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INCREASING ACHIEVEMENT MOTIVATION IN BOYS THROUGH IMITATION OF BEHAVIORS CONTAINED IN STORIES: A DEVELOPMENTAL PERSPECTIVE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By
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* * * * *

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1977

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INTRODUCTION

It is generally agreed among educators that motivation is a major variable affecting classroom performance. Teachers recognize that educational goals can only be met when the majority of students set high standards and pursue those standards. It then becomes a matter of increasing students' "need to achieve (or n Ach)—the desire to strive for their own excellence" (Alschuler, Tabor & McIntyre, 1971).

Recognition of the importance of the achievement motivation problem for so many aspects of human endeavor has led to numerous attempts to heighten motivational levels of individuals from primary school age (e.g., deCharms, 1976) through adolescence (e.g., Alschuler, 1973; Ryals, 1975) to adulthood (McClelland & Winter, 1969).

At the same time that these efforts were underway, social learning theory was being applied to a vast number of practical and theoretical problems. The behaviorist principles of reward and punishment were being joined by the modeling theory of Bandura (1969, 1971), who has claimed that "one can acquire intricate response patterns merely by observing the performances of appropriate models" (Bandura, 1969, p. 118).

Behavior has been influenced most often by the actions of live and filmed models. Only rarely has modeling been demonstrated to occur by means of verbal description. Intuitively one senses that reading is a powerful tool for the transmission of many behaviors, attitudes, and
values, yet research endeavors have virtually neglected this important medium.

It is the intent of the current study to show that achievement motivation can be affected as a result of a reading program directed at specific achievement-oriented behaviors of children in the primary grades. Furthermore, the study intends to show that the effectiveness of such a program is, in part, dependent upon the age of the child and the context within which the achievement content is presented. With a large body of available literature supporting the effectiveness of models in facilitating learning (Bandura, 1969, 1971) and an equally lengthy history of research and training procedures relating to the achievement motive (e.g., McClelland et al., 1953), there is good reason to suspect that motivational patterns of the child are modifiable in the same way as other attributes.

With respect to the reporting of the study, there will be a division into five main chapters. The first of these will be a review of the literature.

The literature review will encompass three sections. The first, a review of the modeling literature, will deal initially with theory and will conclude with a discussion of some developmental trends in modeling. The second will be a review of the achievement motivation literature, beginning with a brief consideration of the theories of McClelland, Atkinson, and Weiner. Because of their emphasis on learning as the foundation of the motive, there will be a look at the origins of achievement motivation, particularly in certain child-rearing patterns. Veroff's social comparison hypothesis will next be considered, as a
bridge between the modeling and the achievement motivation research. This learning-oriented framework will conclude with a review of some relevant motivation training programs. The third of the sections in this chapter will review the problem, and experimental hypotheses will be proposed.
CHAPTER I: LITERATURE REVIEW

MODELING THEORY

Modeling Research Review.

A large body of research has been accumulated to reveal that a good deal of an individual's behavior is learned as a result of directly applied reinforcement and punishment. On the other hand, research suggests that perhaps an even greater amount of learning comes from the observation of the behaviors, ideas, and attitudes of another member of the society (Bandura, 1969). This work has involved many different concerns, including the learning of moral judgments of adult models by children (Bandura & McDonald, 1963), the imitation of aggressive doll-play (Bandura, Ross & Ross, 1963), and the reduction of phobic behavior by observing a fearless model (Bandura, Grusec & Menlove, 1967).

Much evidence supports the idea that "the behavior of observers can be substantially modified as a function of witnessing other people's behavior and its consequences for them. Observation of rewarding consequences generally enhances similar performances, while witnessing punishing outcomes has an inhibiting effect on behavior" (Bandura, 1969, p. 30). In addition to providing information about reinforcement contingencies, the observed event also provides the individual with the "affective expressions of models undergoing rewarding and punishing
experiences . . . [eliciting] corresponding affective responses in the viewer" (Bandura, 1969, p. 31).

