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A STUDY, IN PROGRESS, IS ATTEMPTING TO DETERMINE THE INTERACTION OF VARIOUS REWARD CONDITIONS AND VARIOUS TYPES OF PRESCHOOL EXPERIENCE WITH DISCRIMINATION LEARNING. THE SUBJECTS ARE 240 4- AND 5-YEAR-OLD CHILDREN WITH THREE TYPES OF PRESCHOOL EXPERIENCE--1 TO 3 MONTHS OF HEAD START, 10 TO 12 MONTHS OF HEAD START, AND NO ATTENDANCE IN A PRESCHOOL PROGRAM. THE STUDY IS ATTEMPTING TO ASCERTAIN WHETHER OR NOT THE CULTURALLY DISADVANTAGED CHILD, SUPPOSEDLY IMMEDIATE-GRATIFICATION ORIENTED, WILL, AS A FUNCTION OF PARTICIPATION IN HEAD START, ADOPT A MORE FUTURE-RELATED PERSPECTIVE. FOUR REWARD CONDITIONS ARE BEING USED WHEN THE CHILD MAKES A CORRECT CHOICE IN THE ASSIGNED TASK--(1) A LIGHT GOES ON, (2) A PROMISE OF CANDY UPON COMPLETION OF THE EXPERIMENT, (3) AN IMMEDIATE REWARD OF CANDY, AND (4) AN IMMEDIATE REWARD OF A TOKEN WHICH CAN BE EXCHANGED LATER FOR CANDY. THE TENTATIVE RESULTS SHOW THAT THE HEAD START GROUPS LEARN THE CORRECT RESPONSE SOONER THAN THE NON-HEAD START GROUP ON CONDITIONS ONE AND TWO BUT NOT NECESSARILY ON CONDITIONS THREE AND FOUR. PART TWO OF THIS DOCUMENT PROPOSES EIGHT STUDIES TO OBTAIN INFORMATION ON WHETHER OR NOT CHILDREN OF DIFFERENT RACES PERCEIVE SIMILAR STIMULI DIFFERENTLY BECAUSE SUCH STIMULI HAVE RACIALLY RELATED ASPECTS. (WD)

ANNUAL REPORT

November 27, 1967

Regional E & R Center for Head Start

Southern University

STUDY DIRECTORS

1. Dr. Edward E. Johnson, Director of the Southern University component of the Southern University-Tulane University E & R Center, is Professor and Head of the Psychology Department and Director of Testing at Southern University. He is an experimental psychologist whose research interests and background vary from human engineering problems of hand grenade and tank design to the study of socially and economically disadvantaged children. Currently he functions as a consultant in the National Collaborative Child Development Program of the United States Office of Health, Education and Welfare.

2. Melvyn A. Berke, M. S., is a Ph.D. candidate in Clinical Psychology at Louisiana State University. Holder of a National Defense Education Act (NDEA) Fellowship while he was at the University of Miami, Mr. Berke also has served as a staff psychologist at the Cleveland Psychiatric Institute. He also has instructed at the University of Southern Mississippi. Mr. Berke has taken individual courses in child, adult, and projective testing.

3. Dr. John Stabler, Ph.D., University of Texas, is Assistant Professor of Psychology at Louisiana State University. Currently he directs the Office of Child Research at L.S.U.

SECTION III

THE RESEARCH PHASE

The research phase of this report involves the following studies: the role of incentives in discrimination learning of children with varying pre-school experience; variables affecting children's perceptions of racially related stimuli. Data collection is progressing on a parental interview instrument. As of this writing 73 data protocols have been collected. Development of a comprehensive computer program for analysis of the data is presently underway. All of these studies are ongoing and, significantly, are proving to be generative of further questions that require empirical answers. In addition to these investigations, an exhaustive study of attitudes is being planned. Involved here centrally will be the Head Start child, his attitudes toward himself and others and the attitudes of teachers, parents and other significant people toward him. In an effort to avoid an indefensible multiplicity of studies undertaken at once, the actual start of this investigation will be deferred until more data are collected on the studies reported above.

