.
- Bandura, A. and Kupers, C. J. Transmission of patterns of self-reinforcement through modeling. Journal of Abnormal and Social Psychology, 1964, 69, 1-9.
- Bandura, A. and McDonald, F. J. Influence of social reinforcement and the behavior of models in shaping children's moral judgments. Journal of Abnormal and Social Psychology, 1963, 67, 274-281.
- Bandura, A. and Walters, R. H. Social learning and personality development. New York: Holt, Rinehart and Winston, 1963.
- Bandura, A., Ross, D., and Ross, S. A. Transmission of aggression through imitation of aggressive models. Journal of Abnormal and Social Psychology, 1961, 63, 575-582.
- Bandura, A., Ross, D., and Ross, S. A. Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 1963a, 66, 3-11.
- Bandura, A., Ross, D., and Ross, S. A. Vicarious reinforcement and imitative learning. Journal of Abnormal and Social Psychology, 1963b, 67, 601-607.
- Bereiter, C. and Engelmann, S. Teaching disadvantaged children in the preschool. Englewood Cliffs, New Jersey: Prentice Hall, 1966.

- Berger, S. M. Incidental learning through vicarious reinforcement. Psychological Report, 1961, 9, 477-491.
- Bronfenbrenner, U. Socialization and social class through time and space. In E. E. Maccoby, T. M. Newcomb, and E. R. Hartley (Eds.), Readings in social psychology. (3rd ed.) New York: Holt, Rinehart and Winston, 1958. Pp. 400-425.
- Cairns, R. B. The influence of dependency inhibition on the effectiveness of social reinforcers. Journal of Personality, 1961, 29, 466-488.
- Cairns, R. B. and Lewis, M. Dependency and the reinforcement value of a verbal stimulus. Journal of Consulting Psychology, 1962, 26, 1-8.
- Cernius, V. Effects of two different types of reinforcers on conceptual thinking among lower class boys. Proceedings, 76th Annual Convention, APA, 1968, 617-618.
- Church, R. M. Transmission of learned behavior between rats. Journal of Abnormal and Social Psychology, 1957, 54, 163-165.
- Deutsch, C. P. Auditory discrimination and learning: Social factors. Merrill Palmer Quarterly, 1964, 10, 277-296.
- Deutsch, C. P. and Deutsch, M. Brief reflections on the theory of early childhood enrichment programs. In R. D. Hess and R. M. Bear (Eds.), Early education: Current theory, research and action. Chicago: Aldine Pub. Co., 1968. Pp. 83-90.
- Deutsch, M. P. The disadvantaged child and the learning process. In A. H. Passow (Ed.), Education in depressed areas. New York: Bureau of Publications, Teachers College, Columbia University, 1963. Pp. 163-179.
- Deutsch, M. P. Facilitating development in the pre-school child. Merrill Palmer Quarterly, 1964, 10, 249-263.
- Deutsch, M. P. and Brown, B. Social influences in negro-white intelligence differences. The Journal of Social Issues, 1964, 20, 24-29.

- Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., and Sears, R. R. Frustration and aggression. New Haven, Conn.: Yale University Press, 1939.
- Douvan, E. Social status and success striving. Journal of Abnormal and Social Psychology, 1956, 52, 219-223.
- Duncker, K. Experimental modification of children's food preferences through social suggestion. Journal of Abnormal and Social Psychology, 1938, 33, 589-507.
- Edwards, A. L. Experimental design in psychological research. (3rd ed.) New York: Holt, Rinehart and Winston, 1968.
- Feshbach, N. D. Effects of teacher's reinforcement style upon children's imitation and preferences. Proceedings, 75th Annual Convention, APA, 1967, 281-282.
- Fisch, R. I. and McNamara, H. J. Conditioning of attention as a factor in perceptual learning. Perceptual and Motor Skills, 1963, 17, 891-907.
- Freud, S. Group psychology and the analysis of the ego. London: Hogarth Press, 1921.
- Freud, S. The ego and the id. London: Hogarth Press, 1923.
- Freud, S. Mourning and melancholia. In Collected Papers, Vol. IV. London: Hogarth Press, 1929. (First published in 1917)
- Gavalas, R. J. and Briggs, P. Concurrent schedules of reinforcement: A new concept of dependency. Merrill Palmer Quarterly, 1966, 12, 97-121.
- Gray, S. W. and Klaus, R. A. An experimental preschool program for culturally deprived children. Child Development, 1965, 36, 887-898.
- Gray, S. W. and Klaus, R. A. The early training project and its general rationale. In R. D. Hess and R. M. Bear (Eds.), Early education: Current theory, research and action. Chicago: Aldine Pub. Co., 1968. Pp. 63-70.

