

THE RELATIVE EFFECTS OF GENERAL VERSUS DESCRIPTIVE
PRAISE ON A CARD SORTING TASK

by

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APPROVAL SHEET

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Descriptive Praise on a Card Sorting Task

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ABSTRACT

Title of Thesis: The Relative Effects of General versus Descriptive Praise on a Card Sorting Task

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It has frequently been postulated that descriptive praise, which labels the behavior being praised, is superior to general praise, which delivers an accolade without specifying the behavior being praised. Research investigating this postulate is meager. The purpose of this study was to investigate whether in fact descriptive praise is superior to general praise.

Fifty fifth- and sixth-grade students from the Lida Lee Tall Center in Towson, Maryland were randomly selected to serve as subjects. Twelve boys and eight girls were randomly assigned to each of two praise conditions (i.e. descriptive praise and general praise) and six boys and four girls were randomly assigned to a control condition. Subjects were seen individually and pretested to ensure they could perform the experimental task.

The assigned task was to sort 108 cards by one of three possible sorting methods. The first 54 card sorts served as a baseline to determine the preferred sorting method for each subject. During the final 54 card sorts,

subjects in the two praise conditions received either general praise (e.g. "Great") or descriptive praise (e.g. "Great. I like the way you are sorting by shape") on a FR3 schedule for sorting cards by a randomly selected sorting method. Baseline data were collected for the entire 108 card sorts in the control condition.

Multivariate analyses of variance were carried out on the extent to which the three groups changed their sorting method from their baseline method and on the extent to which the two praise groups sorted by the method they were reinforced for. The results indicated that the descriptive praise group performed significantly better than both the general praise and control groups. No significant difference emerged between the general praise and control groups. The male and female subjects did not significantly differ in their response to the two praise conditions. These results support the position that descriptive praise is more effective than general praise.

It was suggested that the labeling of the behavior being reinforced in descriptive praise increased the informative value of the reinforcer thereby giving subjects in this condition an advantage over the subjects receiving general praise who had to, in effect, guess what response on their part elicited the praise.

DEDICATION

To the memory of my mother,
Louise Harding Scheer

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CHAPTER I
INTRODUCTION

For many years, parents and teachers have turned to psychologists and other child guidance experts for suggestions and advice concerning child management. Perhaps the most frequently cited technique suggested by professionals is to praise the child more frequently following the occurrence of a desirable behavior. The use of praise is advocated by many professionals of diverse theoretical orientations for modification of a great variety of behaviors. Even when other forms of reinforcement are employed such as material reinforcers or privileges, parents and teachers are frequently advised to accompany such reinforcers with praise. The extent to which some child experts believe in the efficacy of praise is aptly demonstrated by O'Leary and O'Leary who write, "Only when praise is ineffective should more complicated and powerful procedures, such as token reinforcement programs be employed" (1972, p. 87).

There are a number of apparent advantages to using praise as a reinforcer. First, the use of praise has been repeatedly demonstrated to be highly effective as a reinforcer (O'Leary and O'Leary, 1972, p. 26). Second, the use of praise is natural and uncomplicated for most people (O'Leary and O'Leary, 1972, p. 87). Another advantage of using praise as a reinforcer is found in its economy.

There are no monetary expenses and costs in time and patience generally prove to be economical in the long run (O'Leary and O'Leary, 1972, p. 88). The availability of praise is also an advantage. Praise, unlike many reinforcers, may be administered on a relatively immediate basis under most circumstances. O'Leary and O'Leary suggest that a child receiving praise from his teacher will probably learn to like school more (1972, p. 26). This might be expected to occur in the home as well. Finally, praise is a rather natural reinforcer as compared to such things as tokens. Because praise is a common phenomenon, generalization to outside situations may be expected to be rather good.

Praise is defined as a verbal statement directed towards a person or persons which indicates approval. Praise has frequently been demonstrated to be effective as a reinforcer. That is, praise tends to increase the frequency of the responses it follows (Reynolds, 1968). More specifically, approval is considered a common generalized conditioned reinforcer. Skinner (1957) writes, "These signs of approval are initially given by persons who are established sources of primary or secondary reinforcement" (p. 29). The temporal pairing of approval statements with established sources of reinforcement account for the reinforcing properties of praise. Some generalized conditioned reinforcers identified by Krasner (1958) include "that's right," "fine," "I agree," and "good."

There are two categories of praise: general praise and descriptive praise. In general praise, a person himself is praised. The praise expression is directed towards the subject as an entity. The expression is both positive and evaluative in nature. Any behavior that might have prompted the praise is not directly indicated. For example, a mother might say to her daughter "Good girl!" after the daughter helped her mother wash the dishes.

Unlike general praise which evaluates the person, descriptive praise evaluates a behavior which has been produced by the person. In descriptive praise, a positively reinforcing statement is made which specifies the individual's behavior and acclaims the act. An example of descriptive praise would be "You are doing a fine job of remembering to raise your hand!" said by a teacher to a student. No evaluation of the student as a person was made in the statement.

Numerous psychologists and other child guidance experts who advocate the use of praise suggest that the person administering it use the descriptive form. A frequently cited reason for this preference concerns the information value of descriptive praise. Both general praise and descriptive praise express approval but only in descriptive praise is the response which elicited the reinforcer specified. The assumption is that specifying the behavior being praised provides greater feedback to the subject which strengthens the association between the behavior and the potential reinforcer.

Research data on praise is prolific. Empirical studies on praise began in the early part of this century, and this variable continues to occupy considerable attention from researchers and professional journals. No strong empirically derived data exists, however, to evidence any superiority of descriptive praise over general praise. Intuition, logic, and theory appear to be the basis for advocating descriptive praise in preference to general praise. The lack of research on this issue is conspicuous considering the extent to which professionals have recommended the descriptive form of praise.

This study is designed to investigate whether a differential effect exists between descriptive praise and general praise in terms of their abilities to increase a response.

Introduction to Review of Literature

Two main sections comprise the literature review. The first section presents contemporary theories and opinions about praise and its use.

Empirical results regarding the efficacy of praise are presented in the second section. The studies have been divided into four areas. First, the work investigating the differential effects of praise and reproof is presented. This is followed by the research comparing praise and material rewards. The third section summarizes the studies employing praise in educational settings. Finally, the studies that have compared the differential effects of descriptive praise and general praise are presented.

Contemporary Theories and Opinions Regarding Praise

Proponents of the use of praise generally cite two reasons for advocating the technique. Coleman (1969) summarizes both of these reasons. First, it is believed by many that praise usually motivates people towards increased effort. It serves as a reinforcer for the behavior immediately preceding it. Second, praise tends to bring out warm, positive feelings towards others. It bolsters our self-esteem, sense of adequacy, and need for approval. Coleman cautions that it is important to make a clear-cut distinction between honest praise and insincere flattery designed to exploit the other person. Most people, according to Coleman, sooner or later recognize insincere flattery for what it is and come to distrust and perhaps even dislike the person giving it.

Salk (1972) suggests that a relationship exists between the amount of praise a child has received for his accomplishments and the child's motivation to perform expected and desirable behaviors. Salk believes that it is important that parents convey to their children that their behavior is meaningful to their parents. The use of praise is an important way to demonstrate the parent's recognition and genuine concern for their child's behavior. The child's reward is found in the parents' acceptance of his capacity to behave appropriately.

One need only observe a child's eager request to "Watch me, Mommy," as he demonstrates some new achievement

to understand the importance of recognition to a young child. Praise is regarded as an important form of the recognition sought by the child. Allport (1943) points out that not only does human learning appear to proceed best under conditions of praise or recognition, but the individual's capacity for learning actually seems to expand under such conditions.

The importance of praise and recognition to the young child is echoed by Bird and Bird (1972). They suggest that praise and recognition develop into the most significant reward in early life. The importance of praise and recognition continues throughout the individual's life. People develop their self image basically through the recognition they receive via praise. Bird and Bird cite guidelines for effective praise. In many cases there is a "reward value" for avoiding the praised task. For praise to be effective as a reinforcer, it must be more rewarding than the "reward value" for not performing the task. A second guideline is that the praise should be appropriate to the achievement level of the task performed. If the child is lavishly praised for subpar performances or expected behaviors long in the child's repertoire, the effectiveness of praise is diminished. Such praise carries a message of low standards of expectations.

Some authors stress the importance of praise in meeting certain basic human needs. Gruenberg (1968) believes that children have a need for praise which they thrive on.

Children naturally possess this need as opposed to their acquiring it through conditioning. Schenk-Danzinger (1969) suggests that praise is instrumental in meeting man's needs and governing his motives.

A number of authors have advocated the use of praise for specific behaviors and situations. Bhuranachot (1972), in advising teachers on how to deal with maladjusted children in the classroom, suggests that praise be employed by teachers to help these children feel more secure and less neglected. Yokkaichi (1974) claims that through questioning and praising, the teacher can facilitate interest in and volition to study in retarded children. Pringle (1972) states that violence and vandalism are among the consequences of failing to meet children's basic emotional needs. She cites the need for praise and recognition as vital to the child's development. Preventative measures would include praising appropriate behavior. Chang (1972), in offering suggestions to parents on how to handle their children's lying, states that lying is a normal and integral factor in childhood development. Parents are advised to praise their children for admitting wrong doings, making it clear to the child that the praise is for the child's honesty, not the wrong act.

Many proponents of praise suggest that the praise expressions should describe the behavior being commended. O'Leary and O'Leary (1972) express their preference for descriptive praise in terms of efficiency. Offering sugges-

tions to teachers, they write, "Praise comments should often include a specification of exactly what behaviors the teacher likes. The clearer the teacher's requirements, the easier it will be for (the child) to meet them" (O'Leary and O'Leary, 1972, p. 88). The authors go on to list a collection of examples that they consider to be good praise expressions. Each example is descriptive in nature.