The Role of Incentives in Discrimination Learning of Children with Varying Pre-School Experience

Melvyn Berke, Principal Investigator

The function of incentives in child studies has received much experimental attention. One relatively neglected theoretical variable which seems highly significant, and yet has received little attention, is the relationship between incentives and the child's temporal perspective. This investigation is intended as the first of a series of studies which will attempt to assess this relationship.

Leshan (1952) utilizing an open-ended projective technique, "Tell me a Story," verified the following hypotheses:

(1) Lower-lower class time orientation is characterized by quick sequences of tension and relief. One does not frustrate himself for long periods or plan actions with goals far in the future. For these people the future is generally indefinite, vague, and diffuse and its rewards and punishments too uncertain to have sustained motivating value. The principle of immediate gratification predominates.

(2) In the upper-lower, middle, and lower-upper classes, the temporal perspective is one of longer tension-relief sequences. These people appear better equipped to forego immediate gratification for long-term gains.

(3) In the upper-upper class the individual tends to conceive of himself as part of a sequence of several or more generations extending from the past.

We would expect these orientations to be reflected in the child's behavior as a function of child-rearing practices. In the upper-upper class we find such child training practices as: "What would your grandmother say?" (Davis, Gardner and Gardner 1941, p., 98). In the upper-middle, middle, and upper-lower classes stress is on the future. Children

are exhorted to perform well in school by threats that good grades will enable them to obtain a good job or enter college (Hollingshead 1949). In the lower-lower class training techniques are more in terms of immediate reward and punishment. Threat of corporal punishment is frequently invoked, (Davis, Gardner and Davis, 1941; Hollingshead, 1949).

The lower-lower class child appears to experience inconsistency in all areas of his life. Food, shelter, and even personal safety are unpredictable. A vicious circle can be seen permeating the lives of these people. Child-rearing practices are inconsistent due to the parents' inability to work for long-range goals, and this in turn impedes their ability to break out of their economic trap. Economic pressures further decrease familial stability. Children who undergo these experiences tend also to emerge unable, or at best unlikely to work for long-range goals.

Additional factors are at work in the lives of the lower class disadvantaged child which further punctuate life's inconsistencies. The lower class child plays on the streets without benefit of adult supervision. He is, to a large extent, at the mercy of his own impulses with rewards and punishments following immediately upon his behavior.

Leshan (1952) speculates that an individual raised in an environment where rewards and punishments generally follow immediately upon acts, and where these results are largely unpredictable, tends to develop a low frustration tolerance. Not only will the child

forego future gains for immediate gratification, but he also will learn that to work in terms of the future, which is perceived as a nebulous, unpredictable region, is nonsensical.

Terrell and Kennedy (1957) studied the differential effects of five incentives on the acquisition and transposition of a button-pressing response to the larger of two three-dimensional geometric forms. The incentives utilized were praise, immediate reward (candy), reproof, delayed reward (candy) and a light flash. Their results indicated that pre-school children assigned to the immediate reward condition (candy) learned the concept "larger than" significantly faster than did Ss of all other groups. A surprising finding was that under the delayed incentive condition the younger Ss, ages four and five, learned just as quickly and transposed just as consistently as the older Ss, ages eight and nine.

In a later study Terrell (1958) compared the effectiveness of two types of delayed incentives: promise of future reward, and a token reward which could be cashed in for a real reward, with an immediate incentive in the acquisition and transposition of a button-pressing response to the larger of two three-dimensional geometric forms.

Ss utilized were four, five, eight and nine years of age. Analysis of the transposition data yielded non-significant results. With the exception of the nine-year-olds, Ss who were given a promise of a future reward required significantly more trials to learn the task at all age levels.

Comparison of the light-only condition in the earlier Terrell (1957) study with the later Terrell (1958) investigation revealed some interesting results. While in the earlier study the control (light-only) Ss required significantly more trials to learn the concept than did any of the other groups, in the later study these subjects learned as quickly as both the token and immediate reward groups.

Terrell feels these results are a function of the samples utilized. The Ss in the earlier study were drawn from Tallahassee, Florida, while the children in the latter study were from Boulder, Colorado. The principal difference obtaining between these two samples was socio-economic level. It is to be noted that the ratio of rural to urban children was much higher in the Florida sample. There is some empirical evidence to suggest that the crucial variable distinguishing the two samples is a matter of intrinsic motivation (Douvan, 1956). That is, for the Colorado sample, good performance was valued regardless of the incentive offered.

