

THE EFFECTIVENESS OF DIFFERENTIAL SOCIAL REINFORCEMENT
STRATEGIES IN FACILITATING ACHIEVEMENT BEHAVIOR
OF LOWER SOCIOECONOMIC STATUS,
PRIMARY GRADE CHILDREN

by
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Title of Thesis: The Effectiveness of Differential Social
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ABSTRACT

Title of Thesis: The Effectiveness of Differential Social Reinforcement Strategies in Facilitating Achievement Behavior of Lower Socio-economic Status, Primary Grade Children

Harold Fishman, Doctor of Philosophy, 1971

Thesis directed by: Dr. Richard L. Matteson

This study was designed to ascertain whether Positive Social Reinforcement (PSR), Negative Social Reinforcement (NSR) and the condition of no verbal feedback (Control) have a differential motivational effect on the achievement behavior of low socioeconomic status, primary grade Ss. Two related objectives of this research were: (a) to determine whether black and white Ss are differentially motivated to achieve in response to the aforementioned three social reinforcement-feedback contingencies and (b) to determine whether Ss who are at different developmental levels are differentially motivated to achieve by these three classes of social reinforcement-feedback parameters.

Methods and Procedures

One hundred forty-two black and white, low SES Ss, pooled from grades 2, 3, 5, and 6 were assigned randomly to one of two female Es and to one of three experimental treatment conditions. SES was determined by selecting Ss who met eligibility requirements for participation in the County's Free School Lunch Program. The revised Warner's Index of Social Characteristics (1949) was used as an adjunct criteria for social class determination. The study was limited to male, lower class grade school Ss. Ss who were judged by their respective teachers to be cognitively or emotionally ill prepared to sustain the experimental procedure were excluded from the study.

A pretest-posttest control group design was utilized for this investigation. Following a pre-reinforcement run (baseline period), on the DSCT, E analyzed the DSCT-Form I protocol in the presence of S. Depending upon treatment group assignment, S was subsequently subjected to one of three social reinforcement-feedback contingencies, viz. PSR, NSR or Control condition. The particular reinforcer-feedback contingency administered by E was randomly determined and not related to S's true performance adequacy. Following the administration of the differential reinforcer-feedback condition, S was asked to work on Form II of the DSCT in accordance with previous instructions and time limitations. In scoring DSCT protocols, both rate of response (number of items attempted) and quality of performance (number of items correctly executed) were recorded. However, discrepancy between the two measures proved to be negligible. Thus, rate of response on the DSCT was selected as the principal criterion measure for this study.

The classification variables of reinforcement, race, and grade (developmental) level, produced a 3x2x4 factorial arrangement. The assumption of homogeneity of subgroup variance and homogeneity of regression proved to be tenable in view of the obtained data. Thus, a three way analysis of covariance was performed on the DSCT posttest (Form II) scores, adjusting for the effects of the concomitant variable, the DSCT pretest (Form I) scores. The BMDUØM computer program package MANØVA was utilized to carry out the computational aspects of the analysis. Analysis of variance was also carried out on the mean difference (gain) scores of the pre- posttest trials across the three experimental treatment conditions. In interpreting the F ratio resulting from the analysis of variance/covariance procedures, a α .05 level of significance was selected as the level for rejecting the null hypothesis.

Results and Conclusions

The following results accrued from the aforementioned analysis:

1. The proposition that PSR (praise-approval) enhances the performance of low SES, grade school Ss to a greater degree than does NSR (censure-reproof) was not supported by the findings of this study.

2. The proposition that E's nonresponsiveness (Control condition) impedes performance on the DSCT of lower class Ss to a greater degree than does PSR and NSR was not supported by the findings of this study.

3. The proposition that PSR (praise-approval) coming from a black E occasions better performance for black Ss than for white Ss was not supported by findings of this study.

4. The proposition that NSR (censure-reproof) coming from a black E occasions better performance for black Ss than for white Ss was not supported by findings of this study.

5. The proposition that a black E's nonresponsiveness (Control condition) occasions better performance for black Ss than for white Ss was not supported by findings of this study.

6. The prediction that PSR and NSR have a differential motivational effect for Ss at different developmental levels, so that older Ss are more motivated to achieve by NSR and younger Ss are more motivated to achieve by PSR, was not supported by findings of this study.

It was suggested that future research explore more thoroughly the effects of various personality, cognitive and demographic E-S characteristics on the efficacy of differential social reinforcers in facilitating achievement behavior, particularly for the socioeconomically disadvantaged learner. Further study of other moderator variables affecting the motivational potency of differential social reinforcers for this target population was also recommended.

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CHAPTER I

NATURE AND SCOPE OF STUDY

The past decade has witnessed a burgeoning concern on the part of the general public, the educator, and the government for the observed cumulative academic retardation of children handicapped by economic impoverishment and/or minority subcultural membership. This concern is understandable in light of the shocking numbers of educational casualties, or what Kenneth Clark (1970) labels "functional illiterates," reported annually by schools serving the children of the poor. Tyler (1964) estimates that more than 40% of lower class youngsters drop out of school before completing high school. Strom (1964) cites a survey done by Bowman and Mathews in the early 1960s which found that approximately 88% of all school dropouts came from low income homes.

It has been sufficiently well established that academic achievement deficits of so called "disadvantaged" children are cumulative and increase over time. Havighurst (1964) laments that by ninth grade, lower socioeconomic status children are approximately two to three years behind their middle class contemporaries in the fundamental academic skills so

essential for successful participation in the school experience and within the context of the larger society. In effect, the gap which exists between the lower class child and his middle class counterpart upon entrance into school widens and deepens as they progress through school. A direct consequence of the disadvantaged child's academic achievement deficit is that it ultimately impedes mobility and opportunity in his future occupational sphere.

The Anti Poverty legislation of 1965 unleashed a torrent of activity aimed at reducing and possibly eliminating the educational disadvantage so characteristic of this target population. Foundation grants and large government appropriations were soon made available for those educational institutions engaged in research and development of intervention programs geared for the disadvantaged pupil. "Section 201" of the Declaration of Policy of Title I of The Elementary and Secondary Education Act (1965) clearly stipulated the intent of the Congress to allocate funds to local educational agencies serving areas with a concentration of economically impoverished students. These funds were to be used for curricular modification and enrichment experiences designed to meet the special needs of these pupils. Following the enactment of Title I, a host of compensatory educational programs were inaugurated to meet the special needs

of the disadvantaged student who often does not respond to traditional teaching methods and whose capabilities often remain unrealized.

The problems of children handicapped by the elements of a low income home and/or minority group subcultural membership are, of course, not just restricted to impaired school functioning. It is becoming increasingly clear that it is not cognitive ability which the so called "disadvantaged" child lacks, but rather those attitudinal and motivational characteristics so imperative for successful participation in the school arena and within the larger society (McDavid, 1968; Riesman, 1968; Deutch, 1960; Bronfenbrenner, 1958). Such attitudinal and motivational components include, among others, the capacity to defer immediate for later gratification, impulse control, motivation to achieve, expectancy of success, a conviction that one has the ability to reach his aspirations, persistent striving and realistic goal setting (Deutch, 1960; Gray et al., 1966). Characteristically, the disadvantaged youngster looks for short term, tangible returns and is not willing to delay gratification for future greater reward, has low frustration tolerance, has low academic aspiration, is not achievement oriented, exhibits little individual initiative, is unable to persist or give full attention to school related tasks, and, in general, exhibits

an attitude of resignation and futility in the face of difficulty or challenge (Ausubel, 1963; Deutch, 1960; Pettigrew, 1964; Riesman, 1966).

Ironically, the deficiency of motivation to achieve in school is in juxtaposition to the disadvantaged youngster's motivation to achieve goals which are inappropriate and often detrimental to effective school functioning. In effect, many youngsters handicapped by economic-social disadvantage are caught up in a self-sustaining poverty culture. Attitudes and motivational characteristics adaptive to the circumstances of the impoverished milieu are maladaptive and often impede successful functioning within the larger society. Quite often the impoverished milieu induces the child to adopt values, repertoires of behavior and goals which have survival value in the culture of poverty, but which are detrimental for effective functioning in the broader based culture.

The environmental correlates which lay the groundwork for academic failure and subsequent occupational foreclosure for many impoverished youngsters include, among others: (a) a restricted "life space," i.e. limited geographic and social boundaries for experiencing the world, (b) environmental pressure exerted on the child for adoption of the street corner ethos, (c) a preponderance, in the poverty milieu, of deviant role models, and (d) a stigmatizing

interpersonal environment (NIMH, 1968; Hess, 1970). Undoubtedly, many circumstances of environmental impoverishment, e.g. crowding, chronic unemployment prevalence of broken homes, etc., are translated into child rearing patterns and ultimately are instrumental in shaping the child's value orientation and motivational system.

The fact that there are social class differences in terms of explicit sanctions or rewards and punishments meted out for the child's overt actions is, of course, well documented (Bronfenbrenner, 1958; Gray & Klaus, 1965; Hess, 1970; Katz, 1967). These authors view the family, or more specifically parental figures as a mediating screen through which perceptions and information are filtered for the child. Characteristically, some of the major patterns of child rearing associated with lower SES (socioeconomic status) are: (a) alternatively repressive and indulgent patterns of child rearing (Bronfenbrenner, 1958), (b) high parental punitiveness and restrictiveness (Katz, 1967), (c) child management procedures directed toward coping with, rather than shaping, behavior (Douvan, 1958), and (d) discipline focussed on overt acts, rather than on motives or goals (Bronfenbrenner, 1958).

Of particular relevance to the development of achievement motivation is the fact that the child caring agent transmits to the child a "schemata of apperception"

which identifies and interprets environmental cues and the potent reward contingencies (Schactel, 1949). This fact highlights a unique problem encountered by the lower class child. Quite frequently the impoverished child, upon entering school, is torn between values espoused by his home environment, e.g. anti intellectualism, distrust of middle class institutions, etc., and those attitudes and behavior valued by the school, e.g. deportment, achievement oriented behavior, etc. Unlike the middle class youngster, the lower class child rarely responds to moral exhortations which are intended to evoke feelings of guilt or shame. Moreover, unlike his middle class counterpart, for whom school is an extension of the home both in its value orientation and in its rewards and punishments, the lower class youngster finds the school setting unfamiliar ground and is unable to relate to its practices.

In instances when a teacher is assigned or chooses to work in a school serving primarily the children of the poor, she often discovers that her major role and responsibility is not necessarily to teach specific area skills, but rather to structure those classroom conditions which will selectively reinforce positive attitudes on the part of the student both towards himself and towards his school work. In order to exert maximal impact on such a student's

achievement orientation, such a teacher will often employ a variety of positive and negative reinforcement contingencies in varying degrees, ranging from tangible bribes, symbolic devices, censure, to interpersonal warmth and approbation.

Undoubtedly, teacher approval, attention, grades, goldstars, etc., provide sufficient incentive for academic achievement for a large number of upper and middle class youngsters. However, for substantial numbers of so called "disadvantaged-deprived" children, or perhaps more aptly categorized, children deprived of the middle class home experience, these incentives are not sufficient to eradicate what Kenneth Clark refers to as the "motivational deficit" so characteristic of many impoverished students.

The assertion that our public schools have a reward structure and motivating strategies grossly biased in favor of the middle class child, may indeed have validity (Higgin, 1966; Elliot et al., 1964). Many teachers functioning in inner-city schools located in depressed areas often report that the conventional motivating procedures and school incentives are not effective in motivating the typical disadvantaged learner. Many of these teachers concede that the underprivileged student has the ability but not the inclination to perform academically.

Increasingly, educators and social scientists are

finding that there is less wrong with the disadvantaged learner, the product of our present educational system, than with the process by which he is taught (Fantini & Weinstein, 1967; Clark, 1970). In effect, the lower class pupil's disinterest in classroom learning may be less a matter of his lacking cognitive ability than the school's failure to provide appropriate classroom reinforcement contingencies to facilitate realization of his capabilities. To reduce and possibly to eliminate educational disadvantage for the children of the poor, it may be necessary to devise and inaugurate different teaching methods and classroom reinforcement contingencies than those presently being used in our public schools. Moreover, it must be recognized that the poor test performance of low SES children is a function not of ability deficiency, but rather of the school's deficiency in adequately motivating these youngsters to learn. Certainly, the promised rewards society and middle class oriented teachers hold out to the disadvantaged child contain little meaning and incentive potency. Quite often, conventional classroom incentives, while very effective in motivating a middle class child, will evoke within a deprived youngster hostility or avoidance reactions. Havighurst (1951) has already pointed up the fact that the motivational methods used by the typical middle class oriented teacher is likely

to inhibit, rather than enhance learning among underprivileged students. There is mounting support for the proposition that low SES pupils testing below average can indeed perform at significantly higher levels when placed in a meaningful reward situation. Consequently, the marginal school performance of disadvantaged students has little or nothing to do with their ability, but can, rather, be attributed to a lack of affinity for middle class oriented teachers and the conventional rewards offered by our public schools (Gottlieb, 1964; Hess, 1964; Pettigrew, 1964).

Havighurst (1970) advocates that the teacher charged with the task of educating lower status, minority group children become knowledgeable in the vocabulary of rewards operative for her student population. Armed with the knowledge of what are the potent reinforcers operative for her student population, such a teacher will be in a better position in facilitating achievement behavior, and in turn check the number of educational casualties reported annually by schools serving the children of the poor.

What are the potent reward contingencies which facilitate or impede achievement behavior for low income, primary grade children? This is the general question to which this research is directed. More specifically, this study was designed to answer the following questions:

1. Are there any significant differences between differential social reinforcers in their effectiveness for facilitating achievement behavior of low socioeconomic status, elementary grade school children?
2. Are black and white youngsters differentially motivated by positive and negative social reinforcement-feedback contingencies?
3. Are youngsters who are at different developmental levels differentially motivated by positive and negative social reinforcement-feedback contingencies?

Statement of the Problem

Social reinforcement constitutes one of the major means for effecting change in behavior both in child rearing practices and in the classroom setting. The present study was designed with the purpose of assessing the relative effectiveness of three classes of social reinforcement-feedback strategies in promoting achievement behavior among economically impoverished, primary grade children. More specifically, the present study was directed at the following questions:

1. To what extent is the achievement behavior of low socioeconomic status children facilitated or impeded by adult approbation (Positive Social Reinforcement), reproof (Negative Social Reinforcement), and E's nonresponse (Control)?
2. To what extent does the condition of Examiner-Subject Racial Congruence (ESRC) or Incongruence (ESRI) enhance or impede a child's achievement efforts under differential social reinforcement-feedback conditions?

3. Are children who are at different developmental levels motivated differentially by Positive Social Reinforcement, Negative Social Reinforcement and Control condition?

Significance of Study

There is general agreement among educators on the importance of proper attitude and motivation as indispensable conditions for learning. Various motivational procedures are employed by teachers to effect learning and to shape achievement behavior among their students. Perhaps the most frequently used and most potent motivating procedure, utilized both by parents and teachers, is that of verbal reinforcement, e.g. praise approved censure, reproof, silence, etc.

While some research has paid passing attention to the motivating efficacy of social reinforcers, a clear determination of the motivational impact of positive (PSR) and negative (NSR) social reinforcement on achievement behavior has yet to be made. Moreover, little systematic research exists that defines the major determinants of social reinforcer effectiveness, i.e. the specific conditions which enhance or diminish an adult's reinforcing properties. In addition, there have been few systematic attempts to study social reinforcer effectiveness on the achievement behavior of other than a middle class population. Rosen (1956, p. 204) concedes that "there has been limited research

conducted on achievement motivation, incentives for achievement, and motivational characteristics of lower class children." Unfortunately, a number of researchers, in interpreting their data assume that findings on middle class populations can be extrapolated and generalized to lower class samples. Even a cursory examination of the research literature points up the fact that there remain significant gaps in the information about the salient variables affecting social reinforcer effectiveness, particularly for a lower class population.

The present research was designed and executed in ways intended to avoid potential pitfalls of previous investigations. In the present study an attempt was made to control for the following important variables which are likely to affect social reinforcer efficacy, viz.: (a) developmental level of S, (b) intellectual-emotional maturity of S, (c) sex of S, and (d) examiner-subject racial identity. The fourth variable cited, i.e. racial identity of E in relation to S, is a variable of particular significance when one uses for a research population Ss who are handicapped both by lower class and lower caste.

Hopefully, the findings of the current study would be of both theoretical and practical significance for the fields of child rearing and education. In speaking about

the particular motivational characteristics of the so called "disadvantaged" learner, McDavid (1969, p. 10) asserts: "We need to know a great deal more about the vocabulary of rewards, incentives and goals through which the teacher and learner communicate in the educational process." In line with McDavid's suggestion the present study was initiated. Certainly, findings of this type of research can contribute to a better understanding of the motivational parameters operative for the underprivileged pupil, and most importantly, in planning more effective educational intervention programs aimed at the disadvantaged learner.

Definition of Terms

The following terms are defined to clarify their use in the context of the present study:

Lower status, underprivileged, disadvantaged, economically handicapped, and deprived are terms used interchangeably in this study, in accordance with a precedent set by Riessman (1966). Admittedly, these terms are organizing rubrics rather than valid scientific terms. All these descriptive labels are intended to convey a view of "poverty" as going beyond its central attribute, inadequate income. As noted in the document, Perspective On Human Deprivation, prepared by the National Institute of Child Health and Human

Development, the aforementioned rubrics are used to describe a child whose roots, life experiences and concept of the world, grows within, in response to, or out of his membership in the culture of poverty (NIMH, 1968). In effect, these terms are meant to describe a unique pattern of orientation towards the larger society and a pervasive posture toward dealing with life.

For the purposes of the present study, such terms as "lower status, deprived, disadvantaged," etc. are operationally defined as a score falling within a specific range on Warner's Index of Status Characteristics (1949) which is frequently used to assess social class position. The foregoing terms may also be defined within the context of the National Income-Poverty guidelines (Appendix A). According to these guidelines, a child may be labelled "disadvantaged" when he comes from a family whose total annual earnings do not exceed \$3,720. This figure is based on a family of four. It should be pointed out that the term "disadvantaged" does not necessarily describe ethnic identity or minority group membership. Confounding occurs when low SES and minority group membership are indiscriminately subsumed under the "disadvantage" rubric and looked upon as a homogenous group.

Achievement Behavior is defined within the context of the definition offered by Crandall et al. (1960) viz.,

achievement behavior is behavior directed toward the attainment of approval or the avoidance of disapproval for competence of performance in situations where a standard of excellence is applicable. Operationally defined, "achievement behavior" refers to S's effortful striving and persistence, as measured by the rate of responding and quality of performance on the DSCT.

Reinforcer Effectiveness Score (RES) refers to the gain score obtained by subtracting the Posttest rate of response from the Pretest rate of response on the DSCT.

Positive Social Reinforcement (PSR) refers to adult praise or approval.

Negative Social Reinforcement (NSR) refers to adult censure-reproof.

Control Condition refers to the experimental condition when E is nonresponsive to S's performance on the DSCT. Under Control condition S receives no verbal feedback on his performance adequacy on the DSCT.

Examiner-Subject Racial Congruence (ESRC) refers to the experimental condition when the E and S are of the same race.

Examiner-Subject Racial Incongruence (ESRI) refers to the experimental condition when the E and S are not of the same race.

Research Hypotheses

For the purposes of proper employment of statistical measures, the following directional hypotheses were formulated:

1. Positive Social Reinforcement (praise-approval) will facilitate achievement oriented behavior to a significantly greater degree than will Negative Social Reinforcement (censure-reproof).
2. Control condition (nonreaction on the part of E) will impede achievement behavior to a significantly greater degree than will either the condition of Positive or Negative Social Reinforcement.
3. Positive Social Reinforcement will have a greater facilitative effect on achievement behavior under the condition of Examiner-Subject Racial Congruence (ESRC) than under the condition of Examiner-Subject Racial Incongruence (ESRI).
4. Negative Social Reinforcement will have a less deleterious effect on achievement behavior under the condition of Examiner-Subject Racial Congruence (ESRC) than under the condition of Examiner-Subject Racial Incongruence (ESRI).
5. Control condition (no feedback condition) will serve to facilitate achievement behavior under the condition of ESRC, whereas under the condition of ESRI, Control condition will impede achievement behavior.

6. PSR and NSR have a differential motivational effect for Ss who are at different developmental levels, so that older Ss are more motivated to achieve by NSR and younger Ss are more motivated to achieve by PSR.