- Guerney, B., Stover, L., and Andronica, M. P. On educating disadvantaged parents to motivate children for learning: A filial approach. Community Mental Health Journal, 1967, 3, 66-72.
- Harrington, M. The other America: Poverty in the United States. Baltimore, Md.: Penguin Books, 1962.
- Hayes, K. J. and Hayes, C. Imitation in a home-raised chimpanzee. Journal of Comparative and Physiological Psychology, 1952, 45, 450-459.
- Hingtgen, J. N., Coulter, S. K., and Churchill, D. W. Intensive reinforcement of imitative behavior in mute, autistic children. Archives of General Psychiatry, 1967, 17, 36-43.
- Hobbs, N. Mental health's third revolution. American Journal of Orthopsychiatry, 1964a, 34, 822-833.
- Hobbs, N. The process of re-education. Occasional papers on the education of emotionally disturbed children, 1964b, I. No. 3.
- Hollingshead, A. B. and Redlich, F. C. Social class and mental illness. New York: Wiley, 1958.
- Jakubczak, L. P. and Walters, R. H. Suggestibility as dependency behavior. Journal of Abnormal and Social Psychology, 1959, 59, 102-107.
- Kagan, J. The concept of identification. Psychological Review, 1958, 65, 296-305.
- Kagan, J. On the need for relativism. American Psychologist, 1967, 22, 131-142.
- Kagan, J. Personality development. In P. London and D. Rosenhan (Eds.), Foundations of abnormal psychology. New York: Holt, Rinehart and Winston, 1968. Pp. 117-173.
- Kagan, J. and Mussen, P. H. Dependency themes on the TAT and group conformity. Journal of Consulting Psychology, 1956, 20, 29-32.

- Kanareff, V. T. and Lanzetta, J. T. The acquisition of imitative and opposition responses under two conditions of instruction-induced set. Journal of Experimental Psychology, 1958, 56, 516-528.
- Kanfer, F. H. and Marston, A. R. Human reinforcement: Vicarious and direct. Journal of Experimental Psychology, 1963, 65, 292-396.
- Keller, S. The social world of the urban slum child: Some early findings. American Journal of Orthopsychiatry, 1963, 33, 823-831.
- Klauck, K. A. The effect of model reinforcement on imitation. Unpublished master's thesis. The University of Arizona, Tucson, 1966.
- Klauck, K. A. The effects of instructions and schedules on imitation. Unpublished doctoral dissertation. The University of Arizona, 1969.
- Kohlberg, L. Montessori with the culturally disadvantaged: A cognitive-developmental interpretation and some research findings. In R. D. Hess and R. M. Bear (Eds.), Early education: Current theory, research, and action. Chicago: Aldine Pub. Co., 1968. Pp. 105-118.
- Lanzetta, J. T. and Kanareff, V. T. The effects of monetary reward on the acquisition of an imitative response. Journal of Abnormal and Social Psychology, 1959, 59, 120-127.
- Lovaas, O. I. Effect of exposure to symbolic aggression on aggressive behavior. Child Development, 1961, 32, 37-44.
- Maccoby, Eleanor. Role-taking in childhood and its consequences for social learning. Child Development, 1959, 30, 239-252.
- Mayers, F. A study of prognostic factors for a therapeutic program for children. Unpublished doctoral dissertation. University of Chicago, 1965.
- McBrearty, J. F., Marston, A. R., and Kanfer, F. H. Conditioning a verbal operant in a group setting: Direct vs. vicarious reinforcement. American Psychologist, 1961, 16, 425. (Abstract)