In his book, Parents are Teachers, Becker (1971) recommends that parents use descriptive praise. The praise expression should simply describe what the child did and show appreciation by the detailed attention the parents give to the child's work or behavior. Becker does believe that it is possible to make judging praise such as "Good," and "That's clever" effective for children by initially pairing such words with descriptions of what the child did to earn such praise. Eventually, Becker suggests, one can use a mixture of short judging phrases to signify approval or correctness and the more detailed descriptive praise expressions.

Beltz (1971) recommends that children's desirable behaviors should be praised with descriptive expressions. According to Beltz, children are confused by general praise expressions such as "Good." People require specific standards to measure themselves against. To avoid confusion, resentment, and anxiety, expectations must be explicit.

Ginott (1965) is a strong advocate of the use of descriptive praise. He states that praise should accurately

reflect a realistic picture of the child's accomplishments. Praise that is too zealous can embarrass the child and create anxiety. For example, if a child is told that he is a "Perfect angel" he will likely deny the praise and feel uncomfortable around someone who seems to have such extraordinarily high expectations of him. How can he live up to such an accolade? Such praise creates anxiety; it puts the child under an obligation to live up to the impossible. Descriptive praise, on the other hand, can be most beneficial to the child. Ginott writes, "The single most important rule is that praise deal only with the child's efforts and accomplishments, not with his character and personality" (p. 45).

Descriptive praise is also advocated by Brophy (1972) who sees it as important in developing intrinsic motivation in students early in their education. He states that teachers should be careful to use descriptive terms to acknowledge the child's progress.

Hauck (1967) says that most people welcome praise and recognition for their good work. Adults, according to Hauck, generally do not praise children enough. He feels that praise should be descriptive in nature. Such praise does not judge children themselves as being either good or bad by their actions.

Zahoric (1968) designed a study to explore the types of verbal consequences teachers give their students. He recorded teachers' responses to their third- and sixth-

grade students during reading sessions. His descriptive analysis indicated that the most frequent verbal consequences were repeating the pupils' answers approvingly and calling for a new topic for discussion. Based on his work, Zahoric suggests that teachers employ a wider variety of types of verbal consequences with their students, particularly types that include greater information. Descriptive praise, for example, would provide the students with greater information about their performance which would increase learning.

Dreikurs (1957) expresses some very specific opinions regarding the use of praise. He expresses concern that praise can be dangerous. If praise is perceived to be an award by its recipient, then its absence becomes scorn. If the child is not praised for all of his actions, he feels he has failed. This can lead to feelings of insecurity as the child discovers that he can not live up to what he perceives to be the expectations of significant others in his life. Dreikurs does not believe that an exact methodology for dispensing praise can be derived. The same expression of praise meted out to two children can encourage one child while discouraging the other.

Attempts to modify specific behaviors with descriptive praise is a waste of time and energy according to Dreikurs. He feels that it is more important that the child realizes that he has a permanent and intrinsic value independent of his behavior which is recognized by the significant people

in his life. Accordingly, general praise which evaluates the child himself is the preferred form of praise in Dreikurs' (1964) opinion.

Gordon (1970) takes a strong position against the use of praise. In outlining a dozen categories of parental responses to their children which he categorizes as "Non therapeutic or destructive," he includes praising. Gordon expresses two objections to the technique. First, the child may grow to depend on it and be frustrated in its absence. Second, the child may perceive praise as being a form of manipulation.

Empirical Studies on the Efficacy of Praise

Perhaps the earliest empirical study of the effectiveness of praise was performed by Binet and Vaschide (1897) who measured the effects of verbal encouragement on the physical output of children and found that all 43 subjects improved their scores. In 1913, Kirby investigated verbal encouragement on third- and fourth-grade children performing arithmetic problems. The results indicated that all 1,350 children achieved a gain in performance. Although these studies suffered from methodological and design weaknesses (e.g. lack of control groups), they generated considerable interest in praise. In the decades to follow, the greatest research interest in praise was in comparing the incentive effects of praise and reproof.

Praise versus reproof. In 1924, Hurlock reported her study on verbal comments used by fifth- and eighth-grade

teachers. She employed three treatment conditions. In the praise condition, students were informed that they had done well on a previous test. Students in the reproof condition were told that they had done poorly on the test. No information was given to students in the control condition. Gain scores on the National Intelligence Test Scale served as the dependent variable. Results indicated that both praise and reproof produced significant improvements in test scores. No significant differences were found between the effects of praise and reproof, however.

Hurlock reported similar results in 1925(a) where she found both praise and blame to be equally effective in raising IQ scores in children. When studying these variables over a longer period of time, however, Hurlock (1925b) concluded that "praise is decidedly the most effective" (p. 159). In this study, subjects were either praised or reproofed before the other members of the class with the dependent variable being performance on an arithmetic test.

Two years later, Cohen (1927) replicated the Hurlock (1925b) study. Less difference was found between the groups, but the same trends emerged.

The results of praise versus reproof research carried out during the 1930's were mixed. Davis and Ballard (1932) concluded from their review of the literature up through that time that praise is better than reproof. Warden and Cohen (1931) and Brenner (1934) found no differences between praise, reproof, and control groups. Chase (1932) found no

difference between praise and reproof but did find both superior to control groups. Overall, the findings for this period suggest that there either is no difference between praise and reproof or that reproof is superior. In their literature review, Kennedy and Willcutt (1964) point out that the studies carried out during this decade suffered a serious methodological weakness for the incentives were administered regardless of the subjects' actual performance.

In 1957, Terrell and Kennedy reported that neither praise nor reproof proved better than a control with elementary school children performing a discrimination task. Neither did any difference emerge between praise and reproof as incentives. A material reinforcer proved superior to all three of the other contingencies.

Kennedy and Willcutt (1963) reported different results. They investigated the effects of praise and reproof on increasing speed on a discrimination task for groups of children varying in grade, intelligence, sex, race, social class, school, and examiner. Praise was found to be more effective than either the control or reproof conditions regardless of subject differences.

Reviewing 50 years of research on praise and reproof, Kennedy and Willcutt (1964) conclude that when one corrects for practice effects (e.g. use of a control group), praise is a reasonably stable incentive while reproof fairly consistently produces inhibiting effects upon the performance of school children.

Nelson (1973) studied the effects of praise and reproof on initial reading acquisition in kindergarten children. There was a slight but nonsignificant trend that reproof was more effective than praise in producing better reading performance.

Children in grades two and six were tested on a discrimination task by Miller, Moffat, Cotter, and Ochocki (1973). Regardless of sex or age, subjects performed better under two forms of reproof than under praise.

Praise versus material reinforcers. An early study of the differential effects between praise and tangible reinforcers was reported by Klugman (1944) who tried to establish a relationship between praise and money as incentives. Klugman found no differences between the two in affecting scores on the Stanford-Binet.

In an important study by Terrel and Kennedy (1957), subjects (80 four and five year olds and 80 eight and nine year olds) were randomly assigned to five reward conditions: praise, reproof, candy, token, and control. The group receiving candy as the reward learned the discrimination task significantly more quickly than did any of the other groups. While no other differences were significant, the difference between the group that was praised and the control group approached significance in favor of the praise condition ($P = .06$).

Studying the effects of two rewards (bubble gum and praise) on the sharing behavior of preschool children,

Fischer (1963) in a finding consistent with that of Terrell and Kennedy (1957), concluded that the material incentive was more effective.

Cradler and Goodwin (1971) investigated the effects of age level, social class, and three different reinforcement contingencies on the verbal behavior of 72 second-grade and 72 sixth-grade students. The subjects were reinforced with either a material reinforcer (M&M candies), praise, or a symbolic reinforcer (a plus mark). Lower-class second-grade subjects were found to be significantly more responsive to material reinforcers than to either praise or symbolic reinforcers. The middle-class second-grade and the lower-class sixth-grade subjects evidenced no significant differences in response to any of the three types of reinforcement. For middle-class sixth-graders, no difference emerged between the effectiveness of praise and symbolic reinforcement, yet both produced a significantly greater increase in responsiveness than did material reinforcement.

Another study comparing the effects of praise and tangible incentives in responses of middle- and lower-class children was performed by Spence and Segner (1967). They found the material reinforcer (candy) to be significantly less effective than praise for both socioeconomic groups.

McLaughlin and Lane (1975) also found praise to be more effective than candy in a study where a third-grader was reinforced for reading vocabulary words.

Hirsch (1975) found that two forms of material incen-

tives (i.e. gum and money) were more effective than praise in teaching second- and sixth-grade male subjects a Latin-English paired-association list.

The effectiveness of tokens and praise on teaching arithmetic and language skills to children with Down's syndrome was investigated by Dalton, Rubino, and Hislop (1973). The material incentive contingent on correct responses produced significant improvement in both arithmetic and language skills. Contingent praise also produced significant gains in language skills but failed to produce such gains in arithmetic. Retest scores one year later revealed that the token group maintained its gains whereas the language performance of the praise group showed a significant decline.

Tokens and praise were also employed by Stahl, Thomson, Leitenberg, and Hasazi (1974) who investigated the establishment of social praise as a reinforcer for clinically relevant behaviors in three socially unresponsive psychiatric patients. A within-subject multiple baseline design was employed. During an initial baseline period, praise was not found to be effective in modifying any subject's behavior. By pairing praise and tokens together, the reinforcing properties of praise were enhanced, establishing it as an effective reinforcer with this population.

Praise in the classroom. The effectiveness of praise in decreasing disruptive classroom behaviors and increasing study behavior was demonstrated by Hall, Lund, and Jackson

(1968). The authors employed an ABAB design. The results indicated that teacher praise was highly effective. The authors' examples of praise expressions used indicated that both descriptive praise and general praise were used. No differentiation was made between the two forms of praise, however.

A number of studies investigating the application of praise in the classroom have failed to isolate the effects of praise by itself. That is, several contingencies were employed simultaneously making it difficult if not impossible to distinguish which consequence or combination of consequences affected the dependent variable.