Summary

This chapter has presented a general introductory statement about the nature and scope of this study. The introductory statement, in particular, highlighted some of the salient variables contributing to the motivational deficit and educational disadvantage of many lower class youngsters. Subsequently, a statement of the research problem was presented and the significance of the study was discussed. Terms pertinent to the study were defined and the directional hypotheses were listed. A review of research literature related to the problem area under discussion is presented in Chapter II.

CHAPTER II

REVIEW OF RELATED LITERATURE

An exhaustive review of the mass of research literature on the effectiveness of social reinforcement in facilitating achievement motivation and learning would result in a compilation far beyond the need and scope of the present study. Consequently, the selection of literature for this review was confined, as much as possible, to those studies which are most directly relevant to the problem area under discussion and which contribute toward demonstrating the rationale upon which this study is based.

This chapter is divided into six distinct units. The first section of this review presents a brief overview of research literature reporting the relative effectiveness of Positive and Negative Social Reinforcement in facilitating performance and learning for grade school children. The second section, then, briefly highlights some of the studies relating to the effects of E nonreaction (Control condition) on a S's achievement expectancy and level of performance. The third section presents a review of selected studies which relate to social class differences in children's responsiveness

to social and material reinforcers. Research related to social class differences in children's responsiveness to positive (PSR) and negative (NSR) social reinforcement, comprises the content of the fourth section. The fifth section follows with a review of studies dealing with the assessment of social reinforcer effectiveness as a function of the E-S racial congruence (ESRC) or incongruence (ESRI) variable. Subsequently, the sixth section briefly highlights the "cross-sex effect" reported in the social reinforcement literature. Chapter II then concludes with a summary of the major factors contributing to confusion and confounding of issues, in the literature surveyed.

The Relative Effectiveness of Positive and
Negative Social Reinforcement in
Facilitating Performance and
Learning for Grade School
Pupils

From the time of Aristotle to the present day, debate continues about whether praise is more effective than censure in facilitating performance and learning among children. It has been assumed that praise and reproof are symmetrically opposed in their effects. However, the question of whether adult praise or censure is the more potent incentive for children is still an unsettled issue. No unequivocal evidence exists to support the superiority of either one of these social reinforcers in shaping child behavior.

The earliest research in the area of social reinforcement, using a child population, was carried out by Gildchrist (1916). This author found adult praise to be significantly more effective than reproof in facilitating performance among children. Following Gildchrist's lead, Hurlock (1924) executed a more sophisticated study in an effort to determine the efficacy of differential social reinforcers in enhancing the performance of children on a learning task. Hurlock equated four groups of grade school children in terms of age, sex and intelligence. She reports a significant beneficial effect of adult praise on the performance of these children. However, she reports too, that reproof was more effective in motivating older Ss and those youngsters rated superior in intelligence by their teachers.

Chase (1932), while not controlling for intelligence, reports that praise elicited significantly better performance among two and eight year olds than did reproof. However, Anderson and Smith (1933) were unable to replicate Chase's findings using the same population. In contrast to the findings reported by Chase (1932), Anderson and Smith found reproof to be more facilitative on performance. The results of a study conducted by Brenner (1934) corroborate the findings of Anderson and Smith, viz. for learning and recall, censure-reproof has a more facilitative effect than

does praise-approval. Moreover, Brenner reports that censure-reproof sustained its influence longer than other social reinforcers.

The superiority of censure-reproof over praise-approval for general classroom performance is given additional support by the findings of Forlano and Axelrod (1937). These authors report reproof to be a more effective incentive than praise. Moreover, reproof was found to be particularly effective with introverts (Forlano & Axelrod, 1937). Likewise, Potter (1943) found that reproved grade school children improved their performance on an arithmetic reasoning task significantly more than Control groups. Potter reports that S's developmental level is an important determinant in the degree of reinforcer efficacy. Potter's data reveal that censure-reproof is detrimental on performance at the lower grade levels. However, there is some support for the proposition that negative social reinforcement (e.g. censure-reproof) does indeed facilitate learning and performance (Brackbill & O'Hara, 1958; Stevenson et al., 1959).

Schmidt (1941) using Junior High School and High School students in a Coding Substitution task situation, found that the sex of E played a significant part in social reinforcer effectiveness. PSR (praise-approval) elicited a

significantly higher response rate on the Coding task when E was male. NSR (censure-reproof) elicited a significantly higher response rate when E was female. Davis and Ballard (1932) also report a cross sex effect when differential social reinforcement is administered. These authors point out that in general, male Ss are more influenced by reproof and female Ss by praise. Moreover, praise was found to be particularly effective in influencing behavior of younger Ss and youngsters of below average intelligence. In sharp contrast, Kennedy et al. (1962) found that for the intellectually average or above average High School student, censure-reproof had a strong inhibitory effect on performance and learning.

In summary, too much disparity exists in the research literature reviewed to warrant any general conclusions about the effectiveness of PSR or NSR in facilitating learning and performance. However, the preceding studies do suggest some possible determinants which may affect social reinforcement efficacy. Among such salient determinants are: (a) developmental level of S (Potter, 1943), (b) sex of E in relation to S (Schmidt, 1941; Davis & Ballard, 1932), (c) task difficulty (Meyer & Offenbach, 1962), and (d) intelligence level of S (Hurlock, 1924; Schmidt, 1941; Kennedy et al., 1962).

Reinforcing Effects of Examiner Nonreaction
(Control Condition) on Achievement
Expectancy and Performance of
Grade School Children

The notion that adult silence or nonresponse can often serve as a potent means of shaping child behavior has only recently been subjected to experimental study. The classic research study of Crandall (1963) and Crandall et al. (1964) have pointed up the fact that E nonreaction (silence) does indeed have reinforcing properties. Stein (1969, p. 734) concurs with the assertion that E nonreaction has a reinforcing value and points out that even though the S does not receive feedback from the E in terms of his performance adequacy, "it appears that the mere presence of an adult has some motivating effect for a child." In general, there is some experimental support for the proposition that E nonreaction very often influences, subtly, learning and performance of grade school children (Amsel, 1962; Adelman, 1966).

Most authors concede that although the E is non-responsive and offers no verbal feedback to S, nevertheless, a S does receive implicit cues from the E's behavior or interprets E's nonreaction (silence) in light of his previous experiences with similar situations (Crandall, 1963; Feather, 1961; Stevenson & Fabel, 1961; Spear, 1970). In

effect, the S's performance output and general response to E's nonresponsiveness, is mediated by his past experiences with such reinforcement-feedback contingencies. Some authors invoke "reinforcer meaning" as an explanatory concept to account for the intervening process between S's antecedant experiences with such reinforcement-feedback parameters and S's current response to similar reinforcement-feedback contingencies (Cairns, 1963; Soloman & Yaeger, 1969). In effect, a S's social reinforcement history may be the central determining factor as to how S perceives and responds to the condition of E nonreaction (Baron, 1966).

Social Class Differences in Children's Responsiveness to Social and Concrete Reinforcement

The assertion that social class differences in motivation does exist, receives some support from research studies which report that lower class youngsters have an affinity for reward-punishment contingencies which are ineffective in motivating middle class children. Most recently, Havighurst (1970) has proposed that a differential reward system is in effect for lower and middle class populations. Havighurst insists that different social classes carry their children along different reward-punishment dimensions at different rates and in different ways. In effect, class

related behavior is associated with specific reinforcement parameters.

Havighurst (1970) proposes that a hierarchy of major rewards-punishments can be delineated. He suggests that the disadvantaged child is, most often, lower in this hierarchy, or, what he labels the "evolutionary reward scale," at any given age, than the middle or upper class child. More specifically, Havighurst contends that external rewards (concrete-tangible incentives) have more potency in shaping the behavior of the disadvantaged child, whereas symbolic-social rewards (verbal praise-censure) have greater potency in influencing the behavior of the middle-upper class youngster.

The earliest attempt to investigate this assertion experimentally was carried out by Klugman (1944). Using 38 predominately middle class, white, and 38 predominately lower class, black youngsters in grades 2-7, Klugman investigated the degree to which test performance on the Stanford Binet would be affected when monetary reward or verbal praise was employed. Klugman reported that middle class, white Ss showed significant superiority in test performance when adult praise was administered. Among lower class, black Ss, those tested under the monetary incentive exhibited superior performance than those black Ss tested under the praise condition.

Klugman's findings are supported by the results obtained by Terrel, Durkin and Wiesley (1959). Terrel et al. attempted to ascertain whether nonmaterial incentive is as effective as material incentive for middle class pupils, while for lower class pupils, material incentive is more effective than nonmaterial incentive. These authors employed the Warner Index to ascertain class status of 5, 6, 10 and 11 year old Ss. Terrel et al. reported that lower class youngsters evidenced superior performance on a discrimination learning task under concrete (tangible) reward condition, whereas middle class pupils functioned better under non-material (flashing light to inform S of his performance adequacy) reward condition.

Further corroboration for the aforementioned findings is underscored by the results of Hill and Dusek (1969) and Stein (1969). These authors report that nonmaterial (social reinforcement) was the most effective incentive for eliciting achievement behavior of middle class, primary grade youngsters. Likewise, Zigler and DeLabry (1962) found that non-material reinforcement was optimally effective in facilitating performance among middle class youngsters. Using middle class, lower class and a retarded group of youngsters matched on intelligence level, Zigler and DeLabry attempted to assess the performance of these groups on a concept switching task

under nonmaterial and material reward conditions. It is reported that the middle class Ss performed much more effectively under nonmaterial reward (e.g. praise), while lower class and retarded Ss performed more effectively under material reward condition (e.g. tangible rewards such as candy, etc.).

In sharp contrast to studies reviewed thus far, which point up the relative superiority of nonmaterial incentives in facilitating performance and learning of middle class students, we can cite the research of Lighthall and Cernius (1967) and that of Unikel (1969). The study by Lighthall and Cernius failed to show social class differences in the performance of preschool boys on a concept switching task under the condition of material (tangible) incentive or for nonmaterial (social reinforcement) incentive. Unikel investigated the relative effectiveness of concrete (tangible) and nonmaterial (social) rewards in terms of the performance of low SES youngsters on a simple discrimination learning task. Interestingly, Unikel found that material and nonmaterial rewards were equally effective in facilitating performance for the population sampled. Moreover, introduction of both material (tangible) and nonmaterial (social) reward significantly facilitated performance of lower class Ss, as compared to the no reward condition.

In summary, the studies surveyed in this section reveal somewhat of a trend, viz. lower class youngsters have an affinity for material, concrete reinforcers, while middle class children operate fairly well under nonmaterial, social reward conditions. This general trend, of course, points up a central question; does the public school have a reward structure grossly biased in favor of the middle class child?

Social Class Differences in Children's
Responsiveness to Positive (PSR) and
Negative (NSR) Social Reinforcement

An extensive amount of research literature has been accrued attesting to differential effectiveness of PSR and NSR in facilitating performance and learning among grade school children. Of particular interest to this discussion are two distinct types of positive reinforcers, viz. "person oriented approval" and "performance oriented approval." It should be noted that both kinds of approval provide feedback to S about his performance adequacy. However, "person oriented" approval seems to involve an additional component of positive affect on the part of the adult directed toward the S. As noted by Stein (1969, p. 734), ". . . the enhancing effects of positive reinforcement on achievement behavior involves something more than the mere information that the child is doing the task correctly." Consequently, it would

be expected that this additional component imbued in "person oriented" approval should enhance performance and learning for children.

There are a number of studies which report that "person oriented" approval and "performance oriented" approval do indeed have differential effects upon performance and learning of grade school children. A crucial determinant of reinforcer effectiveness was found to be the social class of the respondent. Zigler and Kanzer (1962) found that children are indeed very sensitive to nuances connoted by "person oriented" and "task oriented" approval. In the Zigler and Kanzer study, lower class children were found to be more receptive to reinforcers connoting approbation (person oriented approval), while middle class children were more responsive to reinforcers implying accuracy or performance adequacy (task oriented approval). In effect, being right was more reinforcing for the middle class youngster sampled in this study, than being commended and praised.

Zigler and Kanzer (1962) suggest that their findings support the idea of a developmental basis for social class differences in motivational structuring, i.e. there are distinct social class differences in terms of preference or an affinity for particular classes of rewards and punishments. The "developmental hypothesis" advocated by Zigler and Kanzer

is, of course, rooted in already existing data. It has been amply demonstrated that the process of development is marked by the relative effectiveness of qualitatively different kinds of reinforcing events at varying points in the course of human development. Characteristically, the process of human development is marked by a gradual decrement in a child's responsiveness to relatively primitive reinforcement parameters (e.g. concrete reward, person oriented approval, etc.) and a corresponding increment in responsiveness to more mature or abstract types of reinforcement contingencies (e.g. symbolic rewards, corrective feedback on performance adequacy, etc.). Consequently, with increasing age (developmental level), there is less reliance on externally administered reward, and the child becomes increasingly intrinsically motivated. In effect, the efficacy of concrete reward, adult approval as incentives for pro-social behavior and learning, diminishes with maturity, being replaced by the incentive value inherent in the information, or feedback, about performance adequacy (Beller, 1955; Gewirtz, 1959; Heather, 1955; Mowrer, 1960). This process of development is, of course, central in a child's progress from dependency to autonomy (e.g. the initial dependence of young children upon direct adult support and nurturance and their subsequent

tendency to rely increasingly on their own standard of performance adequacy).

Zigler and Kanzer (1962) interpret their findings within the context of the aforementioned developmental perspective, viz. the lower class child has not yet made the transition in which reinforcers signifying performance adequacy replaces personal approbation and approval in the reward-punishment hierarchy. Since for the lower SES child corrective feedback (task oriented reinforcement) is less effective in facilitating learning than praise-approval (person oriented reinforcement), the lower SES child is said to be "developmentally" lower than his middle class counterpart of the same age. Most recently, this theme has been echoed by Havighurst, viz. unlike the middle class youngster, who is able to reward himself by the knowledge of performance adequacy (performance feedback condition), the lower SES child is still at the stage when he is more responsive to external approval (person oriented reinforcement).

Replication of Zigler and Kanzer's study by Rosenhan and Greenwald (1965) failed to confirm Zigler and Kanzer's "developmental hypothesis." Rosenhan and Greenwald found no social class difference in children's responsiveness to "person oriented" and "performance oriented" reinforcement conditions. Thus, these authors reject the concept of a

developmental hierarchy of reinforcers, as advocated by Zigler and Kanzer. Rosenhan and Greenwald assert that the critical variable determining reinforcer efficacy is not only SES of S, but more importantly, the SES and racial identity of E, the dispenser of the reinforcement. Of course, Zigler and Kanzer did not control for this variable. Like Rosenhan and Greenwald, McGrade (1966) was also unable to replicate Zigler and Kanzer's research. McGrade used male Ss from three grade levels and four social class levels on a marble drop task (MITH). She found no significant interaction between social class membership and S's amenability to a particular class of reinforcement. However, Rucinski (1968) did find social class differences in children's responsiveness to praise or feedback on performance adequacy. Rucinski reports that fifth grade, middle class youngsters exhibited superior performance on a numerical cancellation test under the knowledge of results (feedback) condition. However, lower class youngsters displayed an affinity for adult praise and approval.

Thus far, the studies reviewed in this section have only dealt with social class differences in response to two types of positive social reinforcers. However, a number of studies report social class differences in responsiveness to positive and negative social reinforcers. A classic study by

Rosenhan (1966) investigated the effects of PSR (approval) and NSR (censure) on children's test performance on a problem learning task. A middle class E verbally reinforced the performance of first grade male Ss in a binary choice game situation using either PSR or NSR. The research population consisted of both white and black boys from low income and middle income homes. Rosenhan found no racial differences in Ss' responsiveness to the two classes of social reinforcement. Both white and black Ss of low income homes were found to perform better under PSR (praise-approval) and showed a decrement in performance under NSR (censure-reproff). However, middle class Ss of both races exhibited superior performance when NSR was in effect. On the basis of these findings, Rosenhan concludes that social class (SES), rather than race or ethnic subcultural group membership is the critical variable which determines a child's responsiveness to either PSR or NSR.

In order to account for his obtained findings, Rosenhan posits an "alienation hypothesis." This explanatory model advocates that low SES Ss of both races cannot relate to middle class institutions and middle class oriented adults. Specifically, lower class pupils are unsure that they are legitimate members of the middle class oriented school and are unable to comprehend environmental expectations.

Consequently, they are, most often, extremely sensitive to the nuances of external social reinforcement which convey to them middle class society's acceptance (approval) or rejection (censure) of them.

The research work of Rotter and coworkers (1962, 1966), Lefcourt and Ladwick (1965, 1966) lend support to Rosenhan's "alienation hypothesis." A consistent finding reported by Rotter et al. (1962) is that Ss whose social position is one of minimal power, either because of socioeconomic status or because of minority group membership, tend to perceive impediments in the way of goal striving. Such persons tend to have a low level of aspiration and low expectancy of success. Poignantly, Ness (1968, p. 26) acknowledges that "the main difference between the achievement orientation of the poor and the affluent lies not in the choice of goals, but in the expectation of attaining them." As noted by Lefcourt and Ladwick (1965), characteristically, the disadvantaged are dubious about the avenues open to them to succeed and their own adequacy to achieve. Such persons perceive that their own efforts will lead to no reward or recognition by middle class society, unless adventitious circumstances makes it so. Thus these individuals tend to attribute their success or failures to outside forces and not to their own doing (Battle & Rotter, 1963).

A direct offshoot of this sense of inefficacy and powerlessness is the disadvantaged person's minimal efforts to achieve and a general lack of interest in achievement related pursuits.

This central theme is echoed in the Coleman (1966) report, viz. children from low status groups feel that nothing they do or will do can effect environmental conditions. Middle class, dominant culture youngsters, on the other hand, tend to view their environment as more responsive to their actions. In effect, underprivileged youngsters are less inclined, than their middle class counterparts, to believe that they can extract material and social benefits from the environment through their own efforts. Of course, such a world view contributes significantly to the estrangement of the disadvantaged person from middle class institutions and values.

In summary, a central theme emerges from those studies surveyed in this section, viz. that within racial groupings, class (SES) interacts so that the double handicap of lower class and lower caste produces individuals with minimal success striving patterns and marked sensitivity to the nuances conveyed by the verbal statements of middle class adults.

Social Reinforcer Effectiveness as a Function of
Examiner-Subject Racial Congruence (ESRC)
Or Incongruence (ESRI)

An important consideration to emerge from Rosenhan's (1966) research was the idea that a critical variable affecting social reinforcement efficacy is the racial identity and subcultural membership of the agent of reinforcement, the E. Although the SES of E may not be readily apparent to Ss, obviously the race of E cannot easily be disguised. Despite Shuey's (1958) assertion that the E race variable has no significant effect on the performance of black Ss, significant and marked differences have been reported in the performance of black Ss treated under white and black Es (Trent, 1954; Dreger & Miller, 1960; Katz, 1967). More specifically, Stevenson (1961) reiterates that Es of different races using identical reinforcement procedures have differential impacts on the same young Ss.

The differential effects of black and white Es on achievement behavior of black school children was documented by Kennedy and Wilcutt (1963). It is reported that black, lower class youngsters exhibited a decrement in performance on a learning task when task oriented approval (corrective feedback) was administered by a white E. However, this same reinforcement contingency when administered by a black E, produced an increment in effortful striving and level of

performance. Kennedy and Wilicut report that under white Es, black pupils react to censure-reproof (NSR) in the same manner as white pupils under white Es, viz. with a decrement in performance level.

A subsequent study by Kennedy and Vega (1965) examined the level of performance of Southern, black youngsters under the conditions of PSR and NSR when administered by white and black Es. This study revealed that under black Es, black pupils reacted to NSR (censure-reproof) with an increment in performance. Surprisingly, under NSR there was a decrement in performance with white Es and an increment in the level of performance when the reinforcement contingency was administered by black Es. In effect, this study attests to the facilitative effect of Examiner-Subject Racial Congruence (ESRC) on learning and performance of black pupils when NSR is administered.

Allen et al. (1966) had primary grade youngsters of both races, tested by white and black female Es on a simple psychomotor learning task. Three social reinforcement contingencies were employed, viz. PSR, NSR and Control. A rate measure was used as the dependent variable. It is reported that ESRC produced the greater increment in response across the three reinforcement conditions. Allen et al. suggest that race of E plays a critical role for black

youngsters when they are engaged in performing tasks requiring cognitive competency. In general, black Es are more effective reinforcing (socializing) agents than white Es for black male Ss. Interestingly, Allen and coworkers report that white Es often impede performance of black pupils, while black Es can often serve to enhance the performance of white youngsters.