- McDavid, J. W. Imitative behavior in preschool children. Psychological Monograph, 1959, 73 (16 Whole No. 486).
- McDougall, W. An introduction to social psychology. London: Methuen, 1908.
- Metz, J. R. Conditioning generalized imitation in autistic children. Journal of Experimental Child Psychology, 1965, 2, 389-399.
- Miller, N. E. The frustration-aggression hypothesis. Psychological Review, 1941, 48, 337-342.
- Miller, N. E. and Dollard, J. Social learning and imitation. New Haven: Yale University Press, 1941.
- Mischel, W. and Liebert, R. M. Effects of discrepancies between observed and imposed reward criteria on their acquisition and transmission. Journal of Personality and Social Psychology, 1966, 3, 45-53.
- Morgan, C. L. Habit and instinct. London: E. Arnold, 1900.
- Mowrer, O. H. Learning theory and personality dynamics. New York: Ronald, 1950.
- O'Connor, R. D. Modification of social withdrawal through symbolic modeling. Journal of Applied Behavior Analysis, 1969, 2, 15-22.
- Rosenhan, D. and White, G. M. Observation and rehearsal as determinants of prosocial behavior. Journal of Personality and Social Psychology, 1967, 5, 424-431.
- Safer, M. A. and Kornreich, L. B. The interaction of social class and type of reinforcement in discrimination learning. Psychonomic Science, 1968, 11, 206.
- Santos, J. F., Farrow, B. J., and Haines, J. R. How attention influences what is perceived: Some experimental evidence. Bulletin of the Menninger Clinic, 1963, 27, 3-14.
- Schein, E. H. The effect of reward on adult imitative behavior. Journal of Abnormal and Social Psychology, 1954, 49, 389-395.

- Sgan, M. L. Social reinforcement, socioeconomic status and susceptibility to experimenter influence. Journal of Personality and Social Psychology, 1967, 5, 202-210.
- Sheffield, F. D. Theoretical considerations in the learning of complex sequential tasks from demonstration and practice. In A. A. Lumsdaine (Ed.), Student response in programmed instruction: A symposium. Washington, D. C.: National Academy of Sciences, National Research Council, 1961.
- Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Company, 1956.
- Slobin, D. I. Imitation and grammatical development in children. In N. S. Endler, L. R. Boulter, and H. Osser (Eds.), Contemporary issues in developmental psychology. New York: Holt, Rinehart and Winston, 1968. Pp. 437-443.
- Solley, C. M. and Murphy, G. Development of the perceptual world. New York: Basic Books, 1960.
- Srole, L., Langner, T. S., Michael, S., Opler, M., and Rennie, T. Mental health in the metropolis: The Midtown Manhattan study, Volume 1. New York: McGraw-Hill, 1962.
- Stein, Aletha H. Imitation of resistance to temptation. Child Development, 1967, 38, 158-169.
- Tarde, G. The laws of imitation. New York: Holt, 1903.
- Terrell, G. The role of incentive in discrimination learning in children. Child Development, 1958, 29, 231-236.
- Terrell, G., Durkin, K., and Wiesley, M. Social class and the nature of the incentive in discrimination learning. Journal of Abnormal and Social Psychology, 1959, 59, 270-272.
- Walters, R. H. Conditioning of attention as a source of autistic effects in perception. Journal of Abnormal and Social Psychology, 1958, 57, 197-201.

- Warden, C. J., Fjeld, H. A., and Koch, A. M. Imitative behavior in the Cebus and Rhesus monkeys. Journal of Genetic Psychology, 1940, 56, 311-322.
- Warner, W. L., Meeker, M., and Eells, K. Social class in America. Chicago: Science Research Associates, 1949.
- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.
- Witryol, S. L. and Alonzo, A. A. Social manipulation of preschool children's paired comparisons incentive preferences. Psychological Report, 1962, 10, 615-618.
- Zigler, E. and Kanzer, P. The effectiveness of two classes of verbal reinforcers on the performance of middle and lower class children. Journal of Personality, 1962, 30, 157-163.