The present study is an attempt to ascertain whether the culturally disadvantaged child, who appears to adhere to the principle of immediate gratification has learned, as a function of his participation in Head Start, a more future-related temporal perspective as compared with his non-Head Start counterparts.

Based upon previous findings, the following hypotheses are advanced:

1) Head Start children will reach criteria under all treatment conditions significantly faster than their non-Head Start counterparts.

2) While the Head Start groups will perform best under the

immediate reward condition, the differences between treatments will be smaller than those obtained by the non-Head Start group.

3) Performance of the non-Head Start children under the token and immediate reward conditions will be superior to their performance under the control (light) and delayed reward condition.

4) The non-Head Start group will perform best under the immediate reward condition.

METHOD

Subjects

The completed investigation will have utilized 240 children, one-half at the four and one-half at the five-year level. At this writing, 144 Ss have been tested. Subjects are being drawn from the following three populations: (1) children with 1-3 months Head Start experience, (2) children with 10-12 months Head Start experience, (3) children who have never attended a pre-school and who are matched in terms of age, sex, race, and socio-economic status with the Head Start population. An equal number of boys and girls were tested at each age and treatment level.

Materials

The apparatus is a modification of the one used by Terrell (1958) and consists of a background and a panel board. The background board is a 16½ x 25½ x 3/4 inch piece of wood with two jacks and two push-button mounts. The buttons are in a line 12 inches apart, 2 inches from the sides and 2 inches from the front edge of the background

board. The jacks are in line with the push-button mounts and are 11½ inches in from the front edge. Locked into the rear edge of the background board is a 10½ x 16 3/4 inch panel board which contains the signal light. A standard flashlight bulb is mounted in the center of the panel board 5¼ inches in from the top. The light is powered by two 1½ volt flashlight batteries. The circuits are arranged so that pushing the button at the base of the larger stimulus causes the light to go on.

The stimuli consist of four pairs of three-dimensional geometric forms: a triangle, square, circle, and half circle. The smaller member of each stimulus pair has a basal area of four square inches while the larger member has a basal area of eight square inches. The stimulus pairs are presented unmixed in terms of shape and mixed in terms of size. For example, the large and small squares are presented together, but a square and a circle would never be presented together. The order of presenting the stimulus pairs and the position of the positive stimulus (large) is randomized.

As a further control for the possible influence of order effects, one-half of the subjects receive the stimuli in a reversed order.

Design

Four treatment conditions are administered, all of which are rewarded with the light flash subsequent to a correct response. The differential reward conditions for each group are as follows:

Group I (light only) receives only the light flash as their reward.

Group II (long delay) receives a promise of a future reward (candy) following completion of the experiment.

Group III (immediate reward) receives a piece of M & M candy immediately following a correct response.

Group IV (token group) watches E transfer a dried bean from one jar to another following a correct response. Ss are permitted to cash in their beans for candy at the conclusion of the experimental session.

The criterion of success is nine out of ten successive correct responses. If criterion is not reached, the subject is terminated after 100 trials.

The design thus consists of two levels of chronological age, four treatment conditions, and three levels of pre-school experience. The design calls for ten Ss per cell or a total of 240 subjects.

Procedure

The subjects are individually tested. Each S in each group receives the following instructions:

> This is a game I want you to try. Choose one of these (E points to the stimuli) and show me which one you have chosen by pressing the button in front of it. If you are right this light (E points to the light) will go on. If you are wrong the light will not go on. Now remember, the game is to see how quickly you can learn to choose the block that makes the light go on.

The last sentence is repeated after every tenth trial.

Groups II, III, and IV are given the following additional instructions:

Group II-

> When we finish playing I will count the number of times you made the light go on. For each time it went on I will give you a piece of candy.

Group III-

> Each time you make the light go on I will give you a piece of candy.

The child receives the reward immediately upon making the correct response. The reward is placed in a clear plastic container within sight of the subject.