Another study of parallel dimension was conducted by Katz, Henchey and Allen (1968). These authors attempted to assess the relative effectiveness of PSR and NSR, as administered by either a black or white E, on the performance level and learning of low SES, black children. The study was based on the assumption that Negro grade school boys from Northern slums will tend to regard Negro adults (Es) as more pre-disposed than white adults to like them, evaluate their efforts fairly and reward them with genuine approval. The findings to emerge from this study indicate that: (a) PSR has a greater facilitative effect on learning and performance level than does NSR, (b) black Es tended to enhance performance and learning of black Ss to a greater degree than did white Es, and (c) NSR coming from a white E was more disruptive on a black youngster's performance than when the same reinforcement contingency was administered by a black E. Katz et al. account for the last stated finding by pointing

out that for black children, censure-reproof coming from a black adult (E) is only a signal that greater effort is required to gain approbation. However, censure-reproof from a white person (E) tends to confirm a disadvantaged, black child's expectations of failure and rejection.

Social Reinforcer Effectiveness as a Function of Sex of E Variable

One of the most consistent findings to emerge from the research literature on social reinforcement is what is referred to as the "cross sex effect," viz. differential social reinforcement delivered by a male adult (E) is more effective in influencing achievement behavior of female Ss, while a female reinforcing agent (E) is more effective with male Ss (Crandall, 1963; Gewirtz & Baer, 1958; Hartup, 1961; Hill & Stevenson, 1965; Stevenson, 1961).

Perspective

The embryonic character of research and theory in the area of social class differences in responsitivity to differential social reinforcement, is mirrored by the diversity and confusion of issues, conflicting and indecisive results of the majority of studies surveyed for this review. Most recently, Hess (1970, p. 460) has commented on the methodological problems encountered in the study of class related behavior:

The present state of research on social status and behavior of children is such that even the few definitive statements that can be made are usually imprecise. This follows in part from the lacunae in theory, yet it also results from a lack of clarity and methodological discipline in the studies themselves.

Brenner (1934), Schmidt (1941), Higgin (1966) and Hess (1970) all call attention to the conflicting results reported in the research literature and to the general lack of common ground upon which to make comparisons. These authors attribute this state of affairs to:

1. a failure of most studies to employ a uniform criteria for assigning Ss to social class categories. In effect, different researchers use dissimilar criteria to determine SES. Such procedures range from the ad hoc judgment as to what constitutes middle/lower class to the specific OEO (U.S. Government) guidelines.
2. a failure of most studies to make the fine distinction between social class membership and other associated subcultural variables, e.g. minority group membership, race, ethnicity, etc.
3. a failure of most studies to analyze data which emphasizes variability within each social class grouping, rather than primarily focusing on the central tendencies of class related behavior.
4. a failure of most studies to clearly define the nature of the social reinforcement contingency being employed in the experimental procedure. Another related serious methodological problem encountered has to do with the fact that the procedure and method of administering reinforcement contingencies, vary considerably from study to study.
5. a failure of most studies to maintain uniformity among the type of task S is asked to engage. As

noted in this review of literature, the experimental test situation or task, vary considerably from experiment to experiment. Moreover, the dependent measure vary considerably from study to study.

6. a failure of most studies to equate for, or take account of such important variables as S's developmental level, intellectual level, cross-sex effect, and E-S racial congruence/incongruence.

In addition to the aforementioned methodological problems, the following limitations in the research literature may be noted:

1. the comparatively small number of Ss included in most studies (Brenner, 1934; Higgin, 1966).
2. ages of Ss are not comparable from study to study (Schmidt, 1941).
3. initial ability often not controlled for (Higgin, 1966).
4. often, the statistical treatment of data was unreliable or inadequate (Schmidt, 1941).
5. often, a lack of clarity in reporting what had been done and the findings (Hess, 1970).

Hopefully, the present study has been able to avoid some of the major pitfalls cited in this review.

CHAPTER III

THE RESEARCH DESIGN

Information gained from social class studies suggested that middle class youngsters are more likely than lower class youngsters to be motivated to achieve by adult NSR (corrective feedback-censure), than by adult PSR (praise-approval). While social reinforcement research has been concentrated on the study of the effectiveness of PSR and NSR in facilitating learning and performance of lower and middle class Ss, few studies have explored the relative efficacy of differential social reinforcers, equating for S's developmental level, E-S sex and racial identity. The present study represents an attempt to assess the relative effects of PSR and NSR on the achievement behavior of low socioeconomic status primary grade pupils. Moreover, an attempt was made to assess the extent to which the condition of ESRC or ESRI enhances or impedes social reinforcement efficacy.

In this chapter, procedures are outlined and discussed under the following categorical subheadings:

1. Population and Sampling
2. Instrumentation
3. Methodology
4. Experimental Design
5. Statistical Procedures used in Analysis of Data
6. Summary

Population and Sampling

A total of 142 male Ss were drawn from a total population of 178 male second, third, fifth and sixth graders attending a public elementary school located in a suburban Maryland community, directly adjacent to the District of Columbia. Table 1 reports the distribution of population sample in terms of S's race, grade level and experimental treatment group assignment. The community in which this school is located is characterized by a high degree of transiency, impoverished housing, qualifying for federal "model cities" funding, and a large proportion of marginally employed adults. The area in which the school is situated has a broad cross section of ethnic, racial and income levels, although a proportionately large number of residents are lower class, black.

Male Ss from each of the above designated grade levels were assigned randomly to one of two Es and one of three

TABLE 1
 SAMPLE DESCRIPTION BY SUBJECT'S RACE, GRADE LEVEL
 AND EXPERIMENTAL TREATMENT GROUP ASSIGNMENT
 (N=142)

GRADE	BLACK <u>Ss</u>			WHITE <u>Ss</u>		
	PSR	NSR	CONTROL	PSR	NSR	CONTROL
2	9	7	8	6	7	5
3	5	7	6	6	4	4
5	9	5	8	6	9	6
6	6	5	5	3	3	3

experimental treatment conditions. Children with known sensory-motor defects were excluded from the study. Also excluded from the study were those youngsters who were judged by their teachers to be intellectually and/or emotionally ill prepared for the demands inherent in the experimental procedure. Ss who were selected for participation in the study, but who were absent on the days of testing were not included in the final analysis.

Ss in the three treatment conditions were equated on grade level, race, and SES. Only lower socioeconomic status children were included in the study. Social class status was determined by consultation with the school administration. The main criteria for establishing social class status were: (a) Warner's Index of Social Characteristics (Warner & Eels Revised Scale, 1949), and (b) a S's eligibility and/or participation in school's Free Lunch Program (see Appendix A for income guidelines).

Instrumentation

A "Digit-Symbol Coding Task," adapted from Stein (1969), a modification of a task originally suggested by French (1958) for use in assessing achievement motivation, was employed in the present study. The Coding task used in the present study is almost identical to the Digit Symbol

subtest contained in the Wechsler Intelligence Scale (WAIS). The DSCT consists of digits arranged horizontally in adjacent squares. Below each digit is a symbol randomly ordered. This provides the coding "key" which is placed on the upper half of the test form. Directly below this "key," are rows of squares in which randomly ordered digits appear with blank squares beneath them (see Appendix B). Directions call for the S to write the appropriate symbol in the blank squares that correspond with the digit specified by the coding key. The number of blank squares were sufficiently long so that the majority of Ss were not able to finish all of them in the time allotted. To minimize memory effect, two forms of the DSCT were devised. This was accomplished by rearranging on Form II of the DSCT the digits associated with each of the stimulus figures in the key.

Although previous research on social reinforcer effectiveness in facilitating achievement behavior and learning has employed various "game" situations, e.g. marble in the hole (MITH), etc., the present author adopted the DSCT in assessing achievement behavior for the same reasons as posited by Stein (1969). These are:

(a) the DSCT involves little learning, so that changes in rate of response appears primarily due to attention and effort on the part of the S, and (b) because the

content of the task appears somewhat similar to school related activities. Moreover, because the Coding task will be introduced as a "test," rather than a "game," the task will appear to Ss as achievement relevant, i.e. each S will be told that he was going to perform on a test which was being tried out with many other children his age in the entire school district.

Method

All Ss were tested individually by one of two female, black Es. Both Es were approximately of equal age, with some teaching experience and other pertinent work experience with primary grade youngsters. Female Es were chosen in an effort to maximize the effects of differential social reinforcers, for female Es tend to be more effective than male Es as socializing agents of young boys (Allen et al., 1966; Stevenson, 1961). Another rationale for employing female Es was in view of the fact that the majority of primary grade teachers a child encounters in the school setting are female.

Es were trained by the author in the use of the Coding task, the administration of verbal reinforcers, and at uniform delivery of instructions to Ss. It was felt, prior to the initiation of the testing procedures, that Es were thoroughly trained in all phases of the experimental

procedure. Nevertheless, both Es were periodically checked in the field to keep procedures as uniform as possible, across all treatment groups. Both Es were, however, naive to the purposes of the study. This was done in order to minimize systematic expectations about experimental effects and to reduce possible influence on the outcomes of the study.

Each E was situated in a private, soundproof room especially designed for testing purposes. The two testing rooms were located on the first floor, adjacent to the office of the principal. On the morning of each scheduled day of testing, teachers were provided with a list of students who were assigned for testing by the designated E. Teachers send the individual youngster to the assigned room number in accordance with the specified time schedule. All Ss received a code number, so that no names appeared on any of the test forms. Each E tested approximately an equal number of Ss within each grade level grouping and within each of three experimental treatment conditions.

Experimental Procedures and Design

A two minute baseline (pre-reinforcement) period was established for all Ss participating in the study. During the baseline period, the E was attentive but neutral to S's

performance on the Digit-Symbol Coding Task (DSCT). Following this baseline (pre-reinforcement) run, Ss were subjected to one of three types of reinforcement-feedback contingencies e.g. PSR (praise-approval), NSR (censure-reproof), or Control (no feedback). Statements of approval, disapproval or nonresponse, on the part of the E, were not contingent on S's performance adequacy.

After E seated S at the work table, she spent one minute of time to obtain information about S's age, grade, interests, etc., and to explain the general purpose of the task. This one minute of informal chatter was provided primarily to allow the S to adjust to the novelty of the testing situation. After the directions related to performance on the DSCT were read (see Appendix C), E demonstrated a sample of the DSCT to make sure that S understood the nature of the task. Each S was instructed to work quickly and to do as many items on the DSCT as he could, without skipping items, in the time allotted. On occasions when a S had further questions, the appropriate portion of the directions were reread by the E. Each E was equipped with a stop watch and a buzzer to sound when to begin or stop work.

Upon completing Form I (pre-reinforcement run) of the DSCT, S was subjected to one of three social reinforcement contingencies, viz. PSR (praise-approval), NSR (censure-

reproof), or Control (nonresponse). The verbal statements provided to Ss under the three reinforcement conditions were adapted from similar expressions used in the Willicut and Kennedy (1963) study.

Ss assigned to the PSR condition, upon completing Form 1 of the Code were told:

Well, let's see [pause]. Your score is very good. I thought you would do well, but you did even better than I expected. I'm really pleased! Why these look like one of the best scores I've gotten yet [pause]. O.K., now let's try a similar Code and see how you will do. Let me repeat again the directions.

During the administration of PSR, the E smiled and maintained eye contact with the S.

Ss assigned to the NSR condition, upon completing Form 1 of the Code were told:

Well, let's see [pause]. Gosh, your score is not as nearly as good as I thought they would be. I'm really disappointed. I think this is the worse score I've gotten yet [pause]. But perhaps if we run through the Code again. I'll tell you what. Just forget this trial. Let's run through a similar test. Do you understand the directions? Well, let me repeat what you have to do once again.

During the administration of NSR, the E did not smile, delivered all statements in an aloof manner, and avoided eye contact with the S.

Ss serving as the Control group, upon completing Form 1 of the Code were asked innocuous questions about

sports interests, etc. E attempted to equate the time devoted to these questions as closely as possible with the time segment devoted to administering PSR and NSR. When Ss serving as the Control group asked for feedback on their performance on the DSCT, E told them that test results will not be known until the completion of the entire testing procedure.

Prior to the administration of Form II of the DSCT, directions were reread verbatim. Again, each S had sixty seconds to work on the DSCT. Following the completion of Form II of the DSCT, each S was asked not to discuss the experiment with their classmates. Those Ss who served in the NSR condition (censure-reproof) were detained and given reassurance that their performance improved considerably in the second run of the DSCT (Form II), and that the E was very pleased with the final score. This debriefing procedure was instituted to counteract any possible adverse effects resulting from the negative feedback (NSR).

Procedures Used in Analyzing the Data

Exactly what constitutes a satisfactory measure of social reinforcer efficacy is an extremely thorny issue in the research literature (Parton & Ross, 1965, 1967; Stevenson & Hill, 1966). Parton and Ross insist that rate of responding

scores are weak measures in assessing the effectiveness of differential reinforcers of performance and learning among children. Spear (1970, p. 131) makes the distinction between acquisition measures (i.e. learning) and motivational measures. Spear points out that "rate of responding is a more sensitive measure of motivation than a measure of acquisition (learning) of specific responses."

For the purposes of the present study, the rate of responding on the Digit-Symbol Coding Task was the principal dependent (criterion) measure. Analysis of raw data revealed that little, if any, differences existed between Ss' rate of responding (measuring achievement motivation) and the number of incorrect responses (measuring the degree of learning).

Multivariate analysis of variance and multivariate analysis of covariance were the major tools used in the present study for statistical analysis. A Biomedical computer program package, referred to as BMDUØM-MANØVA designed for the Univac 1108, was utilized to carry out the computational aspects of the analysis. Computer time for this project was made available through the facilities of the Computer Science Center, University of Maryland, College Park, Maryland. A 3 way analysis of covariance was performed on the posttest scores (Form II--DSCT), with the pretest

scores (Form I--DSCT) serving as the covariate. The three classification variables, race of S, reinforcement condition and grade level, produced a 2x3x4 factorial arrangement. An analysis of variance was also carried out on the mean difference (gain) scores of pre posttest trials across the three experimental treatment groups (Appendix E).

Summary

This chapter began with a detailed description of the research population and the particular sampling procedures employed for the present study. The section on instrumentation described the assessment techniques employed in this research and the rationale for employing the Digit-Symbol Coding Task (DSCT) to assess achievement behavior and rationale for employing dependent (criterion) measure. A description of the experimental methodology and design constituted the next major area of discussion. The basic design was described as a three dimensional analysis of covariance factorial design. The chapter concluded with a discussion of the statistical procedures employed in the data analysis. Presentation of the data and a discussion of the research findings comprise the content of Chapter IV.

CHAPTER IV

RESULTS AND ANALYSIS OF THE DATA

In this chapter, the findings relevant to the research hypothesis are presented and the data displayed. The findings are presented in the order of the hypotheses stated in the first chapter. However, in this chapter the research hypotheses are restated in null form. The level of significance chosen as the decision point for acceptance or rejection of the null hypotheses was at $\alpha .05$. Often times, significance levels above .05 are presented in order to portray the magnitude of the discovered relationships.

The organization of this chapter follows the following sequence. Section one reports the computation and data pertinent in assuring that the basic assumptions of covariance analysis were satisfied. Section two reports the results of the analysis of covariance procedure which was utilized to test for mean differences on the criterion measure of the effects of the three treatment conditions. The findings of additional analysis, which were made for the purpose of assessing the motivational impact of differential social

reinforcers for black and white Ss at various developmental levels is presented in section three.

Assumptions Underlying the Use of the F Test for the Analysis of Covariance

Before one can safely conclude from a significant F that the experimental treatments have differential effects in covariance analysis, a number of assumptions about the data should be satisfied (Elashoff, 1969):

1. Randomization: Covariance analysis is based on the assumption that Ss are randomly assigned to treatment groups and that all groups are treated exactly the same, except for the specific treatment contingencies.
2. The Covariate is independent of the treatment effects: To insure that the covariate (X) is independent of the treatment effects statistically, one needs to measure the X variable prior to the administration of treatments. Moreover, treatments should be assigned to groups at random.
3. Covariate measured without error: Covariance analysis is based on the assumption that the concomitant variable (X) is measured without error.
4. Linearity: Covariance analysis assumes that the covariate has a linear relationship with the criterion variable. Cross departures from linearity can be easily detected by the inspection of x-y scatter plots.
5. Normality: Covariance analysis assumes that within each group at each ability level the criterion variable (y) has a normal distribution.

6. Homogeneity of variance: Covariance analysis assumes that the variance of y score for a given X score is the same for each treatment group and independent of X.
7. Homogeneity of regression: Analysis of covariance rests on the assumption that the regression of y on X is linear, and that the slope is the same for all treatment groups (i.e. there is no treatment slope interaction).

The validity of the analysis of covariance procedure depends on how closely the data satisfy the above cited conditions. Nevertheless, there is support for the contention that covariance analysis is robust to violation of the assumption of linearity, normality and even that of homogeneity of variance (Lindquist, 1953; Raths, 1967). It appears, however, that the crucial assumption which needs to be met in the analysis of covariance procedure is that of homogeneity of regression.

Inspection of the raw data and scatter plots pertinent to this study revealed that the first five of the above cited assumptions were generally met. The assumption that the variance of subgroups are homogenous was tested by means of Hartley's $F_{\max}$ test. The results of the computation indicated that the F was not significant at the .05 level but was significant at the .01 level (Table 2).

TABLE 2

F TEST OF HOMOGENEITY OF SUBGROUP VARIANCE OF
POSTTEST ACHIEVEMENT SCORES

$$F = \frac{s_I^2}{s_{II}^2} \quad \text{where } s_I^2 = \text{the larger of the subgroup variance}$$

$$s_{II}^2 = \text{the smaller of the subgroup variance}$$

$$F = \frac{(15.50)^2}{(2.00)^2} = 64.00$$

$F_{.05} = 19.0$ for 2 df for the larger subgroup variance and 2 df for the smaller subgroup variance.

$F_{.01} = 99.0$ for 2 df for the larger subgroup variance and 2 df for the smaller subgroup variance.

The assumption of homogeneity of regression between the covariate (pretest score on the Digit-Symbol Coding Test) and the criterion measure (posttest score on the Digit-Symbol Coding Test) was tested via the utilization of Dayton's ANCOVA computer program (see Appendix D). Table 3 reports the findings. The F ratio is not significant, the null hypothesis is retained, and the assumption of homogeneity of regression is considered tenable in view of the given data.

TABLE 3

SUMMARY TABLE FOR HOMOGENEITY OF
REGRESSION DATA

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F
Among regression lines	23	431.865	18.777	1.0350
Error around within cells regression lines	91	1650.936	18.142	

Hypotheses and Findings

The basic statistical procedure used to examine the foregoing directional hypotheses was the analysis of covariance. A computer program package known as BMDUØM-MANØVA was used to run the covariance analysis on the Univac 1108 through the facilities at the Computer Science Center, University of Maryland, College Park, Maryland. The classification variables of social reinforcement, developmental level, and race of S produced a 3x4x2 factorial design. Covariance analysis was applied to the data, adjusting for the effects of the concomitant variable, i.e. the pretest achievement score on the Digit-Symbol Coding Test (DSCT).

Table 4 reports the pretest cell means and standard deviations, while Table 5 presents the posttest cell means and standard deviations. The within cell means and standard deviations of gain ($\bar{D}$) scores is reported in Appendix E. The results of the application of analysis of covariance to the data and adjusted for the effects of the covariate (the pretest achievement score) is displayed in Table 6. Appendix E contains the results of the analysis of variance performed on the gain (difference) scores. Marginal means and standard deviations for the three classification variables are given in Tables 7 through 12. Means adjusted for the covariate are presented in Tables 8, 10 and 12. The formula used to obtain the adjusted means of the i th groups was (Raths, 1967):

$$Y_i^* = \bar{Y}_i - b_E (\bar{X}_i - \bar{X}_T) \quad \bar{Y}_i^* \text{ is the adjusted mean,}$$

$\bar{Y}_i$ is the posttest mean score of the i th group,

$\bar{X}_i$ is the pretest mean score of the i th group,

$\bar{X}_T$ is the pretest mean score for all groups, and

b_E is the regression coefficient which was

found to be in the present analysis .888.