A large part of this literature speaks to the issue of the medium by which behavior is transmitted to the observer. In this regard, modeling situations have made use of live performances by a model (e.g., Bandura & McDonald, 1963; Gerst, 1971), filmed models (e.g., Bandura & Menlove, 1968), and verbally-transmitted symbolic modeling situations (e.g., Bandura & Mischel, 1965; Masters & Branch, 1969; Winer and Brandenburg, in press). To date, the extensiveness of the phenomenon could be said to be unlimited with the assertion (Bandura, 1969) that although symbolic models (that is, on film, and verbally-presented) appear to be somewhat less powerful than live demonstrations of nearly the same behavior, this diminished effectiveness is more than compensated for by the broadened ability to sample a more diverse range of behavioral situations (Bandura & Menlove, 1968).

It is the verbally-presented model, however, which is of particular interest here, since it has long been taken for granted that the written word can influence the attitudes and behaviors of the reader. In recent years, for example, proponents of the women's liberation movement have pointed to apparent sex biases in children's books as conducive to sex-stereotyped attitudes and behaviors of children reading such books. They assert that story content containing bias toward masculine and feminine roles is detrimental to the child, yet little actual evidence exists to show that behaviors can or will be changed by exposure to such material. A spate of content analytic studies (e.g., Weitzman, Eifler, Hokada & Ross, 1972) has pointed to the dominance of such stereotyping
in children's literature, yet few conclusive behavioral studies have so far appeared.

Similar claims have been made by civil rights activists who have denounced racial bias in children's textbooks as leading to prejudicial attitudes on the part of readers of the texts. Yet, again, the research has not demonstrated well that this is the case.

To date, relatively few studies have shown actual behavioral and attitudinal changes occurring as a result of reading, beyond the speculations of individuals without substantial empirical support. Many of the older investigations have, in fact, employed experimentally crude indices of subsequent behavior or attitude. Among these studies have been ones that have reduced fears of first-grade children (Webster, 1961), reversed food preferences of children (Duncker, 1938), altered children's delay-of-reward behavior (Bandura & Mischel, 1965), effected imitation of unique behaviors described in a story (Masters & Driscoll, 1971), modified children's attitudes about sex-appropriate occupations (Barclay, 1974), and influenced sex-typed behaviors in children (Fischer & Torney, 1976; Winer & Brandenburg, in press).

Reducing children's fear of the dark or of dogs was successfully accomplished in a study by Webster (1961). Once a week for five weeks a different story concerning positive reactions to the dark or to dogs was read to young children. In interviews conducted three months after the last story was read, 29 of 35 children had reduced their fear of the dark and all 5 children who heard the "dog" stories had reduced their fear of dogs.
In the Duncker study (1938) a group of nursery school children listened to a story in which the hero detested a pleasant-tasting chocolate while relishing an unpleasant, medicine-like substance. Shortly afterward, 67 percent of the children preferred the unpleasant-tasting choice of the hero, as opposed to only 13 percent of a control group, who did not hear the story. These effects were somewhat lasting, but gradually decreased over time.

Bandura and Mischel (1965) looked at children who preferred to receive either immediately available but less valued rewards, or delayed but more valuable rewards. By presenting live, filmed, or verbally-presented models whose preference was opposite to that of the child, the researchers were able to reverse the child's preference both immediately and in a reassessment 4-5 weeks later.

A study by Masters and Driscoll (1971) had 4-year-olds placed in one of four groups. All children heard stories about Tarzan's trip through the jungle. In one group ("performance-description") Tarzan performed five novel responses in the placement of some toys. In a second group ("location-description") Tarzan found the toys already arranged in five novel ways. In a third, control, group Tarzan found toys in the jungle, but not in any novel arrangement. A fourth group heard a story identical to the location-description story, except that no model was present. The results confirmed the expectation that children would arrange toys in the laboratory in the same way as they had heard them arranged in the story. It is of note, however, that the cues indicated in the story as to the arrangement of the toys, rather than the model's activity, seemed most salient to the children, since
imitation occurred even in the absence of a model. This finding has been supported by Winer and Brandenburg (in press) and by Fischer and Torney (1976), who found that a model's sex was less important in the imitation of a model's sex-typed behavior than was the behavior itself. What is most significant about the Masters and Driscoll (1971) findings, however, is the authors' speculation that a live model produces as much imitation as a filmed or verbally-presented model. This, of course, runs counter to the argument previously cited by Bandura (1969) of the diminished effectiveness of symbolic, as opposed to live, models.