Group IV-

> Each time you make the light go on I will put a bean in this jar. When we finish the game, I will give you a piece of candy for each bean you have in your jar.

In order to insure that Ss are choosing the geometric form rather than the button, for the first four trials Ss are instructed to point to the form they have chosen prior to pushing the button.

RESULTS

Although a total of 144 subjects have been tested, this paper is presented as an interim report of an ongoing investigation. It is felt that the number of subjects seen is not sufficiently large to meet the assumptions of a sophisticated statistical analysis. Upon completion of the study, a complex three-way analysis of variance will be applied to the data. Thus, the results herein reported are trends and should be considered as tentative. On account of the relatively small number of children seen at each age level under the four treatment conditions and for purposes of ascertaining trends, the age variable was collapsed. When appropriate, trends for age levels will be reported. See Appendix III for a complete presentation of individual scores and group means for each group under each treatment condition.

Disregarding age, the performance of the Non-Head Start (N-H.S.) group under the control (light condition) was inferior to that of their Head Start (H.S.) counterparts. Mean trials to criteria for the N-H.S., and H.S.-I, and H.S.-II groups are 21.33, 16.33, and 17.58 respectively. The performance of the four and five year-olds in both H.S. groups was superior to that of five year-old N-H.S. children. A surprising finding was that the four year-old N-H.S. children performed better than all other groups. The relatively small number of cases per cell (six) involved here suggested that this result may be due to chance factors.

Results under the delayed reward condition (promise of a future reward) revealed a marked advantage in favor of both H.S. groups. Disregarding age, mean trials to criteria for the N-H.S., H.S.-I, and H.S.-II groups are 47.83, 15.33, and 19.25, respectively. The performance of the H.S. groups at both age levels was superior to their N-H.S. counterparts. In no case did the performance of the five year-old N-H.S. group even approach that of the four year-old H.S. groups.

The performance of the N-H.S. children improved considerably under the token (symbolic reward) condition. The differences between the N-H.S., H.S.-I, and H.S.-II groups are quite small, tending to favor the N-H.S. group. Mean trials to criteria are 15.41, 16.58, and 19.91, respectively. The N-H.S. group manifested even more improvement under the immediate reward (candy) condition. Mean trials to criteria for the three groups are 13.75, 11.00, and 15.50 respectively.

Comparison of the performance of the four and five year-olds within their respective groups, i.e., N-H.S., and H.S.-II revealed a

tendency for the younger subjects to reach criteria sooner. This difference is generally small but was most readily apparent under the delayed reward condition.

When age is ignored, the N-H.S. group manifested considerable disparity across treatment conditions. The greatest degree of improvement is seen in the token and immediate reward conditions. Mean trials to criteria across the delayed, control, token, and immediate reward conditions are 47.83, 21.33, 15.41, and 13.75, respectively. Although both H.S. groups also demonstrated improvement when immediately rewarded the differences across the four treatment conditions were generally quite small. Mean trials to criteria for the H.S.-I and H.S.-II groups across treatments are 15.33, 16.33, 16.58, 11.00 and 19.25, 17.58, 19.91, and 15.50 respectively.

With two exceptions the data are supportive of Hypothesis I. Collapsing the age variable revealed both H.S. groups to be superior under the control and delayed reward condition. While no significant differences appear to exist between the N-H.S. and H.S.-I groups under the token condition, the performance of the H.S.-II children was slightly inferior to both above groups. The data collected to this point appear to be supportive of Hypotheses II, III, and IV.

DISCUSSION

The contention that culturally deprived children tend to lack intrinsic sources of motivation and tend to demand immediate gratification is thus far supported. Comparison of the N-H.S. children

under the control, delayed, and immediate reward conditions further punctuates this point. For these children introduction of a future extrinsic reward appears to have an inhibiting effect upon learning.

A possible explanation for this effect is the inconsistency and frustration engendered by the experimental procedure. One may say that, on a smaller scale, the experimental task is analogous to other unpleasant experiences. The child may perceive the situation as one of being teased and tantalized. A further factor may be the "simple" fact of trust in the word of adults. In light of their past histories of deprivation and inconsistency, it seems reasonable to expect that promises are conceived of by these children as mere verbiage. One five-year-old N-H.S. child inquired if he would have to pay for the candy. His inquiry came just prior to reaching criterion. On both occasions he responded incorrectly on the next trial. This behavior led to a much increased score. Several other N-H.S. children demanded an immediate "pay-off" and some even cried when their candy was withheld until completion of the task.