TABLE 4

SUMMARY TABLE OF WITHIN CELL MEANS AND STANDARD DEVIATIONS OF
PRETEST ACHIEVEMENT SCORES (N = 142)

GRADE	BLACK <u>Ss</u>						WHITE <u>Ss</u>					
	PSR		NSR		CONTROL		PSR		NSR		CONTROL	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
2	20.11 N=9	4.86	19.14 N=7	7.36	20.25 N=8	4.59	22.00 N=6	3.52	21.86 N=7	4.06	24.60 N=5	4.45
3	26.20 N=5	10.92	27.29 N=7	5.65	27.50 N=6	4.09	31.17 N=6	4.83	26.50 N=4	7.23	26.25 N=4	.96
5	35.11 N=9	7.34	39.40 N=5	9.13	36.00 N=8	9.53	36.50 N=6	4.76	31.44 N=9	5.50	35.83 N=6	6.61
6	43.67 N=6	7.06	41.60 N=5	8.44	44.00 N=5	6.00	47.00 N=3	7.81	46.67 N=3	3.22	46.00 N=3	4.58

TABLE 5

SUMMARY TABLE OF WITHIN CELL MEANS AND STANDARD DEVIATIONS OF
POSTTEST ACHIEVEMENT SCORES (N = 142)

GRADE	BLACK <u>Ss</u>						WHITE <u>Ss</u>					
	PSR		NSR		CONTROL		PSR		NSR		CONTROL	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
2	22.44 N=9	4.53	26.86 N=7	8.21	18.76 N=8	5.67	26.17 N=6	4.92	26.29 N=7	4.68	22.60 N=5	3.85
3	23.40 N=5	7.02	25.43 N=7	6.99	23.83 N=6	3.60	34.50 N=6	6.32	28.75 N=4	6.13	21.25 N=4	2.06
5	36.89 N=9	6.31	41.00 N=5	10.37	33.75 N=8	10.42	41.83 N=6	7.33	36.11 N=9	7.91	38.17 N=6	8.66
6	54.50 N=6	6.54	48.00 N=5	10.30	42.80 N=5	2.59	52.33 N=3	15.50	50.67 N=3	6.66	41.00 N=3	2.00

TABLE 6

ANALYSIS OF COVARIANCE SUMMARY TABLE FOR THE EFFECTS OF RACE OF SUBJECT,
 REINFORCEMENT CONTINGENCY AND GRADE LEVEL ON A MEASURE
 OF ACHIEVEMENT BEHAVIOR
 (N=142)

Source	Adjusted sum of Squares	Degrees of Freedom	Adjusted Mean Squares	F	Probability Less Than
WITHIN CELLS	2125.082	117	18.163		
REGRESSION	3755.666	1	3755.666	206.775	.001
RACE (R)	148.154	1	148.154	8.157	.005
REINFORCEMENT (I)	750.559	2	375.280	20.662	.001
GRADE LEVEL (G)	453.440	3	151.147	8.322	.001
RxI	43.890	2	21.945	1.208	.302
RxG	227.820	3	75.940	4.181	.080
IxG	218.454	6	36.409	2.005	.070
RxIxG	145.779	6	24.296	1.338	.246

TABLE 7

MEANS AND STANDARD DEVIATIONS FOR PRETEST
ACHIEVEMENT SCORES ON THE
REINFORCEMENT FACTOR
(N=142)

Level	N	Mean	SD
PSR	50	31.38	10.58
NSR	45	31.46	10.11
CONTROL	47	30.04	10.44

TABLE 8

ADJUSTED AND UNADJUSTED MEANS AND STANDARD DEVIATIONS
FOR POSTTEST ACHIEVEMENT SCORES ON
THE REINFORCEMENT FACTOR
(N=142)

Level	N	Mean		SD
		Adjusted	Unadjusted	
PSR	50	34.63	34.00	12.79
NSR	45	29.07	29.51	10.67
CONTROL	47	33.09	32.27	12.72

TABLE 9

MEANS AND STANDARD DEVIATIONS FOR PRETEST
ACHIEVEMENT SCORES ON RACE FACTOR
(N=142)

Level	N	Mean	SD
White	62	26.61	10.00
Black	80	26.12	11.85

TABLE 10

ADJUSTED AND UNADJUSTED MEANS AND STANDARD DEVIATIONS
FOR POSTTEST ACHIEVEMENT SCORES ON
RACE FACTOR

Level	N	Mean		SD
		Adjusted	Unadjusted	
White	62	49.77	50.02	32.12
Black	80	48.49	48.30	28.18

TABLE 11

MEANS AND STANDARD DEVIATIONS OF PRETEST
ACHIEVEMENT SCORES FOR THE
GRADE LEVEL FACTOR
(N=142)

Level	N	Mean		SD
		Adjusted	Unadjusted	
Grade 2	42	21.07		4.97
Grade 3	32	27.66		6.03
Grade 5	43	35.30		7.25
Grade 6	25	44.36		6.29

TABLE 12

ADJUSTED AND UNADJUSTED MEANS AND STANDARD DEVIATIONS
OF POSTTEST ACHIEVEMENT SCORES FOR
THE GRADE LEVEL FACTOR
(N=142)

Level	N	Mean		SD
		Adjusted	Unadjusted	
Grade 2	42	23.07	22.02	6.25
Grade 3	32	29.25	26.41	6.94
Grade 5	43	33.65	37.49	8.40
Grade 6	25	36.73	48.52	8.78

Research Question One

Does positive social reinforcement (PSR), negative social reinforcement (NSR) and nonresponse (Control condition) have a differential motivating effect for grade school male Ss?

Hypothesis 1: PSR (adult praise-approval) will have a greater facilitative effect on the performance of grade school male Ss on the Digit-Symbol Coding Test than will the condition of NSR (adult censure-reproof) .

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test of the PSR group and m_2 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test of the NSR group.

Table 7 presents means and standard deviations for the pretest achievement scores under the three reinforcement contingencies, while Table 8 gives the means and standard deviations for the posttest scores for the three levels of reinforcement. Means adjusted for the covariate are reported in Table 8. The adjusted means for PSR, NSR, and Control group are 34.63, 29.07 and 33.09, respectively.

Reference to the analysis of covariance summary table (Table 6) reveals that the main effect for the reinforcement factor is statistically significant ($F = 20.6$, $df = 2/117$,

$p < .001$). This significant F ratio indicates that the variation among the treatment level means is greater than could reasonably be expected to occur by chance. Thus, the three social reinforcement contingencies do indeed have a systematic effect on the performance of Ss on the Digit-Symbol Coding Test.

To test Hypothesis 1 (i.e. whether PSR will have a greater motivating effect on the performance of grade school, male Ss than will NSR) a statistical procedure suggested by Winer (1962) was carried out. This procedure was utilized instead of a post hoc analysis because the specific comparisons were hypothesized in advance of the investigation. The statistic used in making the comparison among the treatment means has the following general form (Winer, 1962, p. 67).

$$F = \frac{(\sum c_1 T_j)^2}{(n \sum c_1^2) (MS_{\text{error}})} = \frac{SS_{c_1}}{MS_{\text{error}}}$$

The numerator of this ratio has one degree of freedom, while the df for the denominator are those of the MS_{error} , viz. 117. A component of the sum of squares (SS_{c_1}) for the three levels of treatment is defined by the expression (Winer, 1962, pp. 67-68).

$$\frac{(c_1 T_1 + c_2 T_2 + \dots + c_k T_k)^2}{n(c_1^2 + c_2^2 + \dots + c_k^2)} \quad \text{where } \sum c = 0$$

In effect, the component of sum of squares (SS_{c_1}) is the square of comparisons divided by n times the sum of squares of the coefficient of comparisons. In the above formula, c_1 represents a comparison between the effectiveness of PSR as compared to NSR in facilitating the performance of Ss on the Digit-Symbol Coding Test, the Control group treatment condition being disregarded. Thus, this comparison is used in testing the null hypothesis that $m_{PST} - m_{NSR} = 0$.

The component of the sum of squares corresponding to c_1 was computed to be 20.81. This component is interpreted as follows (Winer, 1962, p. 67): of the total variation among the achievement scores on the Digit-Symbol Coding Test of Ss exposed to the three social reinforcement contingencies, that part which is due to the difference between PSR and NSR is 20.81. The critical value for $F_{.95} (1/117) = 3.93$. The numerical value of the observed F is 1.42. Thus, the observed F does not exceed the critical value of 3.93 and the null hypothesis $m_{PSR} - m_{NSR} = 0$ must be retained. PSR does not significantly enhance the performance of lower class, grade school Ss to a greater degree than does NSR.

Hypothesis 2: Control condition (E's nonresponse) will impede performance on the Digit-Symbol Coding Test of grade school Ss to a greater degree than will PSR and NSR.

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test of the Control group and m_2 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test of the PSR and NSR groups.

Analysis of covariance procedure yielded a significant main effect for the three levels of the reinforcement factor ($F = 20.6$, $df = 2/117$, $p = .001$). Thus, we may assume that the variation among the means is greater than could be reasonably expected to occur by chance, i.e. the three social reinforcement contingencies do have a systematic effect on the performance of Ss.

To test Hypothesis 2, the aforementioned procedure suggested by Winer (1962, p. 67) was carried out. Again, the statistic used to make comparisons among means has the general form:

$$F = \frac{(\sum c_2 T_j)^2}{(n \sum c_2^2) (MS_{\text{error}})} = \frac{SS_{c_2}}{MS_{\text{error}}}$$

c_2 represents a comparison between the effectiveness of Control condition (E nonresponse) and the average of PSR and NSR condition in enhancing performance on the Digit-Symbol Coding Test of grade school Ss. This comparison is used to test the hypothesis that $\frac{m_{\text{PSR}} - m_{\text{NSR}}}{2} - m_{\text{CONTROL}} = 0$

The component of the sum of squares (SS_{c_2}) was found to be 7.15. The numerical value of the observed F was found to be .39. This observed F ratio does not exceed the critical value of 3.93 for an $F_{.95}$ with 1 and 117 degrees of freedom. Consequently, the null hypothesis must be retained. Control condition does not impede performance on the Digit-Symbol Coding Test of grade school Ss to a greater degree than PSR and NSR. Interestingly, inspection of the adjusted means for the three levels of reinforcement (Table 8) reveals that the motivational potency of the Control condition is far superior to that of NSR and is almost as effective as PSR in facilitating performance on the criterion measure.

Research Question Two

Are Black and white Ss differentially motivated to achieve in response to a black E's statement of praise (PSR), reproof (NSR) or nonresponse (Control)?

Hypothesis 3: PSR coming from a black E will elicit better performance for black Ss than for white Ss.

Null hypothesis: $H_0: m_1 \leq m_2$, where m_1 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test for black Ss and m_2 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test for white Ss.

Means and standard deviations for the pretest achievement scores of black and white Ss is given in Table 9, while Table 10 presents the means and standard deviations for the posttest scores. Means adjusted for the covariate (the pretest scores) are also reported in Table 10. The adjusted means for the performance of black and white Ss on the criterion measure are 48.49 and 49.77, respectively.

Reference to the analysis of covariance summary table (Table 6) reveals that the main effect for the race factor is indeed significant, ($F = 8.16$, $df = 1/117$, $p < .005$). Thus, the performance (achievement) of black and white Ss on the Digit-Symbol Coding task in response to differential social reinforcers differs significantly. In contrast, the first order interaction of Race by levels of Reinforcement ($R \times I$) falls short of significance ($F = 1.21$, $df = 2/117$, $p < .302$). Thus, we are compelled to accept the null hypothesis. PSR coming from a black E does not elicit better performance for black Ss than for white Ss.

Hypothesis 4: NSR coming from a black E will elicit better performance for black Ss than for white Ss.

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score on the Digit-Symbol Coding test for black Ss and m_2 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test for white Ss.

Reference to Table 4 reveals that although the main effect for the Race factor is significant ($F = 8.16$, $df = 1/117$, $p < .005$), the first order interaction of Race by levels of Reinforcement ($R \times I$) does not reach significance ($F = 1.21$, $df = 2/117$, $p < .302$). Thus, we must infer that the null hypothesis is valid. NSR coming from a black E does not elicit better performance for black Ss than for white Ss. Moreover, examination of the within cell means and associated variances (Table 5) reveals that under the NSR condition, black Ss exhibited a greater dispersion in performance than did white Ss, i.e. there was greater variation in achievement scores for black Ss than for white Ss when censure-reproof (NSR) was administered by a black E.

Hypothesis 5: Control condition (E nonresponse) coming from a black E will elicit better performance for black Ss than for white Ss.

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test for black Ss and m_2 is defined as the adjusted mean achievement score on the Digit-Symbol Coding Test for white Ss.

Results of the covariance analysis (Table 6) reveals that although the main effect for the Race factor is significant ($F = 8.16$, $df = 1/117$, $p > .005$), the first order

interaction of Race by levels of treatment (RxI) does not reach significance ($F = 1.21$, $df = 2/117$, $p > .302$). Thus, the null hypothesis is accepted. Control condition (E non-response) does not elicit better performance for black Ss than for white Ss. (See Figures 1-2.)

Research Question Three

Are Ss who are at different developmental levels differentially motivated to achieve by PSR and NSR?

Hypothesis 6: PSR and NSR have a differential motivational effect for Ss who are at different developmental levels, so that older Ss are more motivated to achieve by NSR and younger Ss are more motivated to achieve by PSR.

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score for older Ss assigned to PSR condition and m_2 is defined as the mean adjusted achievement score for younger Ss assigned to the PSR condition.

Null hypothesis: $H_0: m_1 \geq m_2$, where m_1 is defined as the adjusted mean achievement score for younger Ss assigned to the NSR condition and m_2 is defined as the mean adjusted achievement score for older Ss assigned to the NSR condition.

The pre- posttest within cell means and standard deviations for the four grade levels are given in Tables 4 and 5. For second and third grade Ss assigned to the PSR

treatment condition, the posttest means range from 22.44-34.50, while the cell means of posttest achievement scores for Ss in grades 5-6 ranges from 36.89-54.50. For second and third grade Ss assigned to the NSR treatment condition posttest means range from 25.43-28.75, while the posttest means for Ss in grades 5-6 ranges from 41.00-50.67. Gain scores for the four levels of grade are reported in Appendix E. Table 11 presents the pretest marginal means for grades 2, 3, 5, and 6, while the means and standard deviations of marginal posttest achievement scores are displayed in Table 12. Means adjusted for the covariate are also given in Table 12. The adjusted means for grades 2, 3, 5, and 6 are 23.07, 29.25, 33.65, and 36.73 respectively.

Subjecting the data to covariance analysis (Table 6) resulted in a significant main effect for the four levels of grade ($F = 8.23$, $df = 3/117$, $p < .001$). This significant main effect indicates that the variation among the adjusted achievement mean scores for the four levels of grade is greater than could be reasonably expected to occur by chance. However, to assess whether there was a significant difference in the performance of Ss from grades 2-3 to that of 5-6, a comparison among treatment means was carried out (Winer, 1962, p. 67). This comparison was made in an effort to test the null hypothesis $m_{2-3} - m_{5-6} = 0$. The statistic

used for purposes of testing the foregoing hypotheses was

$$F = \frac{(\sum C_1 T_j)^2}{(n \sum C_1^2) (MS_{\text{error}})}$$

The numerical value for the observed

F Ratio was found to be 4.26. The critical value for $F_{.95}$ (1/117) degrees of freedom is 3.93. Thus, the observed F Ratio exceeds the critical value and the null hypothesis must be rejected. There is a significant difference in performance of Ss from grades 2-3 and 5-6 on the Digit-Symbol Coding Test across the three treatment conditions.

However, the analysis of covariance procedure (Table 6) yielded a nonsignificant first order interaction for levels of reinforcement by grade ($I \times G$), ($F = 2.01$, $df = 6/117$, $p < .07$). Thus, null hypothesis a and b must be retained. PSR and NSR do not have a differential motivational effect for Ss who are at different developmental levels. In effect the motivational strategy of NSR does not elicit significantly better performance on the Digit-Symbol Coding Test for older Ss than for younger Ss. Neither does PSR elicit significantly better performance for younger Ss than for older Ss. (Figures 2-4 portray these findings.)

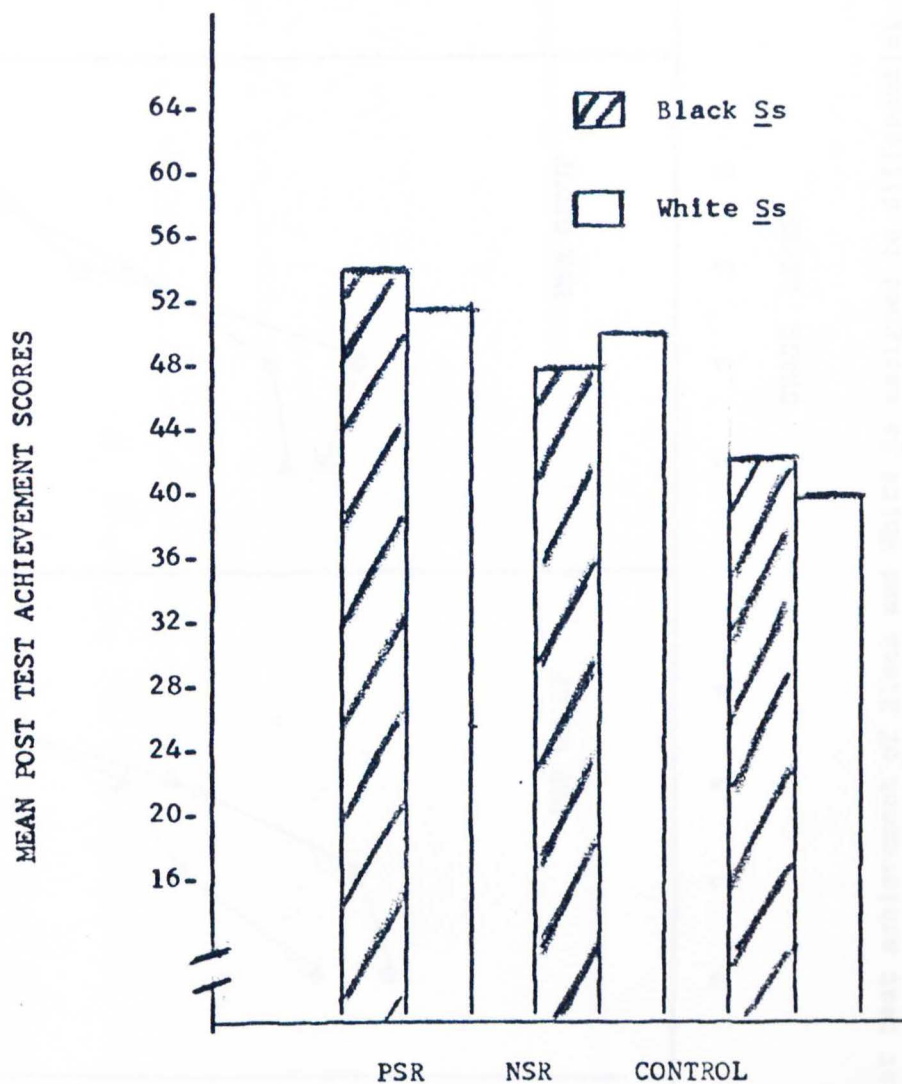


Figure 1. Achievement level of Black and White Ss on the Digit Symbol Coding Test as a function of treatment group assignment to one of three social reinforcement contingencies.