An example of such a study is provided by Becker, Madsen, Arnold, and Thomas (1967). The authors taught teachers to successfully modify behaviors incompatible with learning (e.g. out of seat behavior, disturbing others, and talking when it is not permitted) in several children. This was done through the use of (a) rules, (b) praise and attention for appropriate behavior, and (c) ignoring disruptive behaviors. While no attempt was made to isolate the effectiveness of the individual consequences, anecdotal data and teacher opinions suggested the effect was primarily due to the praise.

Madsen, Becker, and Thomas (1968) again investigated these variables with an improved design. In this study, the independent variables were added in a sequential manner. Rules alone had no effect. When ignoring disruptive be-

havior was added, the results were inconsistent with some children improving while others increased their disruptive behavior. When descriptive praise was added to the other two independent variables, the incidence of inappropriate behavior significantly fell. Perhaps as impressive as the statistical results of this study are the comments of the teachers involved. One stated the following:

I was amazed at the difference the procedure made in the atmosphere of the classroom and even my own personal feelings. I realized that in praising the well-behaved children and ignoring the bad, I was finding myself looking for the good in the children. It was indeed rewarding to see the good rather than always criticizing I became convinced that a positive approach to discipline was the answer. (p. 149).

An investigation of the effects of tactile cueing and praise on the undesirable behaviors of moderately handicapped institutionalized adolescents is reported by Clements, Tracy, and Arensdorf (1974). The tactile cues were delivered by the teacher separately and in combination with praise for not engaging in the specified undesirable behaviors. The delivery of the cue alone diminished the frequency of disruptive behavior but not as much as the combination of both tactile cues and praise. The authors concluded that both rewards served as effective reinforcers when administered systematically.

Other studies reporting the successful use of praise in modifying disruptive and deviant classroom behaviors include: Thomas, Nielsen, Kuypers, Becker (1968); Ward and Baker (1968); Harris, Johnston, Kelly, and Wolf (1964); and

Allen, Hart, Buell, Harris, and Wolf (1964).

Several researchers have reported the successful use of praise in improving academic behaviors. The amount of time spent studying in class of an eighth-grade girl was modified by Broden, Hall, and Mitte (1971). Self-recording of her own study behavior resulted in an increase in study time. Withdrawal of self-recording resulted in a decrease of study time. Study behavior again increased upon reinstating the self-recording. After teacher praise for study was instituted, the girl's study behavior increased and self-recording was discontinued without significant losses in study time.

Broden, Bruce, Mitchell, Carter, and Hall (1970) employed an ABAB design in modifying the attending behavior of two second-grade boys seated at adjacent desks. A combination of praising attending behavior and ignoring disruptive behavior resulted in a dramatic increase in the amount of time both boys attended to their classwork. It is not possible, however, to distinguish between the effects of the reinforcement and extinction procedures in this study for both contingencies were employed simultaneously.

Stillwell, Harris, and Hall (1972) investigated the effects of feedback and feedback plus praise on the attending behavior of elementary school children. They found that feedback on classwork provided by the teacher resulted in an increase in attending behavior. When the teacher added praise to the feedback, attending behavior remained

about the same but there was a greater increase in the number of correct assignments completed.

Yawkey and Jones (1974) studied the effects of praise on influencing kindergarten children's preferences for either academic or nonacademic centers in an open education classroom. The results indicated that the children's preferences were influenced by the teachers' praise.

The role of praise in maintaining and increasing arithmetic performance previously achieved by a combination of token economy, praise, and feedback was studied by Garcia (1974). Five elementary school slow learners who were especially deficient in arithmetic performance received praise for studying their arithmetic work. Praise was found to be effective in improving the children's arithmetic performance.

An interesting variation on the use of praise in the classroom is provided by Gray, Graubard, and Rosenberg (1974). Students were taught to use praise among other rewards with their teacher. During each of the five weeks of shaping, the number of positive comments from the teacher increased while the number of negative comments decreased. As a result of their training in behavioral engineering, the students reported feeling more power in their relationship with their teacher resulting in a new feeling of self-confidence.

An elementary school principal administered praise to chronically absent children for being present and to low

achievers for meeting predetermined criteria in a study by Copeland, Brown, and Hall (1974). The target behaviors increased for both groups.

Scott, Burton, and Yarrow (1967) successfully employed teacher praise to increase peer interaction in children. Peer interaction was also increased by Evers and Schwarz (1973) who used filmed modeling and teacher praise. Modeling was inferred to successfully modify isolate behavior. The modeling plus praise condition was not significantly different from modeling only. No attempt was made to isolate the effects of praise only.

Several studies have reported that praise was not effective in modifying classroom behaviors. No significant differences were found between praise and control groups in the Dollins, Angelino, and Mech (1960) study of the effects of teacher praise upon 75 elementary school children's performance on the California Test of Personality.

Sinatra (1973) studies the effects of praise on the reading behavior of small groups of potential language disability first-graders and found that praise used alone did not appear to be a successful daily motivator. The author reports that praise appeared to have immediate supportive value, but the children did not appear to desire subsequent praise.

Hardy (1975) did not find praise effective with a high school class which was praised for voluntary hand-raising, verbal responses, and study habits.

General Praise versus Descriptive Praise. Only three studies comparing the differential effects of general praise and descriptive praise have been located. Two of the studies found descriptive praise to be superior to general praise. The third study found no difference between the two forms of praise.

Goetz (1972) studied the effects of both descriptive and general praise on creativity with three pre-schoolers. Creative easel painting was analyzed in terms of the number of different geometric forms exhibited. The subjects received either general or descriptive praise for creative painting. For all three subjects, descriptive praise was found to be significantly more effective in increasing a variety of different forms.

The relative effectiveness of both forms of praise with lower-class and middle-class children was investigated by Bernhardt and Forehand (1975). Following two brief observation periods designed to assess differences in the frequency with which lower-class and middle-class mothers employed general and descriptive praise, each mother played a marble dropping game with her child. Half of the mothers in each group were given general praise expressions and half were given descriptive praise expressions which they were to make contingent upon their child dropping marbles through a specific hole. The results indicated that descriptive praise was significantly superior to general praise in producing the desired response.

Zahler (1975) assigned 60 fourth-grade students to one of three treatment conditions (descriptive praise, general praise, and control). The subjects performed a simple motor task of crossing out circles. Subjects in the two praise conditions received the appropriate form of praise on a VI schedule of 75 seconds. No significant differences among the three groups emerged in the statistical analysis, but the author reports that the children who received praise indicated that they liked the praise they received and wished their teacher would praise them when they do good work.

Purpose of the Study

The preceding literature review indicates that praise frequently serves as a reinforcer. This has been demonstrated primarily through research employing praise in the classroom and through research comparing praise with material reinforcers and reproof.

Many researchers and theorists make a distinction between two categories of praise expressions: general praise and descriptive praise. Among those who indicate a preference, the vast majority indicate the belief that descriptive forms of praise are superior to the general forms. There is little empirically derived evidence to either support or refute this position. Only three studies comparing the differential effects of these two forms of praise have been located. In two studies (Goetz, 1972; Bernhardt & Forehand, 1975) descriptive praise was found to be superior to gen-

eral praise. No differential effects among the two praise forms and a control group were evidenced in the third study (Zahler, 1975).

The purpose of the present study was to investigate the relative effects of general praise and descriptive praise with fifth- and sixth-grade children on a card sorting task.

To explore the outcome of this study, the following hypotheses were studied.

Hypothesis I That both the general praise and descriptive praise groups would change their behavior from their baseline performance to a significantly greater degree than the control group.

Hypothesis II That descriptive praise would prove to be significantly superior to general praise.

Hypothesis III That male subjects and female subjects would not significantly differ in their response to either general praise or descriptive praise.

CHAPTER II

METHOD

The study was carried out at the Lida Lee Tall Learning and Resource Center on the campus of Towson State College in Towson, Maryland. The Lida Lee Tall Center is primarily a research facility at the College focusing on major problems of education. The Center has classes for children from kindergarten through the sixth-grade.

Subjects

The Center's student population is drawn from Baltimore City and its surrounding communities and represents children from diverse socio-economic backgrounds.

Thirty males and twenty females were randomly selected from the fifth- and sixth-grades to serve as subjects for the study. Twelve males and eight females were randomly assigned to each of two treatment conditions. Six males and four females were randomly assigned to the control condition.

The treatment of subjects was in accordance with the ethical standards of the American Psychological Association and the Lida Lee Tall Center.

Procedure

All subjects were seen individually by the experimenter for approximately twenty minutes. The subjects were brought to the experimental room and were seated at a table which was placed against a blank wall. The experimenter

sat behind and to the left of the subject. This arrangement allowed for minimal visual distraction for the subject and eliminated face to face contact between the subject and experimenter which might have contaminated the study.

The experimenter gave the instructions to the subject and answered questions which were relevant to their need to understand the task. Questions that would require explanations that would contaminate the study were not answered, however. In such cases, subjects were told that their question would be answered at a later point at the completion of the study.

Practice trials. To ensure that each subject understood and could perform the experimental task, each subject practiced trials on a task very similar to the experimental task. The practice trials served a dual purpose; they familiarized the subjects with the procedures and they served as a screening device.

On the table directly in front of the subject were placed three 3" x 5" stimulus cards. The task for the subject was to sort sorting cards into three piles under the stimulus cards. The cards could be sorted by one of three methods: color, shape of the design, or number of figures on the card. A sorted card shared at least one of the three stimulus dimensions with the stimulus card it was to be placed under. For example, and card with the star design(s) could correctly be sorted under the stimulus card with one pink star.

During the practice trials, the subjects were told by which method to sort the cards. The experimenter then handed cards, one at a time, to the subject at a three second interval. Cards were given to the subject until he or she correctly sorted six consecutive cards. Appropriate feedback and instructions were given to the subject until the subject understood the sorting procedure. Each subject practiced all three of the sorting methods in order to ensure they were aware of and could perform all three sorting methods. The order in which the subjects practiced the sorting methods was determined randomly for each of the subjects.