Although anecdotal accounts are not and should not be considered as scientific evidence, they sometimes are illustrative of such evidence. In effect, these children seem to be saying "Promises, promises, that's all I ever get." Hence, the much elevated score under the delayed reward condition may well reflect feelings and past histories of broken promises, inconsistencies, and frustration with a resultant lack of trust in the word of adults.

The study reported here will be continued until an additional

96 children are sampled. It also will be extended and replicated on samples of middle-class Negro and middle-class white pre-school children.

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VARIABLES AFFECTING CHILDREN'S PERCEPTIONS OF RACIALLY RELATED STIMULI

John Stabler, Principal Investigator

(Proposal for a Head Start Research Program)

The racial membership of a child has an effect upon his perceptions and expectations. Differences between white and Negro children have been found in a variety of studies: in selection of various colored dolls (Clark and Clark, 1963; Cobb, 1954; Goodman, 1952; Landreth and Johnson, 1953; Greger and McPherson, 1966); in perception of words (Harbin and Williams, 1966; Renniger and Williams, 1966; Williams, 1964) in perception of pictures of white and Negro children (Horowitz, 1939) and in perception of projective test items (Price, 1962). The values given to racial membership by the larger society are presumably responsible for the differences that are observed in children. Lower status is generally attributed to Negroes by Caucasians, and to a lesser extent, also by Negroes.

The importance of children's perception of the meaning of their own racial membership has been recognized by numerous investigators. Clark and Clark (1939, 1940) found a relationship obtaining between skin color and racial identification. Among Negro college students Marx (1943) found the existence of a social desirability hierarchy favoring the lighter skinned Negro.

The extent of devaluation of Negroes may be undergoing change as a function of the rising socio-economic level of Negroes, education

of both "races," and social and political change associated with the Civil Rights movement. Kvaraceus, Gibson, Patterson, Seasholes and Grambs (1965) contend that research relating skin color to personality and self concept completed twenty or more years ago may be obsolete in the context of recent sit-ins, marches, and picketing. "To have a dark skin today may be an asset for a Negro leader rather than the handicap of a bygone day" (Kvaraceus, et.al., 1965 p. 43).

There is a need for more research on problems associated with racial identification and child development. The number of studies that have related children's perception of race and child development is small relative to the importance of the issue. The hypotheses that white and Negro children suffer developmental problems because of racial perceptions should be buttressed by more extensive and programmatic empirical research. Such research presumably would offer not only validation of the hypotheses, but also would point to ways that parents and educators could avoid or mitigate the harmful effects of children's introjecting negative racial attitudes.

Social attitudes may be studied in several ways, but there are strong reasons for using a procedure that is both disguised and structured (Campbell, 1950). Disguised procedures "do not destroy the natural form of the attitude in the process of describing it." Structured procedures permit standardization and thus yield replicable and interpretable data.

Eight studies are proposed herein, the majority of which will utilize disguised-structured procedures to obtain information

regarding children's attitudes and perception of racially related stimuli. In each study selected relevant variables such as age, sex, race, regional locale of the home, and pre-school and public school experience will be investigated.

I. Preliminary work on classification of objects has indicated the presence of racially related evaluation of these objects. These differences will be explored in a normative study in which children will be presented with a large assortment of objects which they must classify as either good or bad. On the bases of pilot work presently in progress, the following procedure is being utilized. Various objects are placed on a table in front of the child. Two boxes, one with a broadly smiling cartoon face painted on it and the other with a severely frowning face is placed to the right and left of the child. The E designates the "smiling box" as the "Good" box and the "frowning box" as the "Bad" box. The child is instructed to place the good objects in the "Good" box and the bad objects in the "Bad" box. If all objects are not classified the E proceeds with the second stage in which he picks up each remaining object and asks the child, "Is this good or bad?" In the third stage the child is asked to look over the objects placed in each box and is permitted to change the classification of any particular object. Objects spontaneously sorted are scored as 3, objects sorted in the second stage are given a score of two, and a score of one is given to objects sorted during the third stage. The position of the "Good" and "Bad" box is randomized to control for position habits.