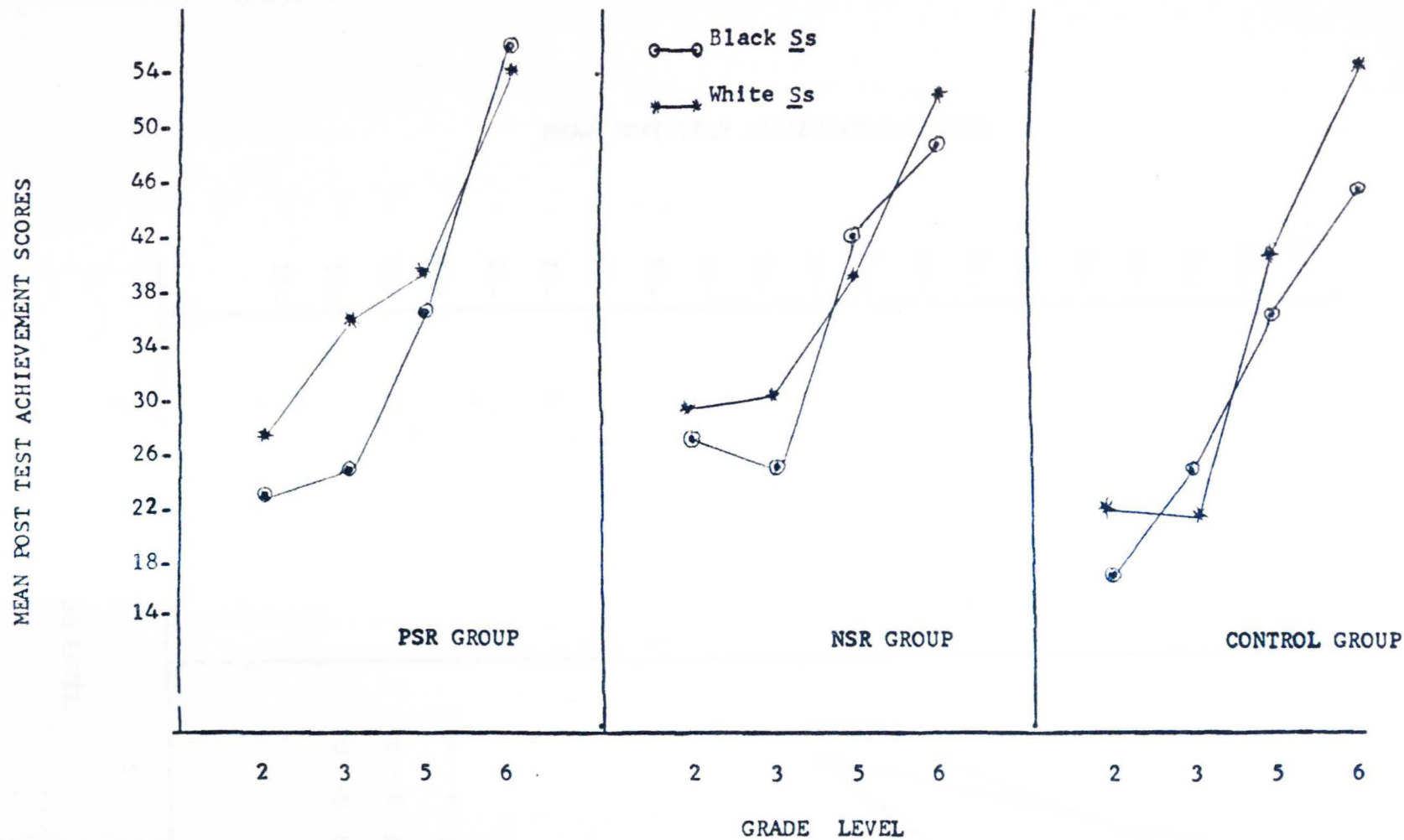


Figure 2. Mean post test achievement of Black and White Ss assigned to differential social reinforcement contingencies.

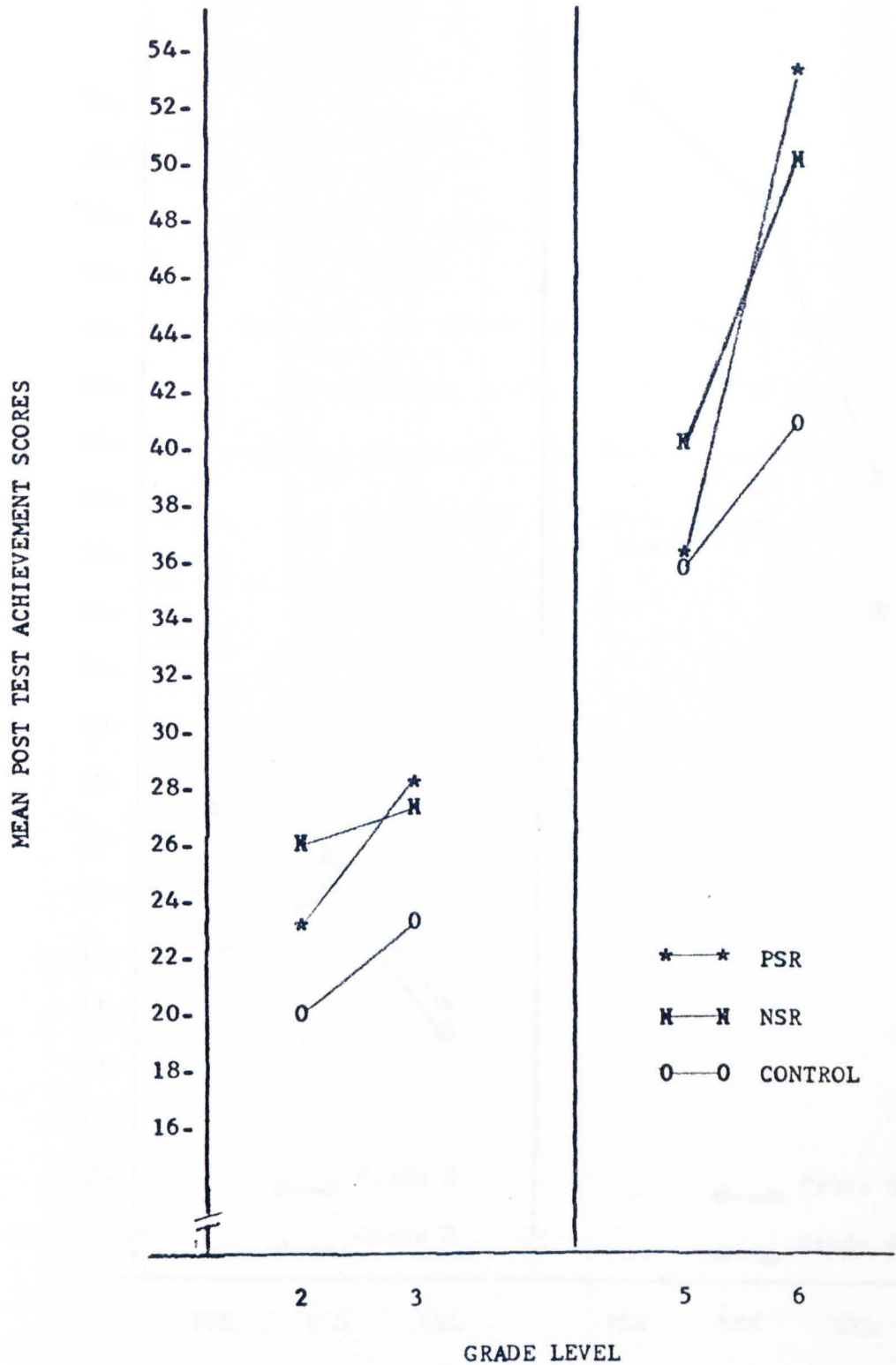


Figure 3. Achievement level of Ss assigned to the three treatment conditions for grades 2,3,5 and 6.

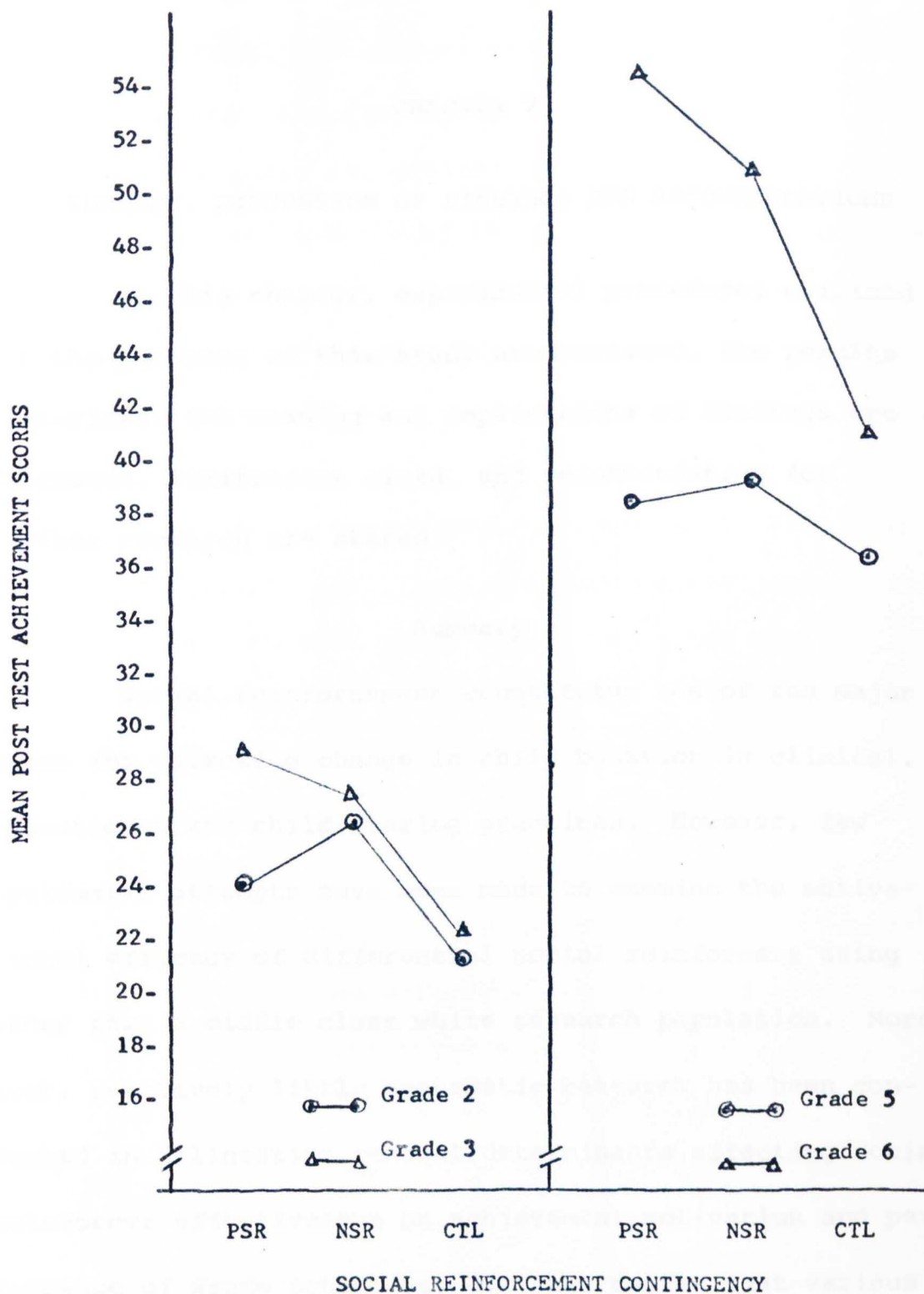


Figure 4. Mean post test achievement of Ss at various developmental levels assigned to differential social reinforcement conditions.

CHAPTER V

SUMMARY, DISCUSSION OF FINDINGS AND RECOMMENDATIONS

In this chapter, experimental procedures utilized for the purposes of this study are reviewed, the results summarized, the meaning and implications of findings are discussed, limitations cited, and recommendation for further research are stated.

Summary

Social reinforcement constitutes one of the major means for effecting change in child behavior in clinical, educational and child rearing practices. However, few systematic attempts have been made to examine the motivational efficacy of differential social reinforcers using other than a middle class white research population. Moreover, relatively little systematic research has been conducted in delineating central determinants affecting social reinforcer effectiveness on achievement motivation and performance of grade school ss, e.g. the degree that various demographic examiner-subject characteristics affect the

motivational impact of differential social reinforcers. From this context, the current study was designed to fill, at least in part, the aforementioned research gap.

Essentially, the present study was designed with the purpose of assessing the motivational potency of differential social reinforcers for black and white, low socioeconomic status Ss at varying developmental levels. To accomplish this purpose, the following research hypotheses were formulated and tested:

1. Positive Social Reinforcement (PSR) will have a greater facilitative effect on the performance of low SES, grade school Ss on the Digit-Symbol Coding Test (DSCT) than will the condition of Negative Social Reinforcement (NSR).
2. Control condition (E's nonresponsiveness) will impede performance on the Digit-Symbol Coding Test of low SES, grade school Ss to a greater degree than will Positive (PSR) and Negative (NSR) Social Reinforcement.
3. PSR administered by a black E will elicit better test performance on the Digit-Symbol Coding Task (DSCT) for black Ss than for white Ss.
4. NSR administered by a black E will elicit better test performance on the DSCT for black Ss than for white Ss.

5. Control condition (E's nonresponsiveness) coming from a black E will elicit better test performance on the DSCT for black Ss than for white Ss.
6. PSR and NSR have a differential motivational effect for Ss who are at different developmental levels, so that older Ss will exhibit better test performance on the DSCT under the condition of NSR while younger Ss will exhibit better performance on the DSCT in response to PSR.

Summary of Procedures

One hundred forty-two black and white, lower class Ss pooled from grades 2, 3, 5, and 6 were assigned randomly to one of two female Es and to one of three experimental treatment conditions. Socioeconomic status was ascertained by S's meeting eligibility requirements for participation in the County's Free School Lunch Program (see Appendix A). The Warner's Index of Social Characteristics (1949) was used as an adjunct criteria for social class assignment. Only lower socioeconomic status, male Ss were included in the study. Excluded from this research sample were Ss who were judged by their teachers to be incapable, cognitively or emotionally, to sustain the experimental procedure.

All Ss were tested individually by one of two female, black Es. The experimental task was a Digit-Symbol Coding

Test (DSCT), a task which lends itself well in measuring effortful striving and achievement motivation. The rate of responding on the DSCT was the principal dependent (criterion) measure used in this study. The rationale for adopting the DSCT as the experimental task was discussed in Chapter III.

All Ss, regardless of treatment group assignment, were exposed to a pre-reinforcement run (baseline period) during which E was attentive but neutral to S's performance on the DSCT-Form I. Upon completion of Form I, as per instruction and within the specified time limit, the E examined the test form so as to impress upon the S that an evaluation of his performance adequacy was being made. Following this procedure, each E administered one of three randomly assigned evaluative feedback reinforcement contingencies, e.g. statement of praise-approval, censure-reproof, or no verbal feedback. The particular feedback reinforcement contingency received by a given S was randomly determined and was not related to the S's actual level of performance. Following these differential reinforcement feedback contingencies, each S was asked to work on Form II of the DSCT in accordance with previous instructions. In scoring the DSCT protocols both rate of responding (number attempted) and quality of performance (number of correct)

were recorded. However, discrepancy between these two measures proved to be negligible. Thus, it was decided to use rate of responding on the DSCT as the principal dependent (criterion) measure.

The findings of this study were obtained through the implementation of the design discussed in Chapter III. The Biomedical computer program package BMDUØM-MANOVA was utilized to carry out the computational aspects of the analysis. The classification variables of social reinforcement, race and grade (developmental) level, produced a 3x2x4 multidimensional factorial arrangement. A special ANCOVA program (Appendix E) was utilized to ascertain that the data met the essential assumption of analysis of covariance design, principally that of homogeneity of regression. Following this procedure, covariance analysis was applied to the criterion measure, adjusting for the effects of the concomitant variable, the pretest achievement score on the DSCT. In addition, analysis of variance was carried out on the mean difference (gain) scores of pre- posttest trials across the three experimental treatment conditions. In interpreting the F ratio resulting from the analysis of variance/covariance procedures, a α .05 level of significance was selected as the level for rejecting the null hypotheses.

Summary of Results and Discussion

The following conclusions can be justified for the population tested and within the limitations of this investigation:

1. The proposition that PSR (praise-approval) enhances the performance of low SES, grade school Ss to a greater degree than does NSR (censure-reproof) was not supported by the findings of this study.

Nevertheless, the main effect for the three levels of reinforcement proved to be statistically significant ($p < .001$). Thus indicating that the three social reinforcement contingencies do indeed have a systematic effect on the performance of Ss on the DSCT. However, although the adjusted mean achievement for the PSR group was superior to that of the NSR group, the difference was found to be statistically nonsignificant.

It is possible, of course, that the opposite relationship than that predicted exists in fact, i.e. NSR serves to facilitate performance by increasing motivation to achieve, whereas PSR has a negligible effect on performance and in motivating Ss to achieve. This reasoning coincides with the formulation advanced by Brackbill and O'Hara (1958). Other authors have echoed this view and anchor their findings within the context of the "attentional hypothesis" (Stevenson,

Weir & Zigler, 1959). According to this proposition, NSR increases a S's attentional level and arouses increased awareness to cues within his environmental matrix. In contrast, PSR serves to distract S from paying attention to important cues related to the problem task and thus impairs the level of performance and learning. Certainly, the findings of this study, although not wholeheartedly endorsing this speculation, lend marginal support for the "attentional hypothesis."

Findings of this study most definitely, do not concur with the results reported by Katz et al. (1968), viz. that PSR has a definite greater facilitative effect on learning and performance than does NSR. Moreover, findings of the present study casts doubt on the credibility of the "developmental hypothesis" advanced by Zigler and Kanzer (1962) and Havighurst (1970). Lower class Ss do not exhibit statistically significantly better performance in response to PSR than in response to NSR. Thus Havighurst's proposition that low SES Ss are lower in the "evolutionary reward scale," must be re-examined in view of the findings of the current study.

2. The proposition that E's nonresponsiveness (Control condition) impedes performance on the DSCT of lower class Ss to a greater degree than does PSR and NSR was not supported by the findings of this study.

Interestingly, there is some indication that the motivational potency of the Control condition is far superior to the NSR condition and almost approaches that of the PSR condition (Table 8, page 63). These results concur with the findings of Amsel (1962) and Crandall (1963, 1964). It appears that E nonresponsiveness, nonreaction have active reinforcing value. Moreover, E nonresponsiveness very often serves as a definite discrimination cue, actively influencing S's learning and performance in a subtle manner (Amsel, 1962). Thus, it can be conjectured that E nonresponsiveness or non-feedback has both, reinforcing and information value for the S. Of course, the degree to which Control condition assumes cue or reinforcing value depends, to a large extent, on S's prior experience with such communication parameters (Baron, 1966; Solomon & Yaeger, 1969).

3. The proposition that PSR (praise-approval) coming from a black E will elicit better performance for black Ss than for white Ss was not supported by findings of this study.

4. The proposition that NSR (censure-reproof) coming from a black E will elicit better performance for black Ss than for white Ss was not supported by findings of this study.

5. The proposition that a black E's nonresponsiveness (Control condition) will elicit better performance for black Ss than for white Ss was not supported by findings of this study.

Relevant to Hypotheses 3-5, covariance analysis revealed (Table 6, page 62) that although the main effect for the reinforcement factor was significant ($p < .005$), the first order interaction of race by levels of reinforcement (RxI) did not approach statistical significance ($p < .302$). Thus, the data offers little evidence to sustain the aforementioned directional hypotheses. As such, we must infer that black and white Ss are not differentially affected motivationally by a black E's administration of differential social reinforcers.

Nevertheless, closer scrutiny of Table 5, page 61, and Figure 2, page 77, reveals that research Hypothesis 3 may at least be partially supported. It appears that younger white Ss (grades 2-3) exhibit a greater increment in level of performance on the DSCT than do black Ss at the same developmental level when PSR is administered by a black E. However, for older white Ss (grades 5-6), PSR administered by a black E has the effect of producing a considerable amount of scatter or dispersion in mean achievement on the DSCT. In contrast, older black Ss (grades 5-6) exhibit uniformly, better level of performance on the DSCT than their white contemporaries.

It would appear from these findings that a black adult (E) is a particularly effective reinforcing (socializing) agent for younger white Ss and for older black Ss. This

result is consistent with some of the findings reported by Allen et al. (1966) and Katz et al. (1968). Interestingly, the later authors found that black Es are very effective reinforcing agents for white Ss, regardless of the developmental level of Ss.

Nevertheless, the conclusions derived from testing of Hypothesis 3, however, contradict the findings reported by Kennedy and Willicut (1963), viz. PSR when administered by a black E elicits significantly better levels of performance for black Ss. However, it can be argued that Kennedy and Willicut's results are attributable to the fact that male black Es were employed, whereas in the present study female black Es were utilized. As noted in Chapter II, the "cross sex effect" variable is a very important determinant of social reinforcer effectiveness in facilitating learning and performance.

The conclusions derived from testing of Hypothesis 4 contradict the findings reported by Kennedy and Vega (1965) and fails to support the rationale advanced by Katz et al. (1968). The later authors present a convincing rationale to account for the finding that black Ss respond to NSR administered by black Es with significant increments in performance level, while white Ss respond to the same reinforcement-feedback contingency with a decrement in performance level.

Katz et al. assert that black Ss tend to regard black Es as more predisposed than white Es to like them, evaluate their efforts fairly, and reward them with genuine approval. As such, censure-reproof (NSR) coming from a white E tends to confirm a black S's expectation of failure and rejection. However, for black Ss, censure-reproof (NSR) coming from a black E is only a signal that greater effort is required to gain approbation. Despite the plausibility of this rationale, the present study failed to empirically validate the prediction contained in Hypothesis 4. Interestingly, examination of the within cell posttest standard deviations of black and white Ss assigned to the NSR condition (Table 5, page 61) reveals that when NSR is administered by a black E to black Ss, a marked dispersion or scattering in test performance results.