Experimental trials. After a subject demonstrated competence on the practice trials, the experimental trials began. Three stimulus cards were also used during the experimental trials.

The task for each subject was to sort each of 108 sorting cards in three piles under the stimulus cards. Again, the cards could be sorted according to either color, shape, or the number of figures on the card. The specific colors, numbers, and shapes, however, differed from the practice trial stimulus cards.

The experimental trials were divided into two periods: a baseline period and a treatment period.

Baseline period. The first 54 sorting cards were used to collect baseline data for each subject. There were no contingencies in effect during this period. The purpose of

the baseline was to determine which sorting method each subject chose independent of any contingency.

Treatment period. Immediately following the baseline period, the treatment conditions were effected and the remaining 54 sorting cards were used. There was no pause between the baseline and treatment periods. Only the use of the praise expressions differentiated between the two experimental phases.

In the two praise conditions, subjects received praise for sorting by one of the two sorting methods other than used by the subject during the baseline period. The reinforced sorting method was randomly determined for each subject.

In the general praise condition, subjects received general praise on a FR3 (fixed ratio of three) schedule for sorting cards by the method that had been selected for reinforcement. For example, a subject being reinforced for sorting by color received a general praise expression following every third card sorted by color during the treatment period. The praise expressions used in this condition were as follows:

- (1) "Good boy/girl!"
- (2) "Great!"
- (3) "Very good!"

In the descriptive praise condition, subjects received descriptive praise that specified the behavior being reinforced. Again, subjects were reinforced on a FR3 schedule

for sorting by the randomly chosen method for reinforcement. The praise expressions used in this condition were as follows:

- (1) "Good boy/girl! You are doing a fine job of sorting by _____."
- (2) "Great! I like the way you are sorting by _____."
- (3) "Very good! I am pleased that you are sorting by _____."

No change was made in the experimental procedure for the control group. Subjects in this condition received no reinforcement for their performance. Thus, baseline data was collected for subjects in this condition for all 108 cards.

Postinvestigation clarification. After all the data had been collected, the experimenter spoke to the subjects as a group to provide clarification of the nature of the study and to remove any misconceptions that may have arisen. All questions by the subjects were answered.

Equipment

Three stimulus cards and twenty-seven sorting cards were used for the practice trials. All cards measured 3" x 5". The first stimulus card had three black crescents on it. On the second stimulus card were five yellow rectangles and on the third was one pink star. Each design was approximately one inch high and the colors filled the design. The stimulus cards were selected so that they would differ

from one another on three stimulus dimensions: number of figures on the card, color of the design, and the type of design.

The twenty-seven sorting cards used for the practice trials contained various combinations of the sorting dimensions. Only one class of a stimulus dimension was on each card. That is, different colors and different shapes were not mixed on cards with more than one figure. There were twenty-seven different combinations of the three stimulus dimensions, one sorting card for each of the possible combinations.

The stimulus cards for the experimental trials differed from those used during the practice trials. The first card contained three blue circles. The second stimulus card had one green triangle. The third card contained two red squares.

The 108 sorting cards used for the experimental trials were similar to the stimulus cards in that they contained various combinations of the stimulus dimensions. Only one class of a stimulus dimension was on each card. There were four cards each of the twenty-seven possible combinations comprising the 108 sorting cards. The cards were arranged into two identical decks of 54 cards. Each deck of cards was shuffled in between seeing subjects so that the presentation of cards would be random for each subject.

Instructions

The following instructions were given to each subject

to explain the practice trial procedure.

This is a sorting game. In front of you I have placed three cards with colored designs on them. Notice that there are three different colors: yellow, black, and pink. Also notice that on one of the cards there is one figure, on another card there are three figures, and on the third card there are five figures. Finally, notice that there are three different shapes: stars, moons, and rectangles. I have here a stack of cards with different combinations of the shapes, colors, and number of figures. Your job is to sort the cards in three piles right here (experimenter points to the three locations just under the stimulus cards) under these cards. I will give you the cards one at a time and you should sort them by either the color, shape, or number of figures on the card. The cards in the piles should be like the card just above it in one of these three ways. Let's try a few cards. Sort these by _____.

After the subject had sorted six cards in a row correctly, the second sorting method was instituted.

Now sort these by _____.

Following six correct sorts, the third method was instituted.

Sort these by _____.

Following the practice trials, instructions for the exper-

imental trials were given. They were as follows:

Now I'd like you to sort some other cards I have.

(Experimenter replaces the practice trial stimulus cards with the experimental trial stimulus cards.)

Notice that these cards also differ in three ways.

There are three colors: red, blue, and green.

There are three shapes: squares, circles, and a triangle. And there are three figures on one card,

two figures on another card, and one figure on the

third card. I have here a number of cards that

can be sorted with these cards (experimenter points to the stimulus cards) much as you did before.

These cards also may be sorted according to color, shape, or number of figures on the card. As before,

I will hand the cards to you one at a time, only

this time you decide how to sort them. Here. Sort

this by any of the three methods you wish.

Recording of Data

Appendix A shows how the data were collected. Near the top of the Data Sheet are drawings of the stimulus cards. Each response is numbered. A number and initials identifying the card sorted on each response was entered by the response number and directly under the drawing of the stimulus card the subject placed the card. For example, in the case shown, the subject placed the first card under the first stimulus card. The card had two green squares and hence was indicated by 2GS. This recording method

yielded a record of each individual response by the subject.

The subjects' number, condition, baseline (preferred) method, and the method reinforced were also recorded on the Data Sheet as indicated.

Responses that received reinforcement were so indicated on the Data Sheet by circling the response number as on responses #3 and #6.

Dependent Variables

Two dependent measures were employed in the study. The number of nonpreferred sorts (i.e. cards sorted that did not match the preferred sorting method established during baseline) was one of the dependent variables. The 54 responses of the treatment period were divided into six equal sized blocks yielding six measures of the dependent variable for each subject.

The second dependent variable was the number of cards sorted according to the method the subject was reinforced for during the sorting of the final 54 cards. Again, six equal sized blocks yielded six dependent measures for each subject. Data for this dependent variable were collected on the two praise conditions only.

Statistical Analyses Procedures

The nonpreferred sorts were analyzed as a three cell repeated measures design with repetitions on the trial dimension. Five sets of orthogonal polynomial coefficients were generated. A set of five trend contrasts (linear through quintic) for each subject was created by multiply-

ing the corresponding coefficients by the subject's scores. A multivariate analysis of variance was performed on these trend contrasts by the Univac 1106 computer using the MANOVA program. Univariate analyses for linear through quintic trends were also performed using the MANOVA program. Contrasts amongst the groups were carried out to compare the trends of the three treatment groups. The interested reader is referred to McCall and Appelbaum (1973) for a more detailed explanation of the multivariate analysis of variance of repeated measurement designs using the MANOVA program.

Data on the second dependent variable were analyzed as a 2 x 2 repeated measures design with repetition on the trial dimension. Again, multivariate and univariate analyses were carried out on the five trend contrasts generated for each subject.

CHAPTER III

RESULTS

Results of Analyses of Nonpreferred Sorting

Data were analyzed in order to determine whether any of the three groups significantly altered their method of sorting the cards from their preferred sorting method established during the baseline period. The means and standard deviations for nonpreferred sorting by the three groups are presented in Table 1. The group means over blocks are plotted in Figure 1. The raw data on nonpreferred sorting for the three groups are presented in Appendix B.

A one-cell multivariate analysis of variance on the trial means resulted in an F of 3.543 which was significant ($p < .009$, 5,45 df). Univariate analyses indicated that significant trends were present at both the linear ($F = 14.18$, 1,49 df, $p < .001$) and quadratic ($F = 8.06$, 1,49 df, $p < .007$) levels.

The results of the multivariate analysis of variance on the three-cell design indicated that there was a highly significant difference in the trends among the three groups. Univariate analyses evidenced significant linear and quadratic trends. These results are presented in Table 2.

Specific contrasts were tested to determine how the three groups differed from one another in their trends. No significant difference in the trends of the control group and the general praise group emerged as evidenced in Table 3.

The descriptive praise condition did significantly differ from the control condition. Univariate tests revealed significant linear and quadratic trends. These results are shown in Table 4. The descriptive praise condition also differed from the general praise condition as seen in Table 5. The linear and quadratic trends were both highly significant.

Results of Analyses on Reinforced Sorting

Data were also collected and analyzed on the number of cards sorted by the reinforced method for the two praise conditions. The means and standard deviations for the two praise conditions are shown in Table 6. A graphic representation of the performance of the two groups is presented in Figure 2. The means for the descriptive praise group are consistently higher than those for the general praise group. The general praise group does not show any consistent trend towards improvement in their performance across trials. The descriptive praise group, however, consistently improved its performance across the first five blocks where it peaked and remained for the sixth block of trials. The raw data for these two groups are presented in Appendix C.

A one-cell multivariate analysis of variance was carried out on the trial means resulting in an F of 1.827 which was nonsignificant ($p < .133$, 5,35 df).

The 2 x 2 cell analyses were carried out with the results presented in Table 7. The multivariate test for the treatment effect indicated that it was highly significant.

Univariate analyses on linear through quintic trends indicated that the linear trend was highly significant while all other levels proved nonsignificant.

Multivariate tests for the sex effect and the interaction of the sex effect and the treatment effect indicated these effects were nonsignificant.