II. The child will be shown two boxes, one painted white and one painted black. The boxes will be identical as to size and shape and both will be filled with numerous matched objects, for example, each box will contain the same number of tin cans, pencils, balls, etc. The E will instruct the child to shake the box. E will then present various objects to the child and will ask him: "Which box is it in?" The objects utilized will have been chosen as to their positive or negative value on the basis of Study I. In preliminary work, children have given bad ratings to such objects as a rubber snake, a bent beer can, a dead worm, a toy skull, a bullet, etc., and good ratings to such items as a lollipop, nickel, plastic flower, a ring, etc.

The hypothesis to be tested is that both white and Negro children will more often guess that "bad" objects are in the black box, and "good" objects are in the white box. It is expected that age and sex may be important parameters; therefore, these variables will be taken into account. Differential effects associated with duration of Head Start experience may exist and hence also will be investigated.

One preliminary study has been completed. Thirty Head Start Negro children were tested. There was a reliable tendency to guess that the following objects were in the balck box: a thorny sticker, a mashed beer can, a snake, a scorpion, and a spider. There was a reliable tendency to guess that the following objects were in the white box: a pair of scissors, a marble, and a comb.

The major expectations of this study are:

1. Both white and Negro children will more often associate negatively evaluated objects with the black than with the white box.

2. White children will more often than Negro children associate negatively evaluated objects with the black box than with the white box.

3. Lighter-skinned Negroes will more often than darker skinned Negroes associate negatively evaluated objects with the balck box than with the white box.

Recent writings have indicated that one of the effects of the Civil Rights movement is the increased regard Negroes have for themselves both culturally and racially (Kvaraceus et.al., 1965). If these impressions are correct, we might expect to find changes in attitudes concerning skin color and Negroid physical features which reflect an enhanced Negro self concept. As a result of these considerations, a further study will be made in which the possible relationship between object evaluations in Experiment I and gradations of skin color in the Negro child will be investigated. If, in fact, a change in perception and enhanced Negro self concept has occurred, we should expect to find a relationship between guessing that a "good" object is in the black box and darker skin color.

III. A further study will investigate the parameter of self concept as it relates to sorting behavior. The instrument under consideration is the Brown IDS Self Concept Referents Test (Brown, 1966). The procedure is an operational measure of G. H. Mead's (1956) theory of self-awareness. The basic assumptions underlying the assessment technique are that:

1. Concepts of self are determined largely by socio-perceptual processes;

2. One's concept of self is formed not only from his perception of self (self as subject), but are also

reflections of his perception of how "significant others" perceive him (self as object, Brown, 1966).

Study II would be replicated with the additional parameter of a measure of the subject's perception of self. The hypothesis to be tested is that Negro children whose scores indicate positive concepts of self will more frequently sort the "good" objects into the black box as opposed to Negro children with negative self concepts. The experiment will be replicated with a matched group of white children. Such factors as the race and sex of the experimenter also will be explored.

IV. A disguised butunstructured study would be performed which would utilize drawings of black and white animals portrayed in various social situations. Animal drawings do elicit identification without making children aware of the purpose of the test. (Bellak and Bellak, 1949). The E would ask the child such questions as "What is the puppy (or horse, or bear, etc.) thinking (or saying)?", "What is the puppy going to do next?", "What is going to happen next?", etc. The animals would be portrayed in situations related to important experiences of childhood: eating, cleansing, sleeping, fighting, etc. They would vary in color, size, apparent strength, etc., so as to elicit responses related to racial attitudes. Trained judges would later be asked to classify the responses for direction of movement between figures (toward, away from, or against) and perhaps for such aspects as strength, activity, and "goodness" of the figures. It is expected that white children will identify with white animals and Negro children will identify with black animals. The latter identification is expected to be less consistent.