Recently Fischer and Torney (1976) have shown that a sex-typed behavior such as dependency is modifiable through story-reading. In two stories either a male or female acted dependently in the solution of a puzzle, while in two other stories a male or female worked independently on the puzzle. In all cases verbal reward served to reinforce the salient behavior. On a subsequent block-design task results showed that stories could reinforce societal expectations of behavior (i.e., that girls should act more dependent than boys), where the "natural" tendency (displayed in control subjects) was for boys and girls to show identical help-seeking behavior.

A study by Barclay (1974) demonstrated that attitudes about women and careers available to them could be modified in young children through the reading of stories emphasizing vocational opportunities open to women.

Finally, a study conducted by the author (Winer & Brandenburg, in press), has come to conclusions which suggest that, at least on the level of simple, observable behaviors (specifically, a child drawing a
particular picture), sex-typed behaviors, i.e., behaviors differentially preferred by one sex or the other, can be modified as a result of hearing stories about specific sex-typed activities.

The evidence, thus, clearly indicates that modeling can have a powerful effect on the learning of a host of behaviors and that verbally-presented models are possibly as effective as filmed and live models in this regard. On the other hand, no study to date has examined the potential effects of story content on such attributes as values, motives, or self-concept in children in a modeling paradigm. One study (Pedhazur & Wheeler, 1971) has suggested that minority children's level of need-Achievement could be affected by hearing stories emphasizing internal locus of control, but the effects here were shown only peripherally and indirectly. A classic monograph by Child, Potter, and Levine (1946) did identify, through content analysis, a host of need-states (based on Murray's [1938] classification of needs) which were manifested in third-grade readers. Among these was the achievement need. They implied that these needs might also affect need-Achievement-related behaviors, but no solid, empirical attempt was made to obtain actual behavioral or attitudinal change as a result of children reading stories containing achievement themes.

It is a primary aim of the present study to provide behavioral evidence for the assertions made in the Child, Potter, and Levine (1946) work regarding need Achievement. If it can be shown that reading can affect one of the need-states which they discuss, there will be some justification for the proposition that reading can influence not only simple and observable behaviors, but internal states of the individual as well.
With the foregoing review of the modeling literature as background, we shift now to a discussion of some developmental factors influencing the ability of children to imitate.

Developmental Trends in Modeling

In examining the modeling literature two issues are of particular interest. One issue concerns the role played by verbalization in the modeling situation. The other issue concerns the type of changes that occur in the ability to imitate as the individual grows older. In a sense the issues are interrelated, for, as the literature indicates much of the rationale given for the efficacy of modeling to produce behavioral change is centered on the mediating potential of verbalizations, both explicit and implicit, in a situation.

The ability to use or to produce mediating verbalizations has been shown to be a relevant dimension of the modeling situation. In this regard, Bandura, Grusec, and Menlove (1966) had children observe a sequence of filmed behaviors and either watched the film only, verbalized the model's behavior as it occurred, or counted aloud to prevent implicit modeling verbal coding of the observed behaviors. On a test of the children's subsequent behavior, those who had verbally labeled the behaviors of the model produced significantly more responses which matched the model's behavior than children in either the viewing-only or competing-verbalization conditions.

Supporting this is a study by Gerst (in Bandura, 1969) in which subjects observing a filmed model were either able to code the observed behavior or unable to do so. Those with the ability to code the incoming information were superior on a subsequent behavioral test to
cites Miller's (1956) proposition that symbolic encoding allows one to categorize, or "chunk," material which would otherwise be too unmanageable and unorganized for storage and retrieval. Gerst (1971) remarks:

The higher form of verbal code in which observers impose subjectively meaningful and abbreviated labels on complex modeling stimuli enables observers to organize diverse response elements efficiently in a form that can be easily stored, retained intact over long periods, and quickly retrieved. Since any modeled activity, however idiosyncratic, can be likened to some meaningful object or event, the effectiveness of this type of coding operation should be relatively independent of the nature of the modeled stimuli (p. 92).