Table 1

Means and Standard Deviations for Cards Sorted by
Nonpreferred Method

<u>Group</u>	<u>Blocks</u>						<u>Σ</u>
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	
Control							
M	.10	.30	.10	.00	.10	.10	.12
SD	.30	.46	.30	.00	.30	.30	.32
General							
M	.60	.65	.65	.85	.95	1.00	.78
SD	1.35	1.69	1.76	2.23	2.21	2.08	1.88
Descriptive							
M	1.25	2.40	3.95	4.10	5.10	4.25	3.51
SD	2.22	2.58	3.30	2.73	2.90	2.47	2.96
<hr/>							
Σ							
M	.76	1.28	1.86	1.98	2.44	2.12	1.74
SD	1.69	2.15	2.91	2.83	3.18	2.69	2.65

Figure 1

Mean Number of Cards Sorted by Nonpreferred Method

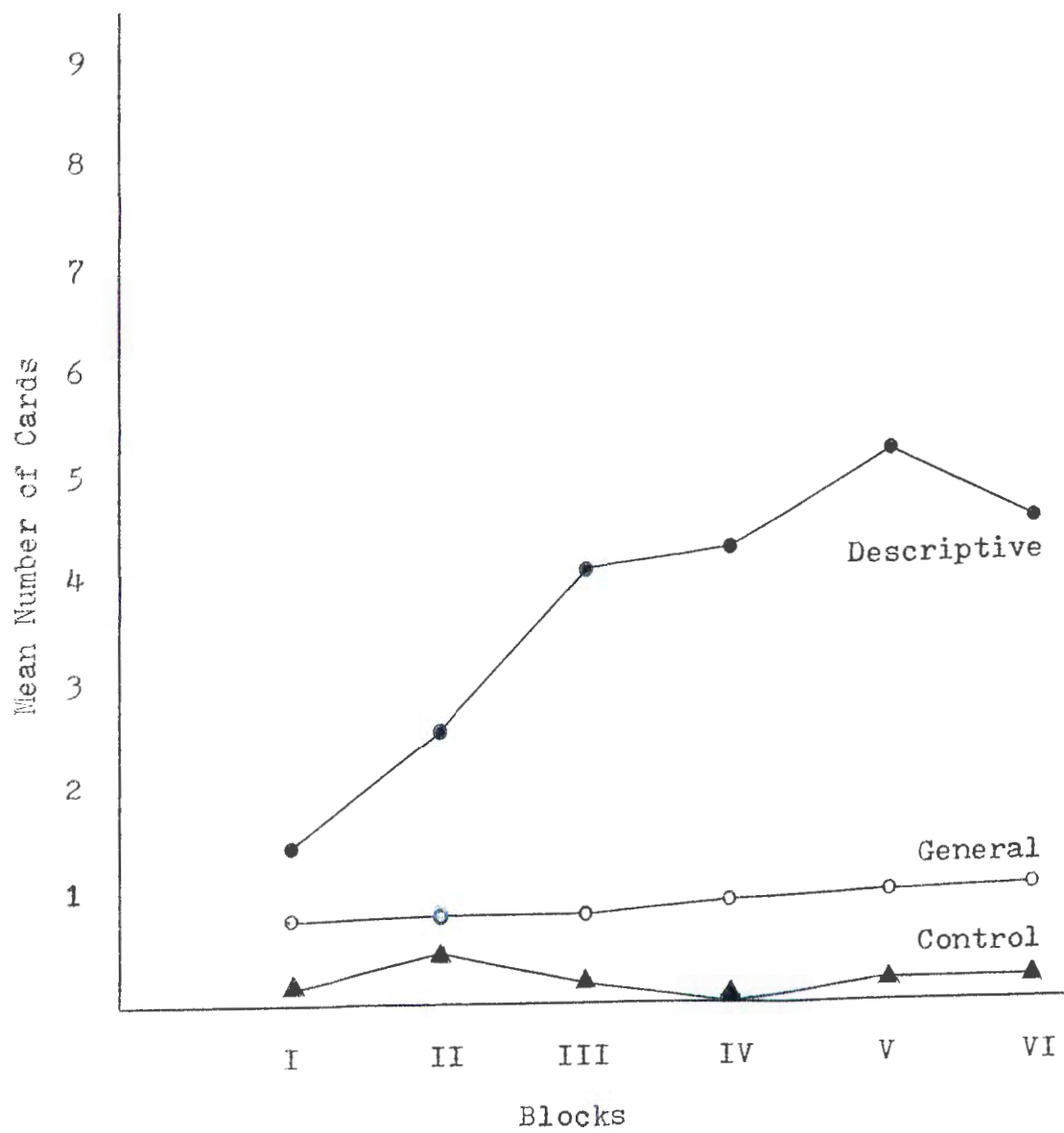


Table 2
 Orthogonal Polynomial Contrasts for
 Nonpreferred Sorting

Source	F	DF	P less than
Multivariate test	3.882	10,86	.001
Univariate tests			
Linear	10.057	2,47	.001
Quadratic	9.377	2,47	.001
Cubic	.494	2,47	.614
Quartic	.401	2,47	.672
Quintic	1.949	2,47	.154

Table 3
 Orthogonal Polynomial Contrast on Control
 and General Praise Condition

Source	F	DF	P less than
Multivariate test	.333	5,43	.890

Table 4

Orthogonal Polynomial Contrasts on Control
and Descriptive Praise Conditions

Source	F	DF	P less than
Multivariate test	7.537	5,43	.001
Univariate tests			
Linear	17.372	1,47	.001
Quadratic	14.088	1,47	.001
Cubic	.980	1,47	.327
Quartic	.682	1,47	.413
Quintic	2.704	1,47	.107

Table 5

Orthogonal Polynomial Contrasts on General
and Descriptive Praise Conditions

Source	F	DF	P less than
Multivariate test	7.506	5,43	.001
Univariate tests			
Linear	14.583	1,47	.001
Quadratic	15.801	1,47	.001
Cubic	.439	1,47	.511
Quartic	.596	1,47	.444
Quintic	3.456	1,47	.069

Table 6
Means and Standard Deviations for Cards Sorted to
Criterion for Praise Conditions

<u>Group</u>	<u>Blocks</u>						<u>Σ</u>
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	
General							
M	3.50	3.05	2.75	3.25	3.80	3.20	3.26
SD	1.28	1.40	1.64	1.41	2.06	2.04	1.70
Descriptive							
M	4.00	5.35	5.60	6.55	7.05	7.05	5.93
SD	1.95	2.50	3.14	2.31	2.80	2.67	2.81
Σ							
M	3.75	4.20	4.18	4.90	5.42	5.12	4.60
SD	1.67	2.33	2.88	2.53	2.95	3.06	2.66

Figure 2
Mean Number of Cards Sorted to Criterion for
Praise Conditions

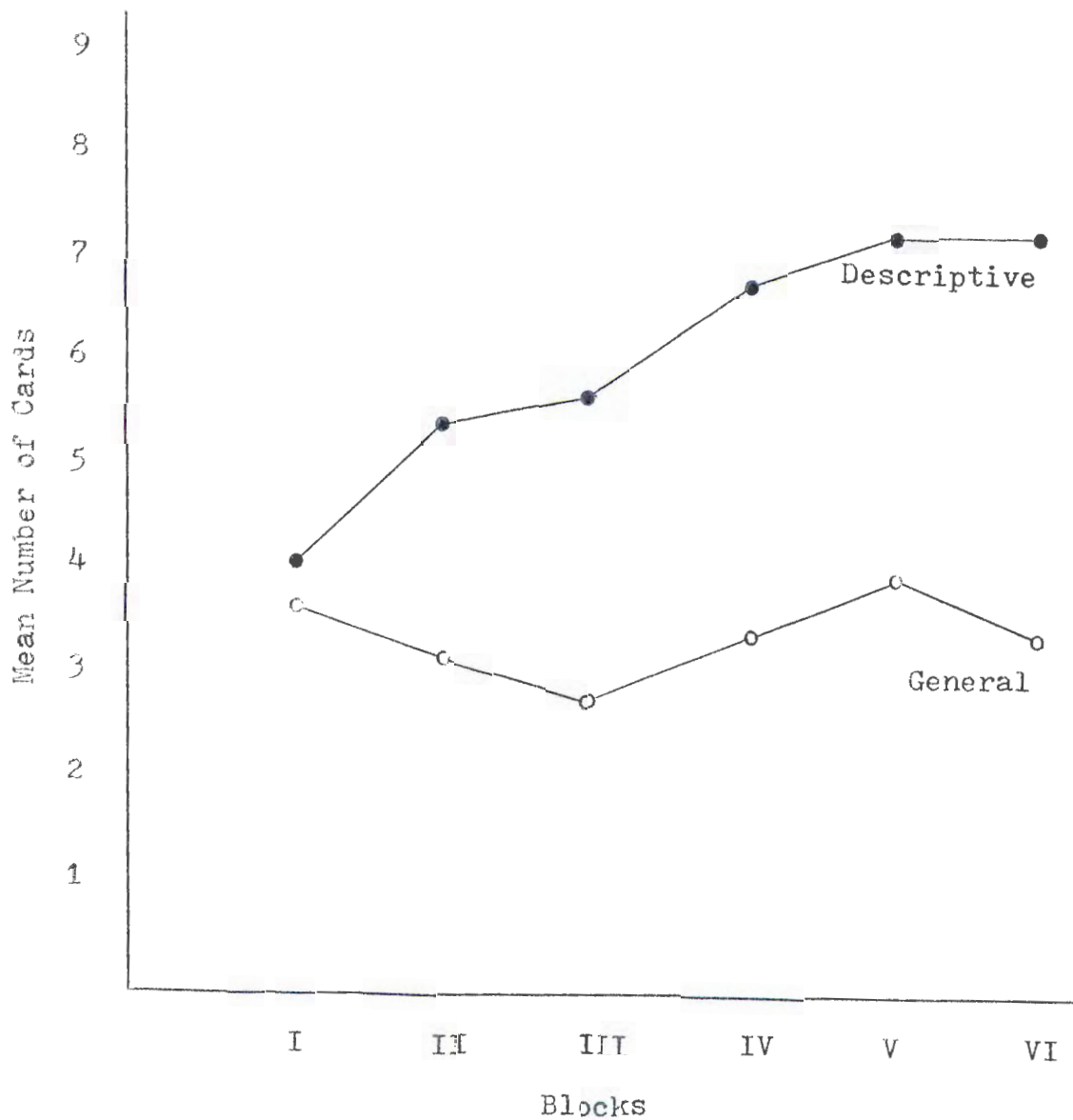


Table 7
Orthogonal Polynomial Contrasts for 2 x 2 Design

Source	F	DF	P less than
Treatment effect			
Multivariate test	3.693	5,32	.009
Univariate tests			
Linear	8.987	1,36	.005
Quadratic	2.531	1,36	.120
Cubic	1.569	1,36	.218
Quartic	.000	1,36	1.000
Quintic	.111	1,36	.740
Sex effect			
Multivariate test	1.065	5,32	.398
Treatment x Sex effect			
Multivariate test	1.283	5,32	.296

CHAPTER IV

DISCUSSION

The present study investigated the differential effects of general praise and descriptive praise with fifth- and sixth-grade children performing a card sorting task. This chapter discusses the results of the study with respect to the given research hypotheses.