It is also expected that, in general, approach-type responses will be elicited by similarly colored animals and avoidance- or attack-type responses will be elicited by dissimilarly colored animals. The type of response is expected to vary with the nature of the interracial experiences of the child. Expressions of approach or avoidance will tend to vary systematically with the degree of interracial experience, i.e., whether the child has been in an integrated Head Start program or in a segregated preschool situation. On the basis of a study done with older children which utilized the Semantic Differential (Williams, 1964) it is expected that the black animals will be perceived by children of both races in a less positive light than the white animals.

V. A variation of the above experiment would involve the use of fake two-headed and two-tailed coins. The E would ask S to predict the toss of coin and also to say whether or not he expected to win. A behavioral measure of confidence in winning could be obtained by E directing S to bet marbles on his winning. The child would be given a pool of marbles to begin with and told that the marbles could later be turned in for a prize. E would be sure to arrange it so that all Ss win an equal percentage of the time. The number of marbles risked in the betting would be a measure of the child's confidence in winning, or of his optimism or pessimism. It is expected that Negro children because of more adverse racially related experience will be more pessimistic than white children. The effect will be particularly apparent when E is Caucasian.

VI. White and Negro children may vary in their perception of the locus of control of external reward, i.e., whether they think obtaining a reward is a matter of "luck" or of skill. The psychological environment of the Negro child can be expected to reflect a more pessimistic outlook relative to control of their destinies than that of their white counterparts. It is expected, therefore, that Negro children will more often than white children perceive the locus of control to be external (based on luck) rather than internal (based on skill). Experiments with older subjects have demonstrated an inverse partial reinforcement effect (PRE) associated with belief in internal control of whether or not one is rewarded (Rotter, 1966). (A preliminary study is now being performed using an instrumental conditioning apparatus. Children are asked to press five buttons consecutively in order to obtain marbles which later can be traded in for a prize). The presence of an inverse partial reinforcement effect for white children and a regular PRE for Negro children would provide evidence that whites believe more in internal control of reward. "Skill" vs. "luck" instructions would be varied, and as a check on the effectiveness of the instructions, the children would be asked after the experiment whether they had made the machine give them a marble or whether the machine had given them a marble whenever "it" wanted to.

VII. A simple and reliable measure of compliance with authority may be obtained by first asking a child to press a standard hand counter until he wishes to stop, and then, when he stops, telling him

to "Keep pressing." The compliance measure is the number of presses on the counter obtained after the second instruction (Stabler, 1967). This procedure will be utilized in studies of racial differences in perception of need to comply with instructions to do something one would rather not do. Sex, age, and race differences of S and of E will be varied in factorial design experiments.

VIII. Difficulties in Head Start childrens' recognition of mirror images of themselves have been observed and anecdotally reported. Racial differences in visual self recognition could be measured. Photographs of individual children would first be made. A child's photograph would then be presented tachistoscopically in such a way as to gradually increase the clarity of the image. The point at which S recognized himself presumably would vary for white and Negro children. The critical photograph would be presented between control photographs of neutral objects.

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APPENDIX I

Pre- and Post-Test Scores on the Stanford-Binet, with Difference Scores

Pre	Post	Difference	Pre	Post	Difference
101	105	+ 4	78	69	- 9
94	89	- 5	76	81	+ 5
107	107	0	72	69	- 3
91	98	+ 7	51	53	+ 2
75	91	+16	78	90	+12
110	102	- 8	84	83	+ 1
103	105	+ 2	83	80	- 3
94	101	+ 7	88	96	+ 8
93	100	+ 7	71	82	+11
76	69	- 7	91	90	- 1
99	90	- 9	86	102	+16
67	70	+ 3	75	72	- 3
81	78	- 3	91	106	+15
77	89	+12	63	104	+41
80	75	- 5	85	91	+ 6
69	70	+ 1	88	100	+12
83	86	+ 3	83	94	+11
71	76	+ 5	75	86	+11
79	80	+ 1	80	81	+ 1
78	66	-12	107	105	- 2
107	112	+ 5	117	115	- 2
73	74	+ 1	111	119	+ 8

APPENDIX I (Continued)