The conclusions derived from testing of Hypothesis 5 suggests that there is a statistically negligible difference in performance of black and white Ss in response to a black E's nonresponsiveness (Control condition). A number of authors invoke a mediational theoretical model to account for the varied results obtained when the Control condition is in effect (Barron, 1966; Gewirtz & Baer, 1958; Solomon & Yaeger, 1969). These authors view the motivational impact of the Control condition, as well as that of PSR and NSR, as

being mediated by the S's past experiences with such reinforcer-feedback contingencies. Thus, the S's base of experience with differential social reinforcers determines, in part, his affinity and responsitivity to current reinforcer-feedback input.

6. The prediction that PSR and NSR have a differential motivational effect for Ss at different developmental levels, so that older Ss are more motivated to achieve by NSR and younger Ss are more motivated to achieve by PSR, was not supported by findings of this study.

Although the covariance analysis (Table 6, page 62) resulted in a statistically significant main effect for levels of grade ($p < .001$), the first order interaction for levels of reinforcement by grade ($I \times G$) proved to be only marginally significant ($p < .070$). Of course, this finding casts doubt on the credibility of the "developmental hypothesis," i.e. the prediction that a child with increasing age comes to rely more heavily on reinforcers and feedback intrinsically related to his actions and less reliant on reinforcers and feedback extrinsically based (Beller, 1955; Gewirtz, 1954; Zigler & Kanzer, 1962). Contrary to the present findings, previous research has shown that: (a) a direct positive relationship exists between a S's increasing developmental level and the motivational potency of NSR, and (b) that an inverse

relationship exists between a S's increasing developmental level and the motivational potency of PSR (Allen, 1966; Brackbill & O'Hara, 1958; Hurlock, 1924). Of course, the foregoing reported results form the empirical basis for the "developmental hypothesis."

It can be argued that the failure of the present study to sustain the developmental hypothesis was due, in part, to various methodological flaws of the current investigation. It is possible that if Ss in the present study were equated on urban-rural residence background, social reinforcement history, internality-externality dimension, and a host of other cognitive, personality and demographic characteristics, the predictions generated from the developmental hypothesis would have been confirmed. It is also conceivable that if the present study would have utilized both male and female Es and male and female Ss different findings would have resulted. As such, the developmental hypothesis may indeed be viable, although the present study failed to empirically validate it.

Limitations of the Study

The following conjectures may be advanced to account for the failure of the present findings to confirm the major research hypotheses:

1. Unlike previous research findings, upon which the major hypotheses were based, the present research was limited to a relatively small number of subjects assigned to the various levels of treatment (see Table 1, page 44).
2. Unlike previous research findings, upon which the major hypotheses were based, the present investigation did not equate Ss in terms of urban-rural residence background.
3. Unlike previous research findings, upon which the major hypotheses were based, the present study was limited to only male Ss and female Es.
4. Unlike previous research findings, upon which the major hypotheses were based, the present study utilized only Negro Es.
5. Unlike previous research findings, upon which the major hypotheses were based, the present research did not employ "marble in the hole" (MITH) game test situations as the experimental task.
6. Unlike previous research findings, upon which the major hypotheses were based, the present investigation study failed to control E's gestural, kinesic and tonal channels of communication while differential verbal reinforcing statements were emitted by E.

Recommendations for Further Research

Although the major research hypotheses were not confirmed in the present investigation, they do warrant further clarification and study. A few of the suggestions for future research arising from the pursuit of the present study are the following:

1. Replication of this study employing a larger population sample across the three treatment conditions and a wider variety of representative age groups.
2. Replication of this study employing both male and female Ss, as well as male and female Es. The "cross-sex effect" variable affecting social reinforcer efficacy needs to be given closer research scrutiny.
3. Replication of this study employing biracial Es and Es of different socioeconomic backgrounds. It is conceivable that racial and demographic characteristic of the E often plays a crucial role in the potency of differential social reinforcers especially for Ss handicapped by lower class and lower caste. Schmidt (1941) originally echoed this thought when he suggested that test scores be calibrated in terms of personality and demographic characteristics of the (tester) E.
4. Further research should consider the salient effects of various moderator variables on social reinforcer efficacy, e.g. role of self concept and S's affinity for particular reinforcement-feedback contingencies. Other variables that need to be explored further include S's need for approval, general level of expectancy, cognitive-affective maturity, internality-externality, etc.
5. There is a need to replicate this study employing social reinforcement-feedback contingencies which are response contingent.
6. There is a need to replicate this study equating Ss across treatment conditions for urban-rural residence background.
7. There is a need to replicate this study, controlling for instructional set and controlling for E's gestural, kinesic and tonal channels of communication while the verbal reinforcer is emitted by E.

Certainly, questions related to the effects of

differential social reinforcement-feedback contingencies on child performance and learning merit further research and study. Hopefully, the incorporation of the aforementioned methodological considerations will enable future researchers to discern more effectively, the salient variables affecting the motivational potency of differential social reinforcers, particularly for the socioeconomically disadvantaged learner.

APPENDIX A

FAMILY SIZE INCOME SCALE-NATIONAL INCOME

POVERTY GUIDELINES

[illegible]

Neither the child or any member of his family will be required to supply an equivalent value in work for the school or the school's lunch program.

APPENDIX B

DIGIT-SYMBOL CODING TEST

FORMS I AND II

DSCT - FORM I

1	÷	2	)	3	+	4	+	5	+	6	+	7	+	8	÷	9	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

2	1	4	6	3	5	2	1	3	4	2	1	3	1	2	3	1	4	2	6	3	1	2	5	1
3	1	5	4	2	7	4	6	9	2	5	8	4	7	6	1	8	7	5	4	8	6	9	4	3
1	8	2	9	7	6	2	5	4	7	3	6	8	5	9	4	1	6	8	9	3	7	5	1	4
9	1	5	8	7	6	9	7	8	2	4	3	3	5	6	7	1	9	4	3	6	2	7	9	3

Correct _____
 Score: _____
 # Attempted _____

Student's Research Id. Number:

Date:

DSCT - FORM II

1	2	3	4	5	6	7	8	9
+	0	-	7	V	(	-	+	*

2	1	4	6	3	5	2	1	3	4	2	1	3	1	2	3	1	4	2	6	3	1	2	5	1

3	1	5	4	2	7	4	6	9	2	5	8	4	7	6	1	8	7	5	4	8	6	9	4	3

1	8	2	9	7	6	2	5	4	7	3	6	8	5	9	4	1	6	8	9	3	7	5	1	4

9	1	5	8	7	6	9	7	8	2	4	8	3	5	6	7	1	9	4	3	6	2	7	9	3

Student's Research Id. Number:

Date: _____

Correct _____
Score: _____
Attempted _____

1. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9. The first row of the DSCT--FORM II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

APPENDIX C

INSTRUCTIONS FOR THE ADMINISTRATION OF THE

DSCT--FORMS I AND II

1. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9. The first row of the DSCT--FORM II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

2. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

3. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

4. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

5. The first square of the DSCT--FORM I and II is a 3x3 square. The first row contains the numbers 1, 2, and 3. The second row contains the numbers 4, 5, and 6. The third row contains the numbers 7, 8, and 9. The first column contains the numbers 1, 4, and 7. The second column contains the numbers 2, 5, and 8. The third column contains the numbers 3, 6, and 9.

INSTRUCTIONS FOR THE ADMINISTRATION OF

DSCT--FORMS I AND II

DIRECTIONS: E places the test before the S and, pointing to the key, says, Look at these boxes. Notice that each has a number in the upper part and a symbol in the lower part. Every number has a different symbol. Now look here pointing to samples where the upper boxes have numbers but the squares beneath have no symbols. You are to put in each of these squares the mark that should go there, like this point to key, then to samples. Here is a 2, so you would put in this mark. Here is a 1, so you put in this symbol. Here is a 3, so you put in this symbol.

E writes in the first three symbols as demonstration, then provides S with a pencil and has him complete the seven remaining items of the sample. E points to the line separating the samples from the test proper and says Now you do it for these numbers as far as this line.

If S does not grasp the task, help him with more items until the ten sample items have been completed. After the demonstration and practice, point to the first square following the samples and say, Now, when I tell you to begin, start here and fill in as many squares as you can without skipping any. Ready, begin!

If a S starts to omit squares or does only one type of figure, say Do them in order and don't skip any.

TIME LIMIT: 60 seconds. Start timing when the S is told to begin after the sample items have been done.

WARNING: Timing must be precise.

APPENDIX D

ANALYSIS OF COVARIANCE PROGRAM FOR THE HOMOGENEITY OF REGRESSION TEST

ANALYSIS OF COVARIANCE PROGRAM (ANCOVA)

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 College of Education
 University of Maryland
 Telephone X3747

PURPOSE

ANCOVA performs analysis of covariance on a one-dimensional design with multiple covariates and conducts the appropriate homogeneity of regression test. There is program accounting for missing data and no cell counts are required.

FEATURES

- a. Up to 100 levels of the analysis of variance design
- b. Up to a total of 99 variables including criteria and covariates
- c. As many as 9 variable format cards
- d. If level codes are not successive positive integers, a REMAP feature permits respecification of the level codes
- e. Missing data is accounted for in the sense that cases with blank data fields are omitted from the analysis
- f. Data may be reanalyzed with new criterion and new covariates; up to 999 reanalyses are permitted on one run
- g. One criterion variable and up to 10 covariates per analysis

DATA PREPARATION

1. Label cards - the first two (2) cards are punched with alphameric information. These provide a label for the output.
2. Problem Card

Card Columns

1 - 4	PROB
6 - 7	Total number of variables (criteria and covariates)
8 -10	Number of levels in the one-way design
11	Number of variable format cards
12	punch 1 if REMAP feature is used
13 -15	Number of REANALYSIS cards
16 -17	Logical input tape number (5 assumed if blank) <i>09</i>

3. REMAP cards (optional)

If level codes are not consecutive integers, punch the level codes used on the data cards in four-digit fields (2014 format); use more than one REMAP card if necessary. Example: if the level codes were punched as 11, 12, 21, and 22, the REMAP would be 0011001200210022

4. Selection card

Card Column

1 - 2	Index of the criterion variable	(The "index of a variable is its serial position among the total set of variables which are read from data cards)
3 - 4	Number of covariates	
5 - 6	Index of first covariate	
7 - 8	Index of second covariate	
23 -24	Index of tenth covariate	

5. Variable format card(s)

The level code must be in I format while the data fields are in F format; the level code must precede the first data field. Example: if the level code were punched in column 3 and variables in columns 10-11 and 15-16, the variable format would be (2X,11,3X,2(3X,F2.0))

6. Data cards - punched in conformity with the variable format: the last data input record must be blank in all score fields; if the data input record consists of single punched card, insert a single blank card as the last data card. If each data input record consists of two or more punched cards, insert blank cards to equal the length of a data input record. The blank cards signal the end of the data.

7. REANALYSIS Cards

Same as Selection cards (see 4., above)

SUMMARY OF JOB DECK SETUP

1. Two (2) alphameric label cards
2. Problem Card
- (3.) REMAP cards (optional)
4. Selection Card
5. Variable format card(s)
6. Data cards followed by a blank data input record
7. REANALYSIS Card(s)

OUTPUT

1. Analysis of variance summary for the specified criterion variable.
2. Vectors of within-group and total-group regression coefficients (in z score form).
3. Analysis of covariance summary table showing adjusted sums of squares
4. Sums of squares, mean squares, and F ratio for the homogeneity of regression test

APPENDIX E

CELL MEANS, STANDARD DEVIATIONS, AND ANALYSIS OF
VARIANCE DATA ON GAIN ($\bar{D}$) SCORES

TABLE 13

SUMMARY TABLE OF WITHIN CELL MEANS AND STANDARD DEVIATIONS OF
GAIN SCORES ON A MEASURE OF ACHIEVEMENT (N=142)

GRADE	BLACK <u>Ss</u>						WHITE <u>Ss</u>					
	PSR		NSR		CONTROL		PSR		NSR		CONTROL	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
2	2.33	3.74	2.29	5.74	-1.38	2.77	4.17	3.55	4.43	2.37	-2.00	3.61
	N=9		N=7		N=8		N=6		N=7		N=5	
3	-2.60	5.13	-1.86	3.93	-3.67	3.07	3.33	3.14	2.25	5.74	-5.00	2.94
	N=5		N=7		N=6		N=6		N=4		N=4	
5	1.78	2.82	1.60	2.51	-2.25	6.34	5.33	4.32	4.67	3.16	2.33	3.98
	N=9		N=5		N=8		N=6		N=9		N=6	
6	10.38	3.19	6.40	8.50	-1.20	4.21	5.33	9.29	4.00	3.46	-5.00	3.66
	N=6		N=5		N=5		N=3		N=3		N=3	

TABLE 14

MEANS AND STANDARD DEVIATIONS FOR GAIN SCORES
ON A MEASURE OF ACHIEVEMENT BEHAVIOR
(N=142)

Factor	Level	N	Mean	SD
Reinforcement	PSR	50	3.56	5.15
	NSR	45	-1.96	4.36
	Control	47	2.23	5.30
Race of <u>S</u>	White	62	3.56	3.35
	Black	80	2.22	2.90
Grade Level	2	42	.86	4.49
	3	32	-1.22	4.74
	5	43	2.19	4.63
	6	25	4.16	7.45

TABLE 15

MEANS AND STANDARD DEVIATIONS OF PRETEST ACHIEVEMENT
SCORES FOR THE GRADE LEVEL FACTOR
(N=142)

Level	N	Mean	SD
Grades 2 and 3	74	23.91	6.33
Grades 5 and 6	68	38.63	8.15

TABLE 16

ADJUSTED AND UNADJUSTED MEANS AND STANDARD DEVIATIONS
OF POSTTEST ACHIEVEMENT SCORES FOR THE
GRADE LEVEL FACTOR
(N=142)

Level	N	Mean		SD
		Adjusted	Unadjusted	
Grades 2 and 3	74	30.17	23.91	6.87
Grades 5 and 6	68	34.73	41.54	10.02

TABLE 17

ANALYSIS OF VARIANCE SUMMARY TABLE OF GAIN SCORES FOR THE EFFECTS OF RACE OF
SUBJECT, REINFORCEMENT CONTINGENCY AND GRADE LEVEL ON A MEASURE
OF ACHIEVEMENT BEHAVIOR
(N=142)

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F	Probability Less Than
WITHIN CELLS					
REGRESSION	2193.747	118	18.591		
RACE (R)	136.748	1	136.748	7.356	.008
REINFORCEMENT (I)	769.186	2	384.593	20.687	.001
GRADE LEVEL (G)	463.662	3	154.554	8.313	.001
RxI	51.524	2	25.762	1.386	.254
RxG	256.350	3	85.450	4.596	.004
IxG	214.991	6	35.832	1.927	.082
RxIxG	121.910	6	20.318	1.093	.371

REFERENCES

REFERENCES

- Adelman, H. S. The effects of social reinforcement upon achievement expectancy in underachieving and achieving boys. Unpublished doctoral dissertation, University of California, 1966.
- Allen, S. A. The effects of verbal reinforcement on children's performance as a function of type of task. Journal of Experimental Child Psychology, 1966, 3, 57-73.
- Allen, S. A., Dubanski, R. A., & Stevenson, H. W. Children's performance as a function of race of examiner, race of subject, and type of verbal reinforcement. Journal of Experimental Child Psychology, 1966, 4, 248-256.
- Amsel, A. Frustrative non-reward in partial reinforcement and discrimination learning: Some recent history and a theoretical extension. Psychological Review, 1962, 69, 306-328.
- Anderson, H. H. Motivation of young children: Further studies in success and failure, praise and blame. Child Development, 1936, 7, 125-143.
- Anderson, T. W. An introduction to multivariate statistical analysis. New York: John Wiley and Sons, 1958.
- Atiqullah, M. The robustness of the covariance analysis of a one-way classification. Biometrika, 1964, 51, 365-372.
- Atkinson, J. W. Motives in fantasy, action and society. Princeton, N.J.: D. Van Nostrand, 1958.
- Baer, D. M. Effect of withdrawal of positive reinforcement on an extinguishing response in young children. Child Development, 1961, 32, 67-74.
- Bagdikian, B. H. In the midst of plenty: A new report on the poor in America. Boston: Beacon Press, 1964.

- Bandura, A., & Walters, R. H. Social learning and personality development. New York: Holt, Rinehart & Winston, 1963.
- Barber, X., & Silver, M. Fact, fiction, and the experimenter bias effect. Psychological Bulletin, 1968, 70(6, Pt. 2), 1-29.
- Baron, R. M. Social reinforcement effects as a function of social reinforcement history. Psychological Review, 1966, 73, 527-539.
- Baron, R. M. The SRS model as predictor of Negro responsiveness to reinforcement. Journal of Social Issues, 1970, 26(2)
- Baron, R. M., Robinson, E. L., & Lawrence S. The effectiveness of social reinforcement as a function of changes in rate of reinforcement. Journal of Experimental Social Psychology, 1968, 4, 123-142.
- Battle, Esther S. Motivational determinants of academic task persistence. Journal of Personality and Social Psychology, 1965, 2, 209-218.
- Battle, E., & Rotter, J. Children's feeling of personal control as related to social class and ethnic group. Journal of Personality, 1963, 31, 482-490.
- Becker, W. C., Arnold, C. H., & Thomas, D. R. The contingent use of teacher attention and praise in reducing classroom behavior problems. Journal of Special Education, 1970, 1, 287-307.
- Beller, E. Dependency and independence in young children. Journal of Genetic Psychology, 1955, 87, 25-35.
- Benton, A. L. Influence of incentives upon intelligence test scores of school children. Journal of Genetic Psychology, 1936, 49, 494-497.
- Berkowitz, H., Butterfield, E.C., & Zigler, E. The effectiveness of social reinforcers on persistence and learning tasks following positive and negative social interactions. Journal of Personality & Social Psychology, 1965, 2, 706-714.

- Blankenship, M. V., & Humes, J. F. The effect of praise and reproof upon memory span performance. American Journal of Psychology, 1938, 51, 527-531.
- Bloom, Benjamin et al. Compensatory education for cultural deprivation. New York: Holt, Rinehart & Winston, 1965.
- Brackbill, Y., & O'Hara, J. The relative effectiveness of reward and punishment for discrimination learning in children. Journal of Comparative and Physiological Psychology, 1958, 51, 747-751.
- Brenner, B. Effect of immediate and delayed praise and blame upon learning and recall. Teachers College Contribution Education, 1934, 6(620),
- Briggs, T. H. Praise and censure as incentives. School & Society, 1927, 26, 596-598.
- Briggs, T. H. Sarcasm. School Review, 1928, 36, 685-695.
- Bronfenbrenner, U. Socialization and social class through time and space. In E. E. Maccoby, T. H. Newcomb, & E. L. Hartley (Eds.), Readings in social psychology. (3rd ed.) New York: Holt, 1958. Pp. 400-425.
- Bronfenbrenner, U. Motivational and social components in compensatory educational programs. In E. Grothberg (Ed.), Critical issues in research related to disadvantaged children. Princeton, N.J.: Educational Testing Service, 1969. Pp. 1-22.
- Brooks, R., Brandt, L., & Wiener, M. Differential response to two communication channels: Socioeconomic class differences in response to verbal reinforcers communicated with and without tonal inflection. Child Development, 1969, 40, 453-469.
- Buchwald, A. M. Variations in the apparent effects of "right" and "wrong" on subsequent behavior. Journal of Verbal Learning and Verbal Behavior, 1962, 1, 71-78.
- Bushel, D., Wrobel, P. A., & Michaels, M. L. Applying group contingencies to the classroom study of behavior of preschool children. Journal of Applied Behavior Analysis, 1968, 1, 55-61.

- Buss, A. H., Braden, W., Orgel, A., & Buss, E. H. Acquisition and extinction with different verbal reinforcement combinations. Journal of Experimental Psychology, 1956, 52, 288-295.
- Buss, A. H., & Buss, E. H. The effect of verbal reinforcement combinations on conceptual learning. Journal of Experimental Psychology, 1956, 52, 283-287.
- Cairns, F. D. Social reinforcement effects on child behavior. Journal of Nursery Education, 1963, 18, 276-284.
- Caldwell, B. M., & Richmond, J. B. Social class level and stimulation potential of the home. Exceptional Infant, 1967, 1, 455-466.
- Caliquiri, J. The self concept of the poverty child. Journal of Negro Education, 1966, 35, 283-286.
- Campbell, J. Testing of culturally different groups. Princeton, N.J.: Educational Testing Service Bulletin, 1964.
- Carpenter, V. L. Motivational components of achievement in culturally disadvantaged Negro children. Unpublished doctoral dissertation, Washington University, 1967.
- Chapman, J. C., & Feder, R. B. The effect of external incentives on improvement. Journal of Educational Psychology, 1917, 8, 469-474.
- Chase, L. Motivation of young children: An experimental study of the influence of certain types of external incentives upon the performance of a task. University of Iowa Student Child Welfare, 1932, 5, No. 3.
- Clark, C. M., & Walberg, H. J. The influence of massive rewards on reading achievement in potential urban school dropouts. American Educational Research Journal, 1968, 5, 305-310.
- Clark, K. Dark ghetto. New York: Harper and Row, 1965.
- Clark, K. B. Educational stimulation of racially disadvantaged children. In A. H. Passow (Ed.), Education in depressed areas. New York: Teachers College, Columbia University, Bureau of Publications, 1963. Pp. 142-162.