Central to the interpretation of the obtained results are the concepts of incentive value and informative value. These two aspects of a reinforcer are generally credited with being the components that make a reinforcer effective. A brief discussion of these concepts follows.

Incentive and Informative Values of a Reinforcer

It is generally accepted that a reinforcing stimulus derives its effectiveness from both its incentive value and its informative value (Annett, 1969). There are numerous theoretical positions to explain just how the incentive aspect of a reinforcer operates. Basically, it is believed that the incentive value of a reinforcer contributes to the effectiveness of the reinforcer to the extent that it reduces a specific motivational state of the organism. In the interest of brevity, the detailed variations on this matter will not be related here. The interested reader is referred to Mower (1960) for an excellent discussion on the subject.

In the present study, the praise expressions are viewed

as having incentive value to the extent that they decrease a motivational state on the part of the subject. Gergan (1969) has offered an explanation of how this might operate. He hypothesizes a motive of a "need for approval" which is often met by social conditioned reinforcers such as praise and attention.

A reinforcer also varies as a function of its information value (Cairns, 1967). The informative value of a reinforcing stimulus is effective to the extent that it provides the subject with some information regarding the expected response and its associated consequence. Piaget (1960) argues that individuals have a natural and active tendency to seek out and utilize informative events. Dulany (1968) and Levine (1966) have concluded from their investigations on information events that the subject's awareness of the contingencies is a necessary condition for the establishing of a conditioned response.

Both verbal and nonverbal reinforcers have been found to possess informative cues. Research has suggested that verbal reinforcers are more effective than nonverbal reinforcers in transmitting information important to the establishment of the conditioned response (Cairns, 1967; Lair & Smith, 1970).

It appears that both incentive and informative aspects are crucial to a reinforcer. These two components interact with each other. Deese and Hulse (1967) and Annett (1969) have questioned whether it is even possible to separate

the informative and incentive properties of a reinforcer. Never-the-less, awareness of these two properties is important in explaining the results of this study.

Hypothesis I

General praise and descriptive praise have both frequently been demonstrated to serve as reinforcers. Therefore it was hypothesized that in the present study, both praise conditions would significantly differ from the control.

This hypothesis was tested by analyzing the degree to which the three groups changed their sorting from their preferred method (established during baseline) to a nonpreferred method (i.e. either of the two remaining sorting methods). The analyses indicated that the descriptive praise group demonstrated a significantly greater degree of nonpreferred sorting than did the control group. Thus, descriptive praise was successful in altering the sorting behavior of the subjects. It should be noted that this analysis merely indicates that subjects in this condition significantly changed their sorting method, not necessarily that this change was reflected in greater sorting by the method for which they were reinforced.

No significant difference emerged between the control condition and the general praise condition. Neither of these groups evidenced any significant trend towards increasing their nonpreferred sorting and neither group ever produced a mean of greater than one nonpreferred sort per

block. Thus, it is concluded that general praise did not serve as a reinforcer.

This should not be interpreted as indicating that general praise cannot act as a reinforcer. Indeed, the literature has clearly shown that it frequently is highly effective as a reinforcer. It is suggested that in the present case, the general praise had insufficient incentive value or informative value (or both) to significantly affect the response being rewarded. This will be explored in greater detail under Hypothesis II.

Hypothesis II

A primary purpose of the present study was to investigate whether, as it is frequently postulated, descriptive praise is a superior reinforcer to general praise. To this end, it was hypothesized that descriptive praise would prove to be a more effective reinforcer than general praise. This hypothesis was confirmed.

A significant difference emerged between these two groups in the analysis of nonpreferred sorting. The mean performance of the descriptive praise group was consistently higher than that of the general praise group. The descriptive group demonstrated learning over trials while no such trend was evidenced by the general praise group.

Data were also analyzed on the extent to which the two praise groups employed the sorting methods they were reinforced for. The outcome indicated the superiority of descriptive praise over general praise. This result is in

concert with the findings of Goetz (1972) and Bernhardt and Forehand (1975). The descriptive praise group consistently sorted more cards by the reinforced method than did the general praise group. There was a linear trend for the descriptive praise condition demonstrating learning over trials. This group peaked at the fifth block of trials and maintained their level of performance on the sixth block.

One explanation of why the descriptive praise group performed significantly better than did the general praise group concerns the incentive value of the two forms of praise. Both forms deliver an accolade to the subject. The general praise expressions deliver the accolade alone. The descriptive praise began with the same expression used with the general praise group but elaborated with a labeling of the behavior being praised. It is possible that the longer praise expressions used in the descriptive praise condition had greater incentive value for the subjects. The subjects received more attention due to the longer time required to administer the praise. Further, the elaborated portion of the descriptive statement contained some additional praise in the form of the experimenter expressing that he was pleased with the subject's performance or that the subject was doing a fine job.

The tenability of this argument, however, may be questioned. If it is true that the descriptive praise group performed better than the general praise group because the longer praise expressions increased the incentive value,

it would be expected that the general praise group would in turn perform better than the control group. Even a greater difference in the amount of praise and attention existed between these two groups. No such difference was found, however.

A more plausible explanation concerns the relative levels of informative value contained in both forms of praise. Descriptive praise would appear to be very high in informative value in that it specifically labels the behavior being reinforced. This labeling may be regarded as information feedback that strengthens the association between the response and its consequence. This association is not likely made so easily with the general praise where the individual must, in effect, guess what he did to merit the praise. This can lead to incorrect associations creating what has been termed superstitious behavior (Whaley & Malott, 1971).

Cognitive theorists such as Estes (1969) claim that this association is created by the subject becoming "aware" of the connection between his behavior and its consequence. Skinner (1953; 1969) argues, however, that the subject need not be "aware" of the contingencies under which he is responding. An individual may or may not be able to describe the connection he has made between his behavior and why he responded in that matter. Anecdotal data from the present study supports Skinner's position. In individual postexperimental interviews, subjects said they "chose" their respec-

tive sorting methods either for no particular reason or because they just felt like sorting by that method. No subject ever verbalized any connection between the praise and their behavior.

It is suggested that in the present study, the descriptive praise expressions contained enough information value to inform the subjects what response on their part elicited the praise. The praise in turn appeared to contain sufficient incentive value to motivate the subjects to respond in a manner to earn the reinforcement. The general praise expressions, however, appear to contain insufficient information value to enable the subjects to correctly associate the target behavior and the praise.

Hypothesis III

The literature has indicated that praise is effective with both males and females. Some studies (e.g. Kennedy & Willcutt, 1963; Miller et. al., 1973) have investigated the differential effects of sex on praise, finding praise equally effective with both sexes. In the present study, it was hypothesized that male and female subjects would not significantly differ in their response to the two forms of praise. This hypothesis was confirmed. Male and female subjects did not significantly differ in response to the two forms of praise nor were any interaction effects between sex and the treatment conditions evidenced.

Generalization of the Results

The primary focus of this section is to offer specula-

tion as to how the finding that descriptive praise was superior to general praise may be generalized to other samples of subjects, independent variables, dependent variables, and reinforcing agents.

Generalization to other samples of subjects. There was nothing unusual about the particular sample of subjects used in the present study to suggest that generalizations to other subjects in the fifth- and sixth-grades and from urban or suburban environments should be regarded as unreasonable. Naturally, generalizing to samples of subjects substantially differing from the sample used is highly dubious.

Praise has been demonstrated to be highly effective as a reinforcer for persons of practically all ages from pre-school age (e.g. Bernhardt & Forehand, 1975) through adulthood (e.g. Gray et. al., 1974). Never-the-less, it has been demonstrated that the effectiveness of any particular incentive varies with the age of the subject (Brackill & Jack, 1958) and the results obtained in the present study may vary with the age of the subjects.

The Bernhardt and Forehand (1975) and Goetz (1972) studies indicated that preschoolers perform better under descriptive praise than general praise. This suggests that descriptive praise might be superior to general praise for children from the preschool years through at least the sixth grade. Further investigation is needed, however, to either accept or reject this suggestion. There is no body of lit-

erature to indicate whether the obtained results may be reasonably generalized to subjects older than those employed in the present study.

Only one study has investigated socio-economic class with both general and descriptive praise. Bernhardt and Forehand (1975) found that both lower-class and middle-class children responded to a significantly greater degree to descriptive praise than general praise.

Generalization to other independent variables. The general praise expressions used in the present study are representative of common generalized praise expressions. There is no evidence to suggest that other common praise expressions would not be equal in effectiveness. Neither is there reason to question generalization to other examples of descriptive praise.

It is important to distinguish descriptive praise from straight feedback (e.g. "correct") which does not contain any expression of praise. The incentive values of descriptive praise and feedback may differ.

Generalization to other dependent variables. As the review of literature for this study has indicated, both forms of praise have been successfully applied to a great variety of dependent variables. It would appear reasonable to expect descriptive praise to be superior to general praise for a great variety of behaviors.

It is suggested that descriptive praise proved to be the superior form of praise in this study due to its label-

ing of the behavior being reinforced which increased the informative value to the subjects. Wherever there might be ambiguity as to what is being reinforced, it might be expected that descriptive praise would prove superior to general praise. In cases where it is obvious to the subjects what behavior of theirs is being praised, the relative advantage of descriptive praise would likely be diminished.