Pre- and Post-Test Scores on the Stanford-Binet, with Difference Scores

Pre	Post	Difference	Pre	Post	Difference
92	88	- 4	78	88	+10
58	72	+14	67	77	+10
82	91	+ 9	84	100	+16
65	76	+11	92	98	+ 6
66	72	+ 6	107	96	-11

APPENDIX II

Pre- and Post-Test Scores on the Caldwell-Soule, with Difference Scores

Pre	Post	Difference	Pre	Post	Difference
52	53	+ 1	34	48	+14
40	38	- 2	51	47	- 4
28	40	+12	47	53	+ 6
22	25	+ 3	38	41	+ 3
65	37	-28	36	26	-10
24	58	+34	22	22	0
30	33	+ 3	29	39	+10
37	44	+ 7	43	44	+ 1
64	73	+ 9	27	43	+16
58	62	+ 4	55	54	- 1
64	69	+ 5	43	35	- 8
42	57	+15	41	41	0
78	82	+ 4	51	45	- 6
65	69	+ 4	55	58	+ 3
47	43	- 4	44	43	- 1
65	76	+11	41	40	- 1
0	17	+17	57	56	- 1
16	34	+18	46	41	- 5
20	27	+ 7	42	53	+11
19	26	+ 7	58	50	- 8
14	32	+18	36	36	0
20	16	- 4	58	44	-14

APPENDIX II (Continued)

Pre- and Post-Test Scores on the Caldwell-Soule, with Difference Scores

Pre	Post	Difference	Pre	Post	Difference
36	29	- 7	17	21	+ 4
56	66	+10	26	29	+ 3
49	55	+ 6	56	61	+ 5
37	36	- 1	37	47	+10
49	43	- 6	32	48	+16

APPENDIX III

A= Age
B= Pre-School Experiment
C= T's

A_1 (age 4)

B_1 N-H.S.				B_2 H.S.-I				B_3 H.S.-II			
C_1 (light)	C_2 (promise)	C_3 (token)	C_4 (candy)	C_1	C_2	C_3	C_4	C_1	C_2	C_3	C_4
14	12	9	13	9	11	11	10	11	9	9	17
13	100	34	9	15	10	14	11	9	12	37	15
9	10	13	23	9	9	9	9	10	12	24	16
9	11	20	9	11	12	9	11	60	33	17	15
20	17	10	9	28	9	35	9	15	30	14	25
17	79	10	9	11	9	23	15	21	12	20	9
$\bar{X}$=13.66	$\bar{X}$=38.16	$\bar{X}$=16.00	$\bar{X}$=12.00	$\bar{X}$=13.83	$\bar{X}$=10.00	$\bar{X}$=16.83	$\bar{X}$=9.33	$\bar{X}$=21.00	$\bar{X}$=18.00	$\bar{X}$=20.16	$\bar{X}$=16.16

A_2 (age 5)

		B_1		B_2				B_3			
C_1 (light)	C_2 (promise)	C_3 (token)	C_4 (candy)	C_1	C_2	C_3	C_4	C_1	C_2	C_3	C_4
74	70	9	11	9	11	24	11	11	12	17	10
12	9	10	12	9	17	9	13	9	11	18	27
12	95	9	9	58	23	20	14	12	11	10	12
51	100	16	43	11	11	11	11	15	63	18	9
13	14	30	9	17	23	19	18	27	17	17	16
12	57	15	9	9	39	15	9	11	9	38	15
$\bar{X}$=29.00	$\bar{X}$=57.50	$\bar{X}$=14.83	$\bar{X}$=15.50	$\bar{X}$=18.83	$\bar{X}$=20.66	$\bar{X}$=16.33	$\bar{X}$=12.66	$\bar{X}$=14.16	$\bar{X}$=20.50	$\bar{X}$=19.66	$\bar{X}$=14.83
$\bar{X}_g$=21.33	$\bar{X}_g$=47.83	$\bar{X}_g$=15.41	$\bar{X}_g$=13.75	$\bar{X}_g$=16.33	$\bar{X}_g$=15.33	$\bar{X}_g$=16.58	$\bar{X}_g$=11.00	$\bar{X}_g$=17.58	$\bar{X}_g$=19.25	$\bar{X}_g$=19.91	$\bar{X}_g$=15.50