- Clark, M., Laschowitz, J., & Wolf, M. A pilot basic education program for school dropouts incorporating a token reinforcement system. Behavior Research and Therapy, 1968, 6, 183-188.
- Clark, R. A., Teevan, R., & Ricciuti, H. N. Hope of success and fear of failure as aspects of need for achievement. Journal of Abnormal and Social Psychology, 1956, 53, 182-186.
- Cochran, W. G. Analysis of covariance: Its nature and uses. Biometrics, 1957, 13, 261-281.
- Coleman, J. F. et al. The equality of educational opportunity. Office of Education, Department of Health, Education and Welfare. Washington: Government Printing Office, 1966.
- Conant, J. Slums and suburbs. New York: McGraw Hill, 1961.
- Cooley, W. W., & Lohnes, P. R. Multivariate procedures for the behavioral sciences. New York: John Wiley, 1962.
- Cox, D. R. Planning of experiments. New York: John Wiley, 1958.
- Crandall, V. J. Achievement. Yearbook of the National Society for the Study of Education, 1963, 62, Part I.
- Crandall, V. J. Induced frustration and punishment-reward expectancy in thematic apperception stories. Journal of Consulting Psychology, 1951, 15, 400-404.
- Crandall, V. J., Dewey, R., Katkovsky, W., & Preston, A. A. Parents' attitudes and behaviors and grade school children's academic achievements. Journal of Genetic Psychology, 1964, 104(1), 53-66.
- Crandall, V. Reinforcing effects of adult reactions and nonreactions on children's achievement expectations. Child Development, 1963, 34, 335-354.
- Crandall, V. C., Good, S., & Crandall, V. J. Reinforcement effects of adult reactions and nonreactions on children's achievement expectations; A replication study. Child Development, 1964, 35, 485-497.

- Crandall, V., Katkovsky, W., & Crandall, V. J. Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. Child Development, 1965, 36, 91-109.
- Crandall, V., Katkovsky, W., & Preston, A. A. Conceptual formulation of some research on children's achievement development. Child Development, 1960, 31, 787-797.
- Crow, L. et al. Educating the culturally disadvantaged child. New York: David McKay Company, 1966.
- Crowne, D. P., & Marlowe, D. The approval motive. New York: John Wiley, 1964.
- Crowne, D. P., & Strickland, B. R. The conditioning of verbal behavior as a function of the need for social approval. Journal of Abnormal and Social Psychology, 1961, 63, 395-401.
- Cuff, N. B. Relationship of socio-economic status to intelligence and achievement. Peabody Journal of Education, 1933, 11, 106-110.
- Curry, C. Supplementary report: The effect of verbal reinforcement combinations on learning in children. Journal of Experimental Psychology, 1960, 59, 434.
- Curry, R. L. The effect of socio-economic status on the scholastic achievement of sixth-grade children. Journal of Educational Psychology, 1962, 32, 46-49.
- Darri, S. K. Level of aspiration as a function of need for achievement and fear of failure. Dissertation Abstracts, 1964, 20, 4304.
- Davidson, H. H. Characteristics of successful school achievers from a severely deprived environment. New York: City College School of Education, 1963. (Mimeographed.)
- Davidson, H. H., & Greenberg, J. W. School achievers from a deprived background. New York: Association of Educational Service Corporation, 1967.
- Davis, K. The child and the social structure. Journal of Educational Sociology, 1940, 14, 217-229.

- Davis, R. A., & Ballard, C. R. Effectiveness of various types of classroom incentives. Educational Methods, 1932, 12, 134-145.
- Deutsch, M. The disadvantaged child and the learning process. In A. H. Passow (Ed.), Education in depressed areas. New York: Columbia University, 1963. Pp. 163-179.
- Deutsch, M. Minority groups and class status as related to social and personality factors in scholastic achievement. Society for Applied Anthropology Monograph, 1960, No. 2.
- Deutsch, M., & Brown, B. Social influences in Negro-white intelligence differences. Journal of Social Issues, 1964, 20, 24-35.
- Dinsmoor, J. A. Punishment: I. The avoidance hypothesis. Psychology Review, 1954, 61, 34-46.
- Dinsmoor, J. A. Punishment: II. An interpretation of empirical findings. Psychology Review, 1955, 62, 96-105.
- Dixon, W. J., & Massey, F. J. Introduction to statistical analysis. New York: McGraw-Hill, 1957.
- Dorwart, W., Ezerman, R., Lewis, M., & Rosenhan, D. The effect of brief social deprivation on social and non-social reinforcement. Journal of Personality and Social Psychology, 1965, 52, 219-223.
- Douvan, E. Social class and success striving. Journal of Abnormal and Social Psychology, 1956, 52, 219-223.
- Dreger, R. M., & Miller, K. S. Comparative psychological studies of Negroes and whites in the United States: Psychological Bulletin, 1960, 57, 361-402.
- Dreger, R. M., & Miller, K. S. Comparative psychological studies of Negroes and whites in the United States: 1959-1965. Psychological Bulletin, 1968, 70 (Monogr. Suppl. 3, Pt. 2).

Dusek, J. B. An investigation of experimenter bias in the performance of children at a simple motor task under conditions of social reinforcement and nonreinforcement. Unpublished doctoral dissertation, University of Illinois, 1969.

Education Policies Commission. Education and the disadvantaged American. Washington: National Education Association, 1962.

Education Policies Commission. American education and the search for equal opportunity. Washington: National Education Association, 1965.

Elashoff, J. D. Analysis of covariance: A delicate instrument. American Educational Research Journal, 1969, 6, 383-401.

Epos, E. G. Motivation and academic achievement of Negro Americans. Journal of Social Issues, 1969, 25(3).

Evans, S. H., & Anastasio, E. J. Misuse of analysis of covariance when treatment effect and covariate are confounded. Psychological Bulletin, 1968, 69, 225-234.

Feather, N. T. The relationship of persistence at a task to expectation of success and achievement related motives. Journal of Abnormal and Social Psychology, 1961, 63, 552-561.

Feldman, S., & Weimer, M. The use of a standardized reading achievement test with two levels of socio-economic status pupils. Journal of Experimental Education, 1964, 32, 269-274.

Ferman, L., Kornbluh, J. L., & Huber, A. (Eds.) Poverty in America: A book of readings. Ann Arbor: University of Michigan Press, 1965.

Fishman, J. A., Deutch, M., Kogan, L., North, R., & Whitman, M. Guidelines for testing minority group children. Journal of Social Issues, 1964, 20, 129-145.

Forlano, G., & Axelrod, H. C. The effect of repeated praise or blame on the performance of introverts and extroverts. Journal of Educational Psychology, 1937, 28, 92-100.

- Forward, J. R., & Williams, J. Internal-external control and Black militancy. Journal of Social Issues, 1970, 26(1).
- Frazier, E. F. Black Bourgeoisie. New York: Free Press, 1965.
- Frazier, E. F. The Negro family in the United States. Chicago: University of Chicago Press, 1966.
- Frazier, E. F. The Negro in the United States. New York: Macmillan Company, 1967.
- French, E. Development of a measure of complex motivation. In J. W. Atkinson (Ed.) Motives in fantasy, action and society. New York: Van Nostrand, 1958. Pp. 242-248.
- French, E. G. Effects of the interaction of motivation and feedback on task performance. In J. W. Atkinson (Ed.) Motives in fantasy, action and society. Princeton: D. Van Nostrand, 1958. Pp. 873.
- French, E. G., & Frances, T. H. The relationship of achievement motivation to problem solving effectiveness. Journal of Abnormal and Social Psychology, 1958, 56, 45-48.
- Frost, J. L., & Hawkes, G. R. (Eds.) The disadvantaged child: Issues and innovations. New York: Houghton Mifflin, 1966.
- Garfield, S. L., & Helper, M. M. Parental attitudes and socioeconomic status. Journal of Elementary Psychology, 1962, 18, 171-175.
- Gates, G. S., & Rissland, L. D. The effect of encouragement and of discouragement upon performance. Journal of Educational Psychology, 1923, 14, 21-26.
- Gewirtz, J. L., & Baer, D. M. Deprivation and satiation of social reinforcers as drive conditions. Journal of Abnormal and Social Psychology, 1958, 57, 165-172.
- Gewirtz, J. L., & Baer, D. M. The effects of brief social deprivation on behavior for a social reinforcer. Journal of Abnormal and Social Psychology, 1958, 56, 49-56.

- Gewirtz, H. B. Generalization of children's preferences as a function of reinforcement and task similarity. Journal of Abnormal and Social Psychology, 1959, 58, 111-118.
- Gildchrist, E. P. The extent to which praise and reproof affect a pupil's work. Schools and Society, 1916, 4, 872-874.
- Glick, I. D. An investigation of the effects of the meta-message of skin color and neutral and affective language. Unpublished doctoral dissertation, University of Maryland, 1969.
- Gottlieb, D. Goal aspirations and goal fulfillment: Differences between deprived and affluent American adolescents. American Journal of Orthopsychiatry, 1964, 34, 813-819.
- Gough, H. G. The relationship of socio-economic status to personality inventory and achievement test scores. Journal of Educational Psychology, 1946, 37, 527-540.
- Gowan, J., & Demos, G. (Eds.) The disadvantaged and potential dropout. Springfield, Ill.: Charles Thomas, 1966.
- Gray, S. W., & Klaus, R. A. Early training project interim report. Nashville: George Peabody College of Teachers, 1963.
- Gray, S., & Klaus, R. An experimental program for culturally deprived children. Child Development, 1965, 36, 887-898.
- Greenwald, A. G. Nuttin's neglected critique of the law of effect. Psychological Bulletin, 1966, 65, 199-205.
- Grotberg, E. (Ed.) Critical issues in research related to disadvantaged children. Princeton, N.J.: Educational Testing Service, 1969.
- Harlow, H. F. Learning and satiation of response in intrinsically motivated complex puzzle performance by monkeys. Journal of Comparative and Physiological Psychology, 1950, 43, 289-294.

- Harrington, M. The other America: Poverty in the United States. Baltimore: Penguin Books, Inc., 1963.
- Harris, F. R., Wolf, M. M., & Baer, D. M. Effects of adult social reinforcement on child behavior. Young Children, 1964, 20, 8-17.
- Hartup, W. W. Friendship status and the effectiveness of peers as reinforcing agents. Journal of Experimental Child Psychology, 1964, 1, 154-162.
- Havighurst, R. J., & Davis, A. A comparison of the Chicago and Harvard studies of social class differences in child rearing. American Sociological Review, 1955, 20, 438-442.
- Havighurst, R. J. Minority subcultures and the law of effect. American Psychologist, 1970, 25, 4.
- Havighurst, R. J. What are the cultural differences which may affect performance on intelligence tests? Chicago: University of Chicago Press, 1951.
- Hawk, T. L., & Deridder, L. M. A comparison of the performance of pre-graded students with grade-motivated students. Journal of Educational Research, 1962, 56, 41-62.
- Heather, W. J. Age differences in the effectiveness of different reinforcement combinations under acquisition and extinction of a simple concept learning problem. Child Development, 1955, 28, 319-329.
- Heckhausen, H. The anatomy of achievement motivation. New York; London: Academic Press, 1967.
- Heider, F. The gestalt theory of motivation. In M. R. Jones (Ed.) Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1960. Pp. 145-171.
- Henderson, G. From rags to rags: Probable effects of poverty upon aspirations. The Teachers College Journal, 1966, 38(3), 105-109.

- Hertzog, M. E., Birch, H. G., Thomas, A., & Mendez, O. A. Class and ethnic differences in the responsiveness of pre-school children to cognitive demands. Monographs of the Society for Research in Child Development, 1968, 33, 117.
- Hess, R. D. Social class and ethnic influences upon socialization. In Paul Mussen (Ed.) Manual of child psychology, Vol. II (3rd ed.) New York: John Wiley, 1970. Pp. 457-557.
- Higgins, M. J. A comparison of the effects of extrinsic reward on test performance of sixth graders of two socioeconomic groups. Unpublished doctoral dissertation, University of Maryland, 1966.
- Hilgard, E. R., & Bower, G. H. Theories of learning. (3rd ed.) New York: Appleton, 1966.
- Hill, K. T. The effects of social reinforcement and non-reinforcement following success and failure as a function of test anxiety of subject, sex of subject, and sex of experimenter. Unpublished doctoral dissertation, University of Minnesota, 1965.
- Hill, K. T. Social reinforcement as a function of test anxiety and success-failure experience. Child Development, 1967, 38, 723-737.
- Hill, K. T., & Dusek, J. Children's achievement expectations as a function of social reinforcement, sex of subject, and test anxiety. Child Development, 1969, 40, 547-559.
- Hill, K. T., & Stevenson, H. W. The effects of social reinforcement vs. nonreinforcement and sex of E on the performance of adolescent girls. Journal of Personality, 1965, 33, 30-36.
- Hines, R. H. Social expectations and cultural deprivation. Journal of Negro Education, 1964, 33
- Hirsch, J. G. Individual characteristics and academic achievement. In J. M. Beck and R. W. Saxe (Eds.) Teaching the culturally disadvantaged pupil. Springfield, Ill.: Charles Thomas, 1965.

Hollingshead, A. B. Two factor index of social position.
New Haven: Yale Press, 1957.

Hunt, D. E. Changes in goal-object preference as a function of expectancy for social reinforcement. Journal of Abnormal and Social Psychology, 1955, 50, 372-377.

Hunt, J. McV. The psychological basis for preschool cultural enrichment programs. In M. Deutsch, A. Jensen and I. Katz (Eds.) Social class, race and psychological development. New York: Holt, Rinehart & Winston, 1967.

Hunt, J. McV. The psychological basis for using preschool enrichment as an antidote for cultural deprivation. Merrill-Palmer Quarterly, 1964, 110, 209-248.

Hunter, D. The slums. New York: Free Press, 1966.

Hurlock, E. B. An evaluation of certain incentives used in school work. Journal of Educational Psychology, 1925, 16, 145-149.

Hurlock, E. B. The psychology of incentives. Journal of Social Psychology, 1931, 2, 261-290.

Hurlock, E. B. The value of praise and reproof as incentives for children. Archive of Psychology, 1924, No. 71.

Jackson, L. Poverty's children. Washington: Communicating Research on the Urban Poor, 1966.

James, W. Internal vs. external control of reinforcements as a basic variable in learning theory. Unpublished doctoral dissertation, Ohio State University, 1957.

Jensen, A. R. Social class and verbal learning. In M. Deutsch, I. Katz and A. R. Jensen (Eds.) Social class, race and psychological development. New York: Holt, Rinehart & Winston, 1968.

Kall, J. A., Davis, J. A. A comparison of indices of socioeconomic status. American Sociological Review, 1955, 20, 317-325.

- Kamii, C. K. Socio-economic class differences in the pre-school socialization practices of Negro mothers. Unpublished doctoral dissertation, University of Michigan, 1965.
- Kamii, C. K., & Radin, N. L. Class differences in the socialization practices of Negro mothers. Journal of Marriage and Family, 1967, 29, 302-310.
- Katkovsky, W., Crandall, V. C., & Good, S. Parental antecedents of children's beliefs in internal-external control of reinforcements in intellectual achievement situations. Child Development, 1966, 38, 765-776.
- Katz, F. M. The meaning of success: Some differences in value systems of social classes. Journal of Social Psychology, 1964, 62, 141-148.
- Katz, I. Comments on Dr. Pettigrew's paper. In D. Levine (Ed.) Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1967.
- Katz, I. Review of evidence relating to effects of desegregation on the intellectual performance of Negroes. American Psychologist, 1964, 19, 381-399.
- Katz, I. The socialization of academic motivation in minority group children. Nebraska Symposium on motivation, 1969, 15, 133-199.
- Katz, I. Some motivational determinants of racial differences in intellectual achievement. International Journal of Psychology, 1967, 2, 1-12.
- Katz, I., Epps, E. G., & Axelson, L. J. Effect upon Negro digit-symbol performance of anticipated comparisons with whites and with other Negroes. Journal of Abnormal and Social Psychology, 1964, 69, 77-83.
- Katz, I., Henchy, T., & Allen, H. Effects of race of tester, approval-disapproval, and need on Negro children's learning. Journal of Personality and Social Psychology, 1968, 8, 38-42.

- Katz, I., Roberts, S. O., & Robinson, J. M. Effects of task difficulty, race of administrator, and instructions on digit-symbol performance of Negroes. Journal of Personality and Social Psychology, 1965, 2, 53-59.
- Katz, I., Robinson, J. M., Epps, E. G., & Waly, P. Effects of race of experimenter and test vs. neutral instructions on expression of hostility in Negro boys. Journal of Social Issues, 1964, 20, 54-60.
- Kelly, R. Experimenter characteristics and the effectiveness of social reinforcements of children's behavior. Unpublished doctoral dissertation, Purdue University, 1962.
- Kelly, R., & Stephens, M. W. Comparison of different patterns of social reinforcement in children's operant learning. Journal of Comparative and Physiological Psychology, 1964, 57, 294-296.
- Kennedy, W. A., Turner, A. J., & Lindner, R. Effectiveness of praise and blame as a function of intelligence. Perceptual and Motor Skills, 1962, 15, 143-149.
- Kennedy, W. A., Van De Riet, V., & White, J. C., Jr. A normative sample of intelligence and achievement of Negro elementary school children in the southeastern United States. Child Development Monographs, 1963, 28(6, Ser. No. 90).
- Kennedy, W. A., & Vega, M. Negro children's performance on a discrimination task as a function of race of examiner and verbal incentive. Journal of Personality and Social Psychology, 1965, 2, 839-843.
- Kennedy, W. A., & Willcutt, H. C. Motivation of school children. United States Department of Health, Education and Welfare Cooperative Research Project No. 1929. Tallahassee: Florida State University, 1963.
- Kerlinger, F. N. Foundations of Behavioral Research. New York: Holt, Rinehart & Winston, 1967.
- Keyserling, L. H. Progress on poverty. Washington: Conference on Economic Progress, 1964.

- Klineberg, O. Race differences. New York: Harper, 1934.
- Klugman, S. The effect of money incentives vs praise upon the reliability of obtained scores of the revised Stanford Binet Test. Journal of Genetic Psychology, 1944, 30, 255-267.
- Kohn, M. L. Social class and parental values. American Journal of Sociology, 1964, 64, 337-351.
- Larson, R., & Olsen, J. A method of identifying culturally deprived kindergarten children. Exceptional Children, 1963, 30, 130-134.
- Lefcourt, H. M. Internal versus external control of reinforcements: A review. Psychological Bulletin, 1966, 65, 206-220.
- Lefcourt, H. M., & Ladwig, G. W. The American Negro: A problem in expectancies. Journal of Personality and Social Psychology, 1965, 1, 377-380.
- Leuba, C. J. A preliminary experiment to quantify an incentive and its effect. Journal of Abnormal and Social Psychology, 1930, 25, 275-288.
- Levine, M., Leitenberg, H., & Richter, M. The blank trials law: The equivalence of positive reinforcement and nonreinforcement. Psychological Review, 1964, 71, 94-103.
- Lewis, H. Child rearing among low-income families. In L. Ferman, J. L. Kornbluh, and A. Huber (Eds.) Poverty in America: A book of readings. Ann Arbor: University of Michigan Press, 1965. Pp. 342-353.
- Lewis, M. Social isolation: A parametric study of its effect on social reinforcement. Journal of Experimental Child Psychology, 1965, 2, 205-218.
- Lewis, M., Wall, A. M., & Aaronfreed, J. Developmental changes in the relative values of social and non-social reinforcement. Journal of Experimental Psychology, 1963, 66, 133-137.