Generalization to other reinforcing agents. Skinner (1953) has discussed the importance of the reinforcing agent in the use of social reinforcement. The success of a social reinforcer such as praise is in part contingent upon the degree to which the experimenter is a reinforcing agent. In the present instance, a reinforcing agent may be defined as an individual who administers praise which is effective in modifying the subject's behavior.

Generalizing the results to other adult reinforcing agents may be quite reasonable. Although the experimenter in this study was a stranger to all of the subjects, establishing himself as a reinforcing agent was easily achieved. Goetz (1972) who obtained results in concert with this study also employed an adult stranger as the experimenter. Research, as evidenced in this study's literature review, has repeatedly demonstrated that teachers are reinforcing agents. Parents, of course are generally very successful reinforcing agents. Bernhardt and Forehand (1975) employed mothers as experimenters in their study that indicated the superiority of descriptive praise.

Implications and Suggestions for Further Research

Praise is one of the most commonly employed social reinforcers. As such, research increasing our understanding of how it operates as a reinforcer and how it may be more efficiently employed is of considerable practical value. The findings of this study provide evidence to support the long held position that descriptive praise is a more effective reinforcer than general praise. Those intending to utilize praise with the purpose of shaping or maintaining behavior should consider the apparent advantage of the descriptive form of praise. As indicated previously, however, audacious generalizations of this study's results should be avoided. Further research is needed to replicate these results and to further investigate these forms of praise. Suggestions for further research on general and descriptive praise follows.

The present study was carried out in a laboratory setting which allowed for considerable control of many of the extraneous variables that operate in the natural environment. The utility of the results obtained in this study would be greatly enhanced by studying these variables in a more natural setting using dependent variables of practical interest. For example, these forms of praise could be studied on academic behaviors in the classroom. A vast amount of research on praise used in the classroom exists to suggest the feasibility of such research.

It is important to investigate these variables with

other populations. Piaget (1960) has suggested that the age and intellectual abilities of the subject are important variables determining his ability to utilize informative events. Many more studies are needed to determine how important these variables are in determining the relative effectiveness of these two forms of praise. No study has investigated these variables with adults.

It has been suggested here that descriptive praise expressions may carry greater incentive value than general praise expressions due to their greater length which increases the amount of attention given the subjects. Some research is needed to investigate this possibility. This might be accomplished by using descriptive and general praise expressions of equal length.

Another explanation offered for the obtained findings concerns the hypothesis that descriptive praise contains a higher level of information value than general praise and therefore is superior in those situations where the increased information content is of value to the subject. Creative research is needed in this area to either confirm or refute this hypothesis.

There is a growing body of literature comparing the effects of general praise and feedback (e.g. "correct"). The assumption in most of this research is that what is being tested are the relative effects of an incentive event (praise) and an informative event (feedback). While it may be true as Annett (1969) has suggested, that incentive

effects and informative effects are basically inseparable, general praise and feedback may be heavily weighted with incentive value and informative value respectively. Descriptive praise appears to contain the attributes of both general praise and feedback. It is therefore suggested that descriptive praise be included as a third independent variable in research in this area.

APPENDIX A

Data Sheet

Data Sheet

Subject # _____

Condition _____

Baseline method _____

Reinforced for _____



1. _____

26. _____

2. _____

29. _____

3. _____

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4. _____

31. _____

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32. _____

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33. _____

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27. _____

54. _____

APPENDIX B

Raw Data on Nonpreferred Sorting

Raw Data on Nonpreferred Sorting for
Control Condition

Subjects	<u>Blocks</u>						Total
	I	II	III	IV	V	VI	
Male							
44	0	0	0	0	0	0	0
42	0	1	0	0	1	0	2
45	0	0	0	0	0	0	0
7	0	0	1	0	0	0	1
26	0	1	0	0	0	0	1
22	1	0	0	0	0	0	1
Female							
1	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0
34	0	1	0	0	0	1	2

Raw Data on Nonpreferred Sorting for
General Praise Condition

Subjects	<u>Blocks</u>						Total
	I	II	III	IV	V	VI	
Male							
14	1	0	0	0	0	0	1
11	1	0	0	0	0	0	1
9	0	0	0	0	0	0	0
15	0	0	0	0	0	1	1
43	0	0	0	0	0	0	0
29	6	6	7	6	7	6	38
40	0	0	1	0	0	0	1
21	1	0	0	0	0	0	1
50	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0
46	1	1	0	0	0	0	2
4	0	0	0	0	0	0	0
Female							
23	0	1	0	0	0	0	1
25	1	0	0	3	6	6	16
37	0	0	0	0	1	2	3
33	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
5	1	0	0	0	0	0	1
6	0	5	4	8	5	5	27
31	0	0	1	0	0	0	1

Raw Data on Nonpreferred Sorting for
Descriptive Praise Condition

Subjects	<u>Blocks</u>						Total
	I	II	III	IV	V	VI	
Male							
12	5	6	8	5	6	6	36
2	0	4	7	5	6	8	30
10	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0
41	0	0	8	4	6	6	24
39	3	6	5	6	7	5	32
18	4	3	7	8	7	6	35
19	0	5	5	1	9	6	26
47	1	0	7	0	0	0	8
49	5	4	7	4	6	5	31
36	0	0	0	3	9	4	16
30	7	6	8	5	7	4	37
Female							
24	0	4	6	8	6	4	28
32	0	0	2	7	8	6	23
20	0	6	4	4	5	5	24
35	0	0	0	7	5	6	18
3	0	0	0	0	0	0	0
38	0	0	0	5	6	4	15
13	0	4	5	7	5	7	28
16	0	0	0	3	4	3	10

APPENDIX C

Raw Data on Sorting by Reinforced Method

Raw Data on Sorting by Reinforced Method
for General Praise Condition

Subjects	<u>Blocks</u>						Total
	I	II	III	IV	V	VI	
Male							
14	4	3	4	2	4	2	19
11	5	1	5	3	3	2	19
9	1	2	4	5	5	2	19
15	3	3	1	3	4	4	18
43	5	1	2	2	5	2	17
29	2	3	3	4	4	1	17
40	4	2	4	2	3	4	19
21	5	1	5	2	4	1	18
50	2	6	0	4	4	2	18
48	4	2	2	1	4	5	18
46	4	4	1	1	2	5	17
4	5	5	1	4	1	2	18
Female							
23	4	2	4	2	4	2	18
25	5	4	0	6	9	9	33
37	3	3	2	4	2	4	18
33	5	4	3	3	1	2	18
8	3	5	3	4	2	1	18
5	2	2	3	3	3	4	17
6	2	4	6	6	9	7	34
31	2	4	2	4	3	3	18

Raw Data on Sorting by Reinforced Method
for Descriptive Praise Condition

Subjects	<u>Blocks</u>						Total
	I	II	III	IV	V	VI	
Male							
12	8	9	9	9	9	9	53
2	2	9	9	9	9	9	47
10	5	5	1	4	1	3	19
27	4	2	4	5	1	3	19
41	2	2	3	4	6	9	26
39	7	9	9	5	4	9	43
18	7	7	7	7	9	8	45
19	3	7	7	4	6	3	30
47	3	3	9	4	3	2	24
49	2	5	5	9	9	9	39
36	4	5	0	8	9	9	35
30	8	9	9	9	9	9	53
Female							
24	2	6	8	6	9	9	40
32	4	3	6	9	9	9	40
20	4	8	8	5	8	5	38
35	3	2	4	9	9	9	36
3	3	4	2	2	4	3	18
38	2	3	1	9	9	9	33
13	4	6	9	9	9	9	46
16	3	3	2	5	9	6	28

REFERENCES

- Allen, K., Hart, B., Buell, J., Harris, F., & Wolf, M. Effects of social reinforcement on isolate behavior of a nursery school child. Child Development, 1964, 35, 511-518.
- Allport, G.W. The ego in contemporary psychology. Psychological Review, 1943, 50, 451-478.
- Annett, J. Feedback and human behavior. Baltimore: Penguin Books, 1969.
- Becker, W., Madsen, C., Jr., Arnold, C., & Thomas, D. The contingent use of teacher attention and praise in reducing classroom behavior problems. The Journal of Special Education, 1967, 1, 287-307.
- Becker, W.C. Parents are teachers: a child management program, Research Press, Champaign, Illinois, 1971.
- Beltz, S.E. How to make Johnny want to obey. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.
- Bernhardt, A.J., & Forehand, R. The effects of labeled and unlabeled praise upon lower and middle class children. Journal of Experimental Child Psychology, 1975, 19, 536-543.
- Bhuranachot, V. Helping maladjusted children in the classroom. Journal of the Clinical Psychologist Club, 1972, 3, 49-53.
- Binet, A., & Vaschide, E. Experiences de forces musculaire et de fond chez les jeunes garcons. Annee Psychol., 1897, 4, 15-63.
- Bird, J., & Bird, L. Power to the parents, New York: Doubleday, 1972.
- Brackbill, Y., & Jack, D. Discrimination learning in children as a function of reinforcement value. Child Development, 1958, 29, 185-190.
- Brenner, B. Effect of immediate and delayed praise and blame upon learning and recall. Teachers College Contr. Education, 1934, 620.
- Brodin, M., Bruce, C., Mitchell, M.A., Carter, V., & Hall, R.V. Effects of teacher attention on attending behavior of two boys at adjacent desks. Journal of Applied Behavior Analysis, 1970, 3, 199-203.