Age is apparently a significant factor in determining the facility of the child to encode in verbal form visually-presented behaviors. A study by Coates and Hartup (1969) illustrates this relationship, in that a filmed presentation of a man performing a series of novel and specific behaviors produced more imitation at seven to eight years old than at four to five years old. This finding, that older subjects can more easily imitate observed behaviors, obtained by Coates and Hartup (1969) as well as other investigators (e.g., Rosenbaum, 1967) points to a conclusion made by Hartup and Coates (1970). They note that on difficult tasks the ability to process cognitively incoming information is a requisite for effective imitation. The results suggest developmental trends in the ability to imitate a model. They reflect the finding that understanding and subsequent coding of information emanating from difficult or lengthy observed procedures can come about only if (1) the child is old enough to discriminate among the distinctive cues within a task or setting, and (2) such discriminations are correlated with previously acquired developmental changes,
In order to account for differences between the abilities of four- and seven-year-old children to imitate filmed behaviors, Coates and Hartup (1969) had children of these ages observe a movie under one of these conditions: (a) induced verbalization, where the subject repeated the experimenter's verbalizations about the model's behavior, (b) free verbalization, in which the subject was asked to describe in his own words the behavior of a model, and (c) passive observation, in which no instructions were given to observers as to verbalizing about the observed behavior. The findings confirmed the investigators' hypothesis that since younger children will not spontaneously produce verbalizations relevant to the observed event, they will not show the same high level of imitation as the older children, who presumably can produce these verbalizations in all three conditions; however, when such verbalizations were supplied to the younger children (in the induced verbalization condition) their performance matched that of the older subjects.

This evidence is further strengthened by a line of investigation showing that on simple tasks, requiring no higher-level discrimination and cognitive coding skills, the young child performs with abilities equal to those of older children. Thus, Barnwell and Sechrest (1965) found no differences between first- and third-grade children on a task in which a model first receives positive reinforcement for making a choice between two games, and subsequently, observers are asked to make an identical decision. Likewise, Hetherington (1965), in examining age
differences in the modeling of picture preferences, found no differences in performance among children aged four through eleven.

It would seem, then, that developmental change in the modeling of observed behaviors does not reflect simply an increasing ability to imitate \textit{per se}. This is illustrated by the ability of younger as well as older subjects to perform with equal competence on easier tasks. Instead, there appears to be a cognitive change in the child so that on more difficult tasks the older child is increasingly able to use mediational cues to produce a copy of an observed behavior.

This ability of the older child to supply mediators where the younger child cannot has the support of the production deficiency hypothesis of Flavell, Beach, and Chinsky (1966). According to them the younger child does not produce relevant verbal mediators. His overt performance is inferior to that of older subjects, who can spontaneously produce such verbalizations. As a study by Brown (1977) illustrates, the young child is more apt to encode pictorial stimuli visually than he is to encode such stimuli verbally.

If one now considers a shift from a pictorial medium to a verbal medium, the evidence suggests that the young child is, again, at a disadvantage. Just as he is unable to encode verbally a pictorial event by a failure to produce a relevant mediator, a recent study by Paris and Upton (1976) demonstrates that he is less likely than an older child to infer implicit information from selections of prose. In both cases understanding of the event is hampered by an inability to produce a verbalization which will give meaning to the stimuli presented.
The implication of the Flavell et al. hypothesis is that supplying to the younger child a verbalization which will act as a verbal mediator will aid in the imitation of an observed event. Similarly, learning could be enhanced in the young child if one were to make explicit the message of verbally-presented material. Performance would then be expected to match the level which an older child can attain through his own verbalizations and inferences. Both the younger and the older child would, thus, be likely to imitate behavior presented in verbal form.

It follows, then, that older children should be able to select and use cues implicitly stated in a reading passage in order to model what they have read. On the other hand, such cues must be made explicit to younger children in order to obtain similarly high levels of imitation. Thus, where achievement cues are implicitly contained in a story, only older children would be expected to benefit. Where these cues are explicitly stated, both younger and older children should benefit equally.

Summary

Two conclusions are to be drawn from the modeling research. First, there is much support for the efficacy of a model, in general, and verbally-presented models, in particular, to effect changes in the behavior of children. The indications are that the achievement motive is modifiable in the same way as overt behaviors. Second, the research suggests that the ability to use the information obtained through a modeling situation is age-related, with the saliency of relevant cues the crucial factor in determining whether imitation will occur.
The next section, a review of the achievement motivation literature, will look at the particular variable which is the focus of the present modeling investigation.

ACHIEVEMENT MOTIVATION

The research on achievement motivation has taken two interrelated tacks. On the one hand, the numerous parameters of the problem have been well-explored, chiefly under the impetus of research started in the late 1940s under the direction of McClelland and his associates (e.g., McClelland, Atkinson, Clark & Lowell, 1953). This research has led to, among other outcomes, the development of a scoring guide to a projective measure of achievement motivation (Atkinson, 1958) and to explorations of the roles of age (e.g., Moss & Kagan, 1961), sex (Crandall, 1969; Horner, 1974), and family structure (Rosen & D'Andrade, 1959; Winterbottom, 1958) in affecting motivational levels. It has also led to research concerned with the translation of motivation into actual performance levels of achievement in the classroom (e.g., Alschuler, Tabor & McIntyre, 1971; McClelland, 1972), in work settings (e.g., McClelland, 1961), and in entrepreneurial endeavors (McClelland & Winter, 1969).

In this and the following three sections the achievement motivation literature will be reviewed. First, the major theories of McClelland, Atkinson, and Weiner will be briefly discussed. Second, the origins of the motive in particular child-rearing practices will be examined, in light of the learning orientation presented by the theories. Third, a social comparison hypothesis, proposed by Veroff, will draw together the
modeling and achievement orientation lines of research. Finally, several training programs will be considered, utilizing the findings obtained in the empirical work.

**Definition**

Throughout all the research there has been concern about a common definition of the achievement motive. Alschuler et al. (1971) have provided a comprehensive description of the achievement-oriented individual which appears to encompass many of the elements common to various conceptualizations of the achievement motive, and provides a working model for the current study. It has, in fact, been employed for use in one of the measuring devices of the study. Alschuler et al. characterize the highly motivated individual thusly:

When desire for achievement becomes a dominant concern for a person, it is expressed in restless driving energy aimed at attaining excellence, getting ahead, improving on past records, beating competitors, doing things better, faster, more efficiently, and finding unique solutions to difficult problems. People with strong achievement motivation generally are self-confident individuals who are at their best taking personal responsibility in situations where they can control what happens to them. They set challenging goals demanding maximum effort, but goals which are possible to attain; they are not satisfied with automatic success that comes from easy goals, nor do they try to do the impossible. Time rushes by them and causes mild anxiety that there won't be enough hours to get things done. As a result they make more accurate long-range plans than people with less achievement motivation. They like to get regular concrete feedback on how well they are doing so that their plans can be modified accordingly. They take pride in their accomplishments and get pleasure from striving for the challenging goals of excellence they set (Alschuler, Tabor, & McIntyre, 1971, p. 6).

With this definition as a framework, each of the theories will be considered.
Theoretical Viewpoints

McClelland

The principal theory of achievement motivation has, by and large, been that of McClelland (McClelland et al., 1953) and the elaboration of that theory by Atkinson (Atkinson & Feather, 1966), which McClelland et al. (1953) term an "effective arousal model."

Working from an assumption that every motive is learned, McClelland et al. (1953) have spoken of affect being aroused by the occurrence of events which differ from the expectancies an organism has about his environment. Through learning, certain responses are made in reaction to the affect, which McClelland labels the "motive."

Although there are always risks in inferring an underlying state from specific, observed behavior, McClelland et al. (1953) have looked to certain coordinated response sequences representing, with some precision, the existence of an underlying motive. Specifically, in the case of the achievement motive, the individual builds up certain expectancies as to how a job is to be accomplished—quickly, with precision, mastery, and skill, or slowly, with imprecise movement, and little regard for excellence. In the establishment of an achievement motive the child begins "to perceive performance in terms of standards of excellence" (McClelland et al., 1953, p. 78). When the child begins to sense, in a particular situation, some discrepancy between this state of affairs (i.e., a standard of excellence) and what is actually present in the situation, a need is established. A particular course of action is then instituted to reduce the need. In the case of a need to achieve, the individual feels some need to compete, whether or not the ultimate goal is eventually obtained.
McClelland et al. (1953) cite four related aspects of the motive. First, there is some notion of an individual competing against some stated external standard of excellence, whether it is the performance of others in the same situation as he or it is the past performance of an individual in a similar situation. This may entail drawing a better picture than another child or breaking an established home run record for the school, as two examples. Second, there is the notion of competing, not against another individual's record, but against one's own record of accomplishment, as in a situation where a child works to understand a reading passage that has previously eluded him or a businessman seeks to establish a new sales record for his own company. Third, high achievement motivation may entail attaining a unique accomplishment, above what would be considered ordinary or expected. In this category might fall the invention of a new product which gains acceptance or acclaim, or an individual's being the first to achieve a goal for one's age or sex, as in being the first woman astronaut. Finally, there may be an aspect of working toward some long-term involvement, as in preparing oneself for a future occupation, or in working to save enough to buy a desirable object, obtainable only in the future.

These four aspects of the achievement motive all relate to a desire to go beyond the ordinary or the status quo. They reflect an evaluative approach to a situation in which, while one individual may look to a goal as already achieved, or complete, another individual may feel a disturbance and a discrepancy between what does exist and what might exist and will work toward the reduction of that discrepancy. This latter individual, McClelland would claim, is the highly achievement motivated person.
McClelland's TAT Measure

It was out of this theory that McClelland began to use the Thematic Apperception Test (TAT), developed by Murray (1938), to measure the achievement motive in individuals. This choice of instrument was built on the premise that motives might be best tapped through fantasy imagery, which psychodynamic theories of personality since Freud have held to be a useful source of intrapsychic activity. As has been previously noted, McClelland has postulated that a motive represents an affective state which is not directly observable, except through some response sequence. The TAT offers such evidence by providing stimuli capable of arousing the requisite affective states of motivation when particular situations depicted on the TAT cards are presented to the individual (McClelland, 1955). To the extent that a level of need Achievement is present in an individual, the TAT draws upon fantasy content relevant to such a need. Thus, individuals highly concerned with achievement-oriented goals would be assumed to hold a strong place in their fantasy life for such goals. They would become manifest when aroused by cues present on certain TAT cards.

The initial success (cited in McClelland et al., 1953) in using the TAT as a measure of achievement motivation has led to numerous studies which have proven the TAT, at least in males, to be relatively reliable

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1 The Thematic Apperception Test (TAT) was originally used as a projective technique with which to assess unconscious motives and personality factors. It consists of a series of ambiguous pictures for which subjects must supply a relevant story.
A measure of estimated reliability was obtained through application of the Spearman-Brown correction formula, of .78 for six pictures of the set, tested on male college students.

On the other hand, measures of validity present a different picture. Basically, they have rested upon the correlation between motivation scores and observed instances of actual achievement performance. Unfortunately, results here have not been clear-cut. For example, while Marlowe (1959) found that achievement motivation scores were moderately, but significantly, correlated with ratings of achievement-orientation made by peers, Bendig (1958, 1959) found course grades in college-age males unrelated to TAT scores of achievement motivation. More recently, Ollendick (1974) found a highly significant ($p < .001$) positive relationship between TAT scores of fifth- and sixth-grade children and their persistence on a problem-solving task (a trait predicted by McClelland to be characteristic of the highly motivated individual). On the other hand, Vollmer and Kaufmann (1975) found no relation between TAT measures of achievement motivation and solution of the Maier Hatrack Problem.

Still other findings have found no relationship between need achievement scores and a number of indices of reading performance in young children (Smith, 1969), and the findings (Bendig, 1959; Cole, Jacobs, Zubok, Fagot, & Hunter, 1962; Crandall, 1969; Horner, 1974) have, in general, been negative for female subjects, even as one has entered the era of the liberated woman. On this point Horner (1974) has, in fact, suggested a separate "motive to avoid success" concluding
that, at least based on the TAT need-achievement measure, "achievement motivation predicts several types of performance for males but lacks persistent predictive power for females, for whom the data are confusing" (Horner, 1974, p. 96).

Yet, it is recognized (Klinger, 1966) that actual achievement performance is a result of many variables, achievement motivation being only one such variable, and this does not negate the value of achievement motivation scores as significant indicators of an important personality variable. As Klinger points out, even a high positive correlation between such scores and performance measures would not argue that the scores are actually reflecting a real and existing motive, any more than a low correlation makes them invalid as representative of an individual's level of motivation. In a review of this literature, Klinger (1966) finds that an approximately equal number of studies have shown the TAT measure to be significantly related (p < .05) and to be unrelated to molar performance measures (grade point averages, long-term behavior ratings, etc.) and to brief task performance measures (such as verbal problem-solving or perceptual-motor tasks). Significant interacting variables were also noted as affecting validity, in particular sex of the subject (nearly total nonsignificance among females) and age of subject (nearly all significant relationships among molar performance measure studies occurred among subjects at college age or higher).

What this literature cautions is that in making the leap from scores of motivation to actual behavior, there is the danger of thinking of one in terms of the other, e.g., in considering the highly motivated
individual to be necessarily the high achiever. On the one hand, one can reiterate Klinger's (1966) admission that many factors in addition to achievement motivation go into producing an observed behavior. But also, studies (e.g., Alschuler, 1973; Alschuler et al., 1971) which have trained children in achievement motivation have found that differences in achievement behavior may not in fact be reflected in school achievement, but in achievement in out-of-school activities where children may have more control over their own destinies. Thus, a high TAT score may be reflected in high academic achievement strivings in one child, while the same score may be reflected in non-academic ways in another child. Moss and Kagan (1961) have made similar observations, suggesting that it is perhaps inappropriate to speak of a general achievement motive. In fact, this concept may include specialized strivings to excel in intellectual, or alternatively, in athletic skills.

In summary, the TAT has been shown to be reliable as an instrument for assessing achievement motivation through the manifestation of fantasy imagery, according to McClelland's definition. While studies of validity have not resulted in exactly the same unequivocal confidence, the extensiveness of the use of the TAT, the recognition of the many years of research supporting its use, and the recognition of some possible limitations in prediction and interpretation of scores make it apparent that a superior instrument for the measurement of the achievement motive is not, at least for the present, obtainable. Brown (1965) has concurred with the majority of validity studies and, in general, has supported the use of the TAT as a measure which will assess a notion of achievement motivation. He has said,
These various results generally conform to our prior conception of an achievement motive. People who have high scores perform better in terms of long-term occupational goals, and also do better on brief immediate tasks when the reason for doing so is to satisfy some standard of excellence and not just to accomplish a dull routine or to obtain some extrinsic gratification (Brown, 1965, p. 441).

Atkinson

The groundwork laid by McClelland, in terms of theory and methodology, has been expanded thorough the work of Atkinson (Atkinson & Feather, 1966; Atkinson & Raynor, 1974), whose own theory of need achievement dichotomized the concept of achievement motivation into two interrelated components, a motive to achieve success and a motive to avoid failure.

According to Atkinson, one may differentiate between the highly achievement motivated and the minimally achievement motivated individual in terms of his preferences for tasks of intermediate, or moderate, risk. It is the highly motivated individual (toward success goals) who prefers, and is generally successful in, achievement-oriented tasks of moderate difficulty. Such individuals perceive a task having approximately a .50 probability of success to be of optimal valuation. They will feel that it is here where the greatest chance of obtaining a desired goal lies. In an achievement situation at levels where the probability of success ($P_s$) approaches zero or 1.00, the highly motivated individual has been predicted to exhibit the lowest motivational tendencies (Maehr & Sjogren, 1971).

By contrast, a second possible component of need achievement has been identified by Atkinson (1966, 1974) as the motive to avoid failure,
characteristically involving maladaptive anxiety in the presence of tasks for which there will be an evaluation of some standard of excellence.

For individuals in whom this motive is the stronger, there will be a decrement in performance as the probability of success (and also of failure) is at an intermediate level, approximating .50 (Atkinson, 1974). At levels less than or exceeding this range, the failure-oriented individual is less likely to exhibit fear of failure tendencies.

Thus, among persons for whom the motive to succeed is the stronger component, there will be an approach tendency when $P_s$ approximates .50, since at this level there will be the greatest uncertainty regarding the outcome of the task. Where $P_s > .50$ there is little reward or satisfaction to be gained from success, while at levels where $P_s < .50$, the probability of doing well becomes increasingly remote, and success becomes too improbable.

Among persons for whom the motive to avoid failure is the stronger component, there will be a maximal avoidance to engage in activities which might lead to failure where the probability of failure ($P_f$) is approximately .50, again because the uncertainty of the outcome of the task will be greatest at that point. The failure-motivated individual will choose either the easy task, which will not allow him to fail, or the very difficult task, with which he cannot hold himself personally responsible.

It then follows that the success-motivated individual will choose to approach the task of intermediate difficulty. In contrast, the individual whose fear of failing in an achievement-oriented situation
is greater than his motivation to succeed will always resist the intermediate difficulty task (Atkinson, 1966).

The literature in this regard has, for the most part, supported Atkinson's theory of goal-setting and risk-taking. A study by Raynor and Smith (1966), for instance, found that in games of skill (although not in games of chance, which are out of control of the risk-taker) achievement motives were related to preference for intermediate risk goals.

Many students have involved young children in risk-taking situations employing ring-toss as a game of skill. McClelland (1958), for instance, had kindergarten children choose a position at a distance next to the ring-toss peg or as far away as six or seven feet from the peg. As predicted from the theory, children assessed as high in need achievement concentrated their throws in the middle distance range (20 to 40 inches) from the peg where there was a moderate probability of success, while children assessed as low on this need stood either close to or very far from the peg. Furthermore, the higher the subject's need achievement score, the closer he approximated the middle risk-taking ranges.

Results of this order, using real-world sorts of goal-setting situations, but categorized within the closely related construct of "level of aspiration," have also supported the theory. As early as 1940, for instance, Pauline S. Sears (cited in Heckhausen, 1967) found that ten- and twelve-year-old success-motivated students set more realistic, moderate school goals than failure-motivated students. More recently, Mahone (1960) found that career goals of failure-motivated
adolescents were more unrealistic than those of success-motivated adolescents.

Overall, the studies have shown the expected support of Atkinson's position that high success-orientation is related to moderate goal-setting. However, it should also be noted that the prediction that maximally success-motivated individuals would choose goals close to a .50 probability of success has not been so precisely shown. The McClelland (1958) findings, for example, placed the level of $P_s$ at between .11 and .30 for the high achievement kindergarten group, considerably short of the predicted .50.

Litwin (1966) attempted to reconcile these findings with the theory by interpreting "an intermediate level" of risk as "the average aspiration of your competitors" (p. 114) whether or not this level is objectively at .50 probability of success. In explaining these findings which deviate from his theory, Atkinson (1958) has attributed the diminished probabilities to the overestimation by success-motivated individuals of their own abilities to perform a task which has not yet been attempted. Once the task has been performed, however, "probability estimates increasingly correlate with task performance and no longer with predominant success or failure motivation" (Heckhausen, 1967, p. 100).

It is of interest to compare these findings of uniform tendencies toward moderate goal-setting among success-oriented individuals of all ages with earlier work by Child (1946) on goal-setting preferences in children. In a developmental study of such preferences, it was found that there was a trend toward choosing a more distant attractive goal
object (a piece of candy) over an identical closer object with increasing age. Children in grades one through seven were tested and in the lowest grades the more distant object was selected by about 20% of subjects, while the maximum percentage, approximately 50-60%, was reached at about fourth grade, with wide fluctuations in preference beyond that time.

In any case, it may be well to keep in mind that there is the likelihood that factors other than achievement-orientation might be involved in goal