- Lighthall, F. F., & Cernius, V. Effects of certain rewards for task performance among lower class boys. United States Office of Education and University of Chicago Cooperative Research Project No. S-283. Chicago: Department of Education, University of Chicago, 1967.
- Lindquist, E. F. Design and analysis of experiments in psychology and education. Chicago: Houghton-Mifflin, 1953.
- Loretan, J., & Umans, S. Teaching the disadvantaged. New York: Teachers College Press, Columbia University, 1966.
- Lord, F. M. Elementary models for measuring change. In Harris, Problems in Measuring Change. Madison: University of Wisconsin Press, 1962.
- Maccoby, E. E., & Gibbs, P. K., & the Staff of the Laboratory of Human Development at Harvard University. Methods of child rearing in two social classes. In W. E. Martin and C. B. Stendler (Eds.) Readings in child development. New York: Harcourt, Brace, 1954. Pp. 380-396.
- Marshall, H. H. The effect of punishment on children: A review of the literature and a suggested hypothesis. Journal of Genetic Psychology, 1965, 106, 23-33.
- McClelland, D. C. The achieving society. New York: Van Nostrand, 1961.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. The achievement motive. New York: Appleton-Century-Crofts, 1953.
- McClelland, D. C. Studies in motivation. New York: Appleton-Century-Crofts, 1955.
- McCoy, N., & Zigler, E. Social reinforcer effectiveness as a function of the relationship between child and adult. Journal of Personality and Social Psychology, 1965, 1(6), 604-612.
- McDavid, J. W., Gordon, E. W., Grothberg, E. H., & Datta, L. Project head start; two years of evaluative research 1968.

- McDonald, Keith H. The relationship of socio-economic status to an objective measure of motivation. Personnel and Guidance Journal, 1964, 42, 997-1002.
- McGhee, P. E., & Crandall, V. C. Beliefs in internal-external control of reinforcements and academic performance. Child Development, 1968, 39, 91-102.
- McGrade, B. J. Effectiveness of verbal reinforcers in relation to age and social class. Journal of Personality and Social Psychology, 1966, 4, 555-560.
- Meyer, W. J., & Offenbach, S. I. Effectiveness of reward and punishment as a function of task complexity. Journal of Comparative and Physiological Psychology, 1962, 55, 532-534.
- Meyer, W. J., & Seidman, S. B. Relative effectiveness of different reinforcement combinations on concept learning of children at two developmental levels. Child Development, 1961, 32, 117-127.
- Middleton, R. Alienation, race and education. American Sociological Review, 1963, 28, 973-977.
- Miller, N. Some reflections on the law of effect produce a new alternative to drive reduction. In M. R. Jones (Ed.) Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1963.
- Mingione, A. Need for achievement in Negro and white children. Journal of Consulting Psychology, 1965, 29, 108-111.
- Mischel, W., & Grusel, J. Waiting for rewards and punishments: Effects of time and probability on choice. Journal of Personality and Social Psychology, 1967, 5, 24-31.
- Mitchell, C. The culturally deprived--Educating the disadvantaged. Detroit: Research Council, Great Cities Program, 1964.
- Montanelli, D. S., & Hill, K. T. Children's achievement expectations and performance as a function of two consecutive reinforcement experiences, sex of subject, and sex of experimenter. Journal of Personality and Social Psychology, 1969, 13, 115-128.

Moulton, R. W. Effects of success and failure on level of aspiration as related to achievement motives. Journal of Personality and Social Psychology, 1965, 1, 399-406.

Mussen, P. H. (Ed.) Carmichael's manual of child psychology. (3rd ed.) New York: John Wiley, 1970. Vol. II, Social class and ethnic influences on socialization, R. D. Hess.

National Education Association. School programs for the disadvantaged. Educational Research Service Circular No. 1. Washington: National Education Association, 1965.

Neale, D. C., & Proshek, J. M. School-related attitudes of culturally disadvantaged elementary school children. Journal of Educational Psychology, 1967, 58, 238-244.

Noonan, J. R., & Barry, J. R. Differential effects of incentives among the retardes. Journal of Educational Research, 1967, 61, 108-111.

Odom, R. D. Children's probability learning as a function of the cross-effect. Psychonomic Science, 1966, 4, 305-306.

Odom, R. D. Problem solving strategies as a function of age and socioeconomic level. Child Development, 1967, 38, 753-764.

Osborn, R. C. How is intellectual performance related to social and economic background? Journal of Educational Psychology, 1943, 34, 215-228.

Osborne, R. T. Racial differences in mental growth and school achievement: A longitudinal study. Psychological Report, 1960, 7, 233-239.

Palmer, F. H. Social status and intellectual performance among Negro pre-school boys. Developmental Psychology, 1970, 3, 1-5.

Parton, D. A., & Ross, A. O. Possible artifact in measurement of social reinforcement. Psychological Report, 1964, 14, 348.

- Parton, D. A., & Ross, A. O. A reply to "The use of rate as a measure of response in studies of social reinforcement." Psychological Bulletin, 1967, 67, 323-325.
- Parton, D. A., & Ross, A. O. Social reinforcement of children's motor behavior: A review. Psychological Bulletin, 1965, 64, 65-73.
- Patterson, G. R., Littman, R. A., & Hinsey, W. C. Parents as reinforcers. Journal of Personality, 1964, 32, 180-199.
- Patterson, G. R., Littman, R. A., & Hinsey, W. C. Parental effectiveness as reinforcers in the laboratory and its relation to child rearing practices and child adjustment in the classroom. Journal of Personality, 1964, 32, 180-199.
- Passow, A. H. Education in depressed areas. New York: Teachers College, Columbia University, Bureau of Publications, 1963.
- Pavenstedt, E. A comparison of childrearing environments of upper-lower and lower-lower class families. American Journal of Orthopsychiatry, 1965, 35, 8-13.
- Pavenstedt, S. The drifters: Children of disorganized low class families. Boston: Little, Brown & Co., 1967.
- Peckham, P. D. An investigation of the effects of non-homogeneity of regression slopes upon the F-test of analysis of covariance. Laboratory of Educational Research, Report No. 16. Boulder: University of Colorado, 1968.
- Penney, R. K., & Lupton, A. A. Children's discrimination learning as a function of reward and punishment. Journal of Comparative and Physiological Psychology, 1961, 54, 449-451.
- Perspectives on human deprivation: Biological, psychological and sociological. Washington: Department of Health, Education and Welfare, NIH, National Institute of Child Health and Human Development, 1968.

- Peterson, G. L. The effects of social class on response to social reinforcement. Unpublished master of arts thesis, Louisiana State University, 1967.
- Pettigrew, T. A profile of the Negro American. Princeton, N.J.: D. Van Nostrand, 1964.
- Phillips, J. Performance of father-present and father-absent southern Negro boys on a simple operant task as a function of the race and sex of the experimenter and the type of social reinforcement. Unpublished doctoral dissertation, University of Minnesota, 1966.
- Porter, L. W. The effect of "right" in a modified Thorndikian situation. American Journal of Psychology, 1957, 70, 219-226.
- Postman, L. The history and present status of the Law of Effect. Psychological Bulletin, 1947, 44, 489-563.
- Postman, L. Reply to Greenwald. Psychological Bulletin, 1966, 65, 383-388.
- Postman, L. Rewards and punishments in human learning. In L. Postman (Ed.) Psychology in the making. New York: Knopf, 1962. Pp. 331-401.
- Postman, L., & Adams, P. A. "Isolation" and the law of effect. American Journal of Psychology, 1955, 68, 96-105.
- Postman, L., & Adams, P. A. Performance variables in the experimental analysis of the law of effect. American Journal of Psychology, 1954, 67, 612-631.
- Potter, E. H. The effect of reproof in relation to age in school children. Journal of Genetic Psychology, 1943, 63, 247-258.
- Raden, N., & Kamii, C. The childrearing attitudes of disadvantaged Negro mothers and some educational implications. Journal of Negro Education, 1965, 34, 138-146.
- Rainwater, L. Crucible of identity: The Negro lower-class family. In T. Parsons and K. B. Clark (Eds.) The Negro American. Boston: Beacon Press, 1965.

- Raths, J. D. Education 151--A course outline. Unpublished course outline, University of Maryland, 1967.
- Raths, J. D. Outline notes for Education 251. Unpublished papers, University of Maryland, 1968.
- Reissman, F. The culturally deprived child. New York: Harper and Brothers, 1962.
- Reissman, F., Cohen, J., & Pearl, A. Mental health of the poor. New York: Free Press, 1964.
- Reissman, L. Class in American society. Glencoe, Ill.: Free Press, 1959.
- Riessman, F. The culturally deprived child: A new view. In Programs for the educationally disadvantaged. Department of Health, Education and Welfare. Washington: Government Printing Office, 1966.
- Rist, R. C. Student social class and teacher expectations: Self-fulfilling prophecy in ghetto education. Harvard Educational Review, 1970, 40, 411-449.
- Rosen, B. C. The achievement syndrome: A psychocultural dimension of social stratification. American Sociological Review, 1956, 21, 203-211.
- Rosen, B. C. The achievement syndrome: A psychocultural dimension of social stratification. In John W. Atkinson (Ed.) Motives in fantasy, action and society. Princeton, N.J.: D. Van Nostrand, 1958. Pp. 873.
- Rosen, B. C. Family structure and achievement motivation. American Sociological Review, 1962, 26, 575-585.
- Rosen, B. C. Race, ethnicity, and the achievement syndrome. American Sociological Review, 1959, 24, 47-60.
- Rosen, B. C., & D'Andrade, R. The psychosocial origin of achievement motivation. Sociometry, 1959, 22, 185-218.
- Rosenhan, D. L. Effects of social class and race on responsiveness to approval and disapproval. Journal of Personality and Social Psychology, 1966, 4, 253-259.

- Rosenhan, D. L., & Greenwald, J. A. The effects of age, sex, and socioeconomic class on responsiveness to two classes of verbal reinforcements. Journal of Personality, 1965, 33, 108-121.
- Rosenthal, R. Experimenter effects in behavioral research. New York: Appleton, 1966.
- Rosenthal, R., & Jacobson, L. Teacher's expectancies: Determinants of pupil's IQ gains. Psychological Reports, 1966, 19, 115-118.
- Rotter, J. B. Generalized expectancies for internal vs. external control of reinforcement. Psychological Monographs, 1966, 80(No. 609).
- Rotter, J., Seeman, M., & Liverant, S. Internal vs external control of reinforcement: A major variable in behavior theory. In N. F. Washburne (Ed.) Decisions, values, and groups. Vol. 2. London: Pergamon Press, 1962.
- Rucinski, P. R. The motivating effect of two reinforcers upon lower- and middle-class fifth-grade children. The Journal of Educational Research, 1968, 61, 367-371.
- Saltzman, S. The influence of social and economic background on Stanford-Binet performance. Journal of Social Psychology, 1940, 12, 71-81.
- Schatzman, L., & Strauss, A. Social class and modes of communication. American Journal of Sociology, 1955, 60, 329-338. (Reprinted in A. G. Smith (Ed.) Communication and culture. New York: Holt, Rinehart & Winston, 1966. Pp. 442-455.)
- Schmidt, H. O. The effects of praise and blame as incentives to learning. Psychology Monograph, 1941, 53(3, Whole No. 233).
- Sears, R. R., Maccoby, E. E., & Levin, H. Patterns of child rearing. Evanston, Ill.: Row, Peterson, 1957.
- Sewell, W. H., Haller, A. O., & Strauss, M. A. Social status and educational and occupational aspiration. American Sociological Review, 1957, 22, 67-73.

- Sexton, P. Education and income. New York: Viking, 1961.
- Shuey, A. M. The testing of Negro intelligence. Lynchburg, Va.: J. P. Bell, 1958.
- Siegel, A. W. The effectiveness of social reinforcement as a function of race of examiner and race of subject. Unpublished master of arts thesis, University of Minnesota, 1965.
- Silberman, L. E. Crisis in black and white. New York: Vintage Book, 1964.
- Sitkei, E. G., & Meyers, C. D. Comparative structure of intellect in middle and lower class four year olds of two ethnic groups. Developmental Psychology, 1969, 1, 592-604.
- Slaughter, D. T. Maternal antecedents of the academic achievement behavior of Negro headstart children. Unpublished doctoral dissertation, committee on human development, University of Chicago, 1968.
- Smith, H. F. Interpretation of adjusted treatment means and regression in analysis of covariance. Biometrics, 1957, 13, 282-308.
- Solomon, D., & Yaeger, J. Determinants of boys' perceptions of verbal reinforcers. Developmental Psychology, 1969, 1(6), 637-645.
- Solomon, R. L. Punishment. American Psychologist, 1964, 19, 239-253.
- Spear, P. Motivational effects of praise and criticism on children learning. Developmental Psychology, 1970, 3, 124-131.
- Spence, J. T. Effects of verbal reinforcement and instructional conditions on performance of a problem solving task. Journal of Personality and Social Psychology, 1966, 3, 163-170.
- Spence, J. T. Verbal discrimination performance under different verbal reinforcement combinations. Journal of Experimental Psychology, 1964, 67, 195-197.

- Spence, J. T., & Segner, L. L. Verbal vs non-verbal reinforcement combination in the discrimination learning of middle and lower class children. Child Development, 1967, 38, 29-38.
- Stein, A. H. The influence of social reinforcement on the achievement behavior of fourth grade boys and girls. Child Development, 1969, 40, 727-735.
- Stephens, J. M. Further notes on punishment and reward. Journal of Genetic Psychology, 1934, 44, 464-472.
- Stevenson, H. W. Social reinforcement of children's behavior. In L. P. Lipsitt and C. C. Spiker (Eds.) Advances in child development and behavior. New York: Academic, 1965. Vol. 2. Pp. 97-126.
- Stevenson, H. W. Social reinforcement with children as a function of CA, sex of E and sex of S. Journal of Abnormal and Social Psychology, 1961, 63, 147-154.
- Stevenson, H. W., & Allen, S. A. Variables associated with adult's effectiveness as reinforcement agents. Journal of Personality, 1967, 35, 246-264.
- Stevenson, H. W., & Cruse, D. B. The effectiveness of social reinforcement with normal and feebleminded children. Journal of Personality, 1961, 29, 124-135.
- Stevenson, H. W., & Fabel, L. S. The effect of social reinforcement on the performance of institutionalized and non-institutionalized normal and feebleminded children. Journal of Personality, 1961, 29, 124-135.
- Stevenson, H. W., & Hill, K. The effect of social reinforcement following success and failure. Unpublished manuscript, University of Minnesota, 1963.
- Stevenson, H. W., & Hill, K. T. Use of rate as a measure of response in studies of social reinforcement. Psychological Bulletin, 1966, 66, 321-326.
- Stevenson, H. W., Keen, R., & Knoghts, R. M. Parents and strangers as reinforcing agents for children's performance. Journal of Abnormal and Social Psychology, 1963, 65, 429-431.

- Stevenson, H. W., & Knights, R. M. Social reinforcement with normal and retarded children as a function of pretaining, sex of E, and sex of S. American Journal of Mental Deficiency, 1962, 66, 866-871.
- Stevenson, H. W., & Odom, R. D. The effectiveness of social reinforcement following two conditions of social deprivation. Journal of Abnormal and Social Psychology, 1962, 65, 429-431.
- Stevenson, H. W., & Snyder, L. C. Performance as a function of the interaction of incentives. Journal of Personality, 1960, 28, 1-11.
- Stevenson, H. W., Weir, M. W., & Zigler, E. F. Discrimination learning in children as a function of motive-incentive conditions. Psychological Report, 1959, 5, 95-98.
- Stodolsky, S. S., & Lesser, G. Learning patterns in the disadvantaged. Harvard Education Review, 1967, 37, 546-593.
- Strain, G. S., Unikel, I. P., & Adams, H. E. Alternation behavior by children from lower socioeconomic status groups. Developmental Psychology, 1969, 1, 131-133.
- Strauss, M. A. Deferred gratification, social class and the achievement syndrome. American Sociological Review, 1962, 27, 326-335.
- Strom, R. D. (Ed.) Teaching in the slum schools. Columbus: Charles Merrill, 1965.
- Strom, R. D. The tragic migration: School dropouts. Washington: National Education Association, 1964.
- Terrel, G., Durkin, K., & Wiesley, M. Social class and the nature of the incentive in discrimination learning. Journal of Abnormal and Social Psychology, 1959, 59, 270-272.
- Terrel, G., & Kennedy, W. A. Discrimination learning and transposition in children as a function of the nature of the reward. Journal of Experimental Psychology, 1957, 53, 257-260.

- Thompson, D. C. Evaluation as a factor in planning programs for the culturally disadvantaged. Journal of Negro Education, 1965, 33
- Thorndike, E. L. An experimental study of rewards. Teachers College Contributions to Education, 1933, No. 580.
- Thorndike, E. L. The fundamentals of learning. New York: Teachers College, 1932.
- Tiber, N., & Kennedy, W. A. The effects of incentives on the intelligence test performance of different social groups. Journal of Consulting Psychology, 1964, 28, 187-184.
- Tolman, E. C., Hall, C. S., & Bretnall, E. P. A disproof of the law of effect and a substitution of the laws of emphasis, motivation and disruption. Journal of Experimental Psychology, 1932, 15, 601-614.
- Trent, R. D. The color of the investigator as a variable in experimental research with Negro subjects. Journal of Social Psychology, 1954, 40, 281-287.
- Tulkin, S. R. Race, class, family and school achievement. Journal of Personality and Social Psychology, 1968, 9, 31-37.
- Tyler, R. W. Background. In D. Schrieber (Ed.) The school dropout. Washington: National Education Association, 1964.
- Unikel, I. P., Starin, G. S., & Adams, H. E. Learning of lower socioeconomic status children as a function of social and tangible reward. Developmental Psychology, 1969, 1, 553-555.
- Vera, J. The intellectual development of slum children: Some preliminary findings. American Journal of Orthopsychiatry, 1963, 33, 813-822.
- Vera, J., & Goldstein, L. The social context of language acquisition. Merrill Palmer Quarterly, 1964, 10, 3-11.

- Wallach, H., & Henle, M. An experimental analysis of the law of effect. Journal of Experimental Psychology, 1941, 28, 340-349.
- Wallach, H., & Henle, M. A further study of the functions of reward. Journal of Experimental Psychology, 1942, 30, 147-160.
- Walters, R. H., & Foote, A. A study of reinforcer effectiveness with children. Merrill-Palmer Quarterly, 1962, 8, 149-157.
- Walters, R. H., & Ray, E. Anxiety, social isolation, and reinforcer effectiveness. Journal of Personality, 1960, 28, 358-367.
- Ward, W. The withholding and the withdrawing of rewards as related to level of aspiration. Child Development, 1969, 40, 591-599.
- Warner, L. W., Havighurst, R. J., & Loeb, M. B. Who shall be educated? The challenge of unequal opportunities. New York: Harper and Bros., 1944.
- Warner, W. L., Meeker, H., & Eells, K. Social class in America. Chicago: Science Research Associates, 1949.
- Webster, S. W. (Ed.) The disadvantaged learner. San Francisco: Chandler Publishing Co., 1966.
- White, M. S. Social class child rearing practices and child behavior. American Sociological Review, 1957, 22, 704-712.
- Whitlock, C., & Bushel, D. Some effects of back-up reinforcement on reading behavior. Journal of Experimental Child Psychology, 1957, 5, 50-57.
- Willcutt, H. C., & Kennedy, W. A. Relation of intelligence to effectiveness of praise and reproof as reinforcers for fourth graders. Perceptual and Motor Skills, 1963, 17, 695-697.
- Wilson, A. B. Social stratification and academic achievement. In A. H. Passow (Ed.) Education in depressed areas. New York: Teachers College Press, Columbia University, 1963.

- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.
- Winterbottom, M. R. The relation of need for achievement to learning experiences in independence and mastery. In J. W. Atkinson (Ed.) Motives in fantasy, action and society. Princeton, N.J.: D. Van Nostrand, 1958.
- Wolf, W. M., Giles, D. K., & Hall, R. V. Experiments with token reinforcement in remedial classroom. Behavior Research and Therapy, 1968, 6, 51-64.
- Wortis, A. et al. Child-rearing practices in a low socio economic group. Pediatrics, 1963, 32, 298-307.
- Zigler, E. An overview of research in learning, motivation, and perception. Exceptional Children, 1962, 28, 455-458.
- Zigler, E. Rigidity and social reinforcement effects in the performance of institutionalized and non-institutionalized normal and retarded children. Journal of Personality, 1963, 31, 258-269.
- Zigler, E., & Child, I. L. Socialization. In G. Lindzey and E. Aronson (Eds.) The handbook of social psychology. Vol. 3. Reading, Mass.: Addison-Wesley, 1968.
- Zigler, E., & DeLabry, J. Concept switching in middle class, lower class and retarded children. Journal of Abnormal and Social Psychology, 1962, 65, 267-273.
- Zigler, E., & 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.
- Zigler, E., & Williams, J. Institutionalization and the effectiveness of social reinforcement: A three-year follow-up study. Journal of Abnormal and Social Psychology, 1963, 66, 197-205.