- Broden, M., Hall, R.V., & Mitts, B. The effect of self-recording on the classroom behavior of two eighth grade students. Journal of Applied Behavior Analysis, 1971, 4, 191-199.
- Brophy, J. The role of rewards and reinforcements in early education programs: fostering intrinsic motivation to learn. Journal of School Psychology, 1972, 10, 243-251.
- Cairns, R.B. Informational properties of verbal and non-verbal events. Journal of Personality and Social Psychology, 1967, 5, 353-357.
- Chang, C.Y. A research on the reasons why a child lies. Taiwan Chiao Yu Pu Tau Yueh K'an, 1972, 22, 19-20.
- Chase, L.E. Motivation of young children: an experimental study of the influence of certain types of external incentives upon the performance of a task. University Iowa Study on Child Welfare, 1932, 5.
- Clements, J.E., Tracy, D.B., & Arensdorf, J. Effect of tactile cueing and praise on undesirable classroom behavior of moderately handicapped institutionalized adolescents. Training School Bulletin, 1974, 71, 149-156.
- Cohen, A. A study of incentives under schoolroom conditions. Unpublished master's thesis, Columbia University, 1972.
- Coleman, J.C. Psychology and effective behavior. Glenview: Scott, Foresman and Company, 1969.
- Copeland, R.E., Brown, R.E., & Hall, R.V. The effects of principal-implemented techniques on the behavior of pupils. Journal of Applied Behavior Analysis, 1974, 7, 77-86.
- Cradler, J.D., & Goodwin, D.L. Conditioning of verbal behavior as a function of age, social class, and type of reinforcement. Journal of Educational Psychology, 1971, 62, 293-299.
- Dalton, A. J., Rubino, C. A., & Hislop, M. W. Some effects of token rewards on school achievement of children with Down's syndrome. Journal of Applied Behavior Analysis, 1973, 6, 251-259.
- Davis, R. A., & Ballard, C. R. Effectiveness of various types of classroom incentives. Educational Methods, 1932, 12, 134-145.

- Deese, J., & Hulse, S. H. The psychology of learning. New York: McGraw-Hill, 1967.
- Dollins, J. G., Angelino, H., & Mech, E. V. With words of praise. Elementary School Journal, 1960, 60, 446-450.
- Dreikurs, R. Children: the challenge, New York: Hawthorn Books, 1964.
- Dulany, D. E. Awareness, rules and propositional control: A confrontation with S-R behavior theory. In T. R. Dixon & D. L. Horton (Eds.), Verbal behavior and general behavior theory, Englewood Cliffs, N.J.: Prentice Hall, 1968, 340-387.
- Estes, W. K. Reinforcement in human learning. In J. L. Tapp (Ed.), Reinforcement and behavior, New York: Academic Press, 1969.
- Evers, W. L., & Schwarz, J. C. Modifying social withdrawal in preschoolers: the effects of filmed modeling and teacher praise. Journal of Abnormal Child Psychology, 1973, 1, 248-256.
- Fischer, W. Sharing in preschool children as a function of amount and type of reinforcement. Dissertation Abstracts, 1961-62, 22, 2871.
- Garcia, C. H. Differential effects of verbal praise, feedback of results, and verbal praise combined with feedback of results in the maintenance of arithmetic response rate. Revista Interamericana de Psicologia, 1974, 8, 41-52.
- Gergen, K. J. The psychology of behavior exchange. Readings: Addison-Wesley, 1969.
- Ginott, H. G. Between parent and child. New York: The MacMillan Co., 1965.
- Goetz, E., & Salmonson, M. The effect of general and descriptive reinforcement on "creativity" in easel painting. In Semb, G. (Ed.) Behavior Analysis and Education, University of Kansas Support and Development Center for Follow Through, Department of Human Development, 1972, 53-61.
- Gordon, E. P. E. T. parent effectiveness training. New York: Peter H. Wyden, Inc. 1970.
- Gray, F., Graubard, P. S., & Rosenberg, H. Little brother is changing you. Psychology Today, 1974, 7, 42-46.

- Gruenberg, S. M. The parents' guide to everyday problems of boys and girls. New York: Peter H. Wyden, Inc. 1970.
- Hall, R. V., Lund, D., & Jackson, D. Effects of teacher attention on study behavior. Journal of Applied Behavior Analysis, 1968, 1, 1-12.
- Hardy, R. E. The effects of praise as a generalized reinforcer on selected variables in secondary classrooms: A behavior modification approach. Pupil Personnel Services Journal, 1975, 4, 41-44.
- Harris, F., Johnston, M., Kelly, C., & Wolf, M. Effects of positive social reinforcement on regressed crawling of nursery school child. Journal of Educational Psychology, 1964, 55, 35-51.
- Hauck, P. A. The rational management of children. New York: Libra Publishers, Inc., 1967.
- Hirsch, B. Reinforcer effectiveness with negro and white children. Dissertation Abstracts International, 1974, 35, 1889.
- Hurlock, E. B. The value of praise and reproof as incentives for children. Archives of Psychology, 1924, No. 71.
- Hurlock, E. B. The effects of incentives upon the constancy of the I.Q. Journal of Genetic Psychology, 1925, 32, 422-434. (a)
- Hurlock, E. B. An evaluation of certain incentives used in school work. Journal of Educational Psychology, 1925, 16, 145-159. (b)
- Kennedy, W. A., & Willcutt, H. Motivation of School Children. (Cooperative Research Project No. 1929) Tallahassee, Florida: United States Department of Health, Education, and Welfare; Department of Education; October, 1963.
- Kennedy, W., & Willcutt, H. Praise and blame as incentives Psychological Bulletin, 1964, 62, 323-332.
- Kirby, T. J. Practice in the case of school children. Teachers College Contr. Education, 1913, No. 58.
- Klugman, S. F. The effect of money incentive versus praise upon the reliability and obtained scores of the revised Stanford-Binet test. Journal of Genetic Psychology, 1944, 30, 255-269.

- Krasner, L. Studies of the conditioning of verbal behavior. Psychological Bulletin, 1958, 55, 148-170.
- Lair, C. V., & Smith, R. K. Utilization of verbal and non-verbal feedback among college Ss. Psychological Reports, 1970, 27, 807-810.
- Levine, S. M. Hypothesis behavior by humans during discrimination learning. Journal of Experimental Psychology, 1966, 71, 331-338.
- Madsen, C., Jr., Becker, W., & Thomas, D. Rules, Praise, and ignoring: Elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1, 139-150.
- McCall, R. B., & Appelbaum, M. L. Bias in the analysis of repeated-measures designs: some alternative approaches. Child Development, 1973, 44, 401-415.
- McLaughlin, T. F., & Lane, S. Establishing a sight reading vocabulary in a third grade disadvantaged child. Psychological Reports, 1975, 36, 106.
- Miller, F. D., Moffat, G. H., Cotter, P. D., & Ochocki, T.E. Verbal reinforcement combinations, task complexity, age, and sex in children's discrimination learning. Perceptual and Motor Skills, 1973, 37, 531-534.
- Mower, O. H. Learning theory and behavior. New York: John Wiley & Sons, Inc., 1960.
- Nelson, R. O. The effect of different types of teaching methods and verbal reinforcers on the performance of beginning readers. Dissertation Abstracts International, 1972, 33, 2351-2352.
- O'Leary, K. D., & O'Leary, S.G. Classroom management. New York: Pergamon Press Inc., 1972.
- Piaget, J. The psychology of intelligence. Patterson, N.J.: Littlefield, Adams & Co., 1960.
- Pringle, M. K. The roots of violence and vandalism. Community Schools Gazette, 1972, 66, 325-332.
- Reynolds, G. S. A primer of operant conditioning. Glenview: Scott, Forsman, 1968.
- Salk, L. What every child would like his parents to know. New York: David McKay Co., 1972.

- Schenk-Danzinger, L. Developmental psychology. Vienna: Osterr, 1969.
- Scott, P., Burton, & Yarrow, M. Social reinforcement under natural conditions. Child Development, 1967, 38, 53-63.
- Sinatra, R. C. The effect of varying incentive conditions upon the word acquisition abilities of potential language disability students at the first-grade level. Dissertation Abstracts International, 1973, 34, 1181-1182.
- Skinner, B. F. Science and human behavior. New York: Macmillan, 1953.
- Skinner, B. F. Verbal behavior. New York: Appelton-Century-Crofts, 1957.
- Skinner, B. F. Contingencies of reinforcement: a theoretical analysis. New York: Appelton-Century-Crofts, 1969.
- Spence, J. T. & Segner, L. Verbal vs. nonverbal reinforcement combinations in the discrimination learning of middle and lower-middle class children. Child Development, 1967, 38, 29-38.
- Stahl, L. R., Thomson, L. E., Leitenberg, H., & Hasazi, J. E. Establishment of praise as a conditioned reinforcer in socially unresponsive psychiatric patients. Journal of Abnormal Psychology, 1974, 83, 488-496.
- Stillwell, C., Harris, J., & Hall, V. Effects of provision for individual differences and teacher attention upon study behavior and assignments completed. Child Study Journal, 1972, 2, 75-81.
- Terrell, G., Jr., & Kennedy, W. Discrimination learning and transposition in children as a function of the nature of the reward. Journal of Experimental Psychology, 1957, 53, 257-260.
- Thomas, D. A., Nielson, L. J., Kuypers, D. S., & Becker, W. C. Social reinforcement and remedial instruction in the elimination of a classroom behavior problem. The Journal of Special Education, 1968, 2, 291-305.
- Ward, N., & Baker, B. Reinforcement therapy in the classroom. Journal of Applied Behavior Analysis, 1968, 1, 323-328.

- Warden, C. J., & Cohen, A. A study of certain incentives applied under schoolroom conditions. Journal of Genetic Psychology, 1931, 39, 320-327.
- Whaley, D. L., & Malott, R. W. Elementary principles of behavior. New York: Meredith Corporation, 1971.
- Yawkey, T. D., & Jones, D. M. Application of behavior modification to learning center choices in a kindergarten open education classroom. Psychology in the Classroom, 1974, 11, 321-328.
- Yokkaichi, K. M. Study of guidance of problem children. Kenkyu Hokokushu, 1974, 144, 1-46.
- Zahler, N. S. The effects of descriptive vs. general praise on a simple monotonous motor task. Unpublished doctoral dissertation. University of Maryland, 1975.
- Zahorik, J. Pupils' perception of teachers' verbal feedback. The Elementary School Journal, 1970, 71, 105-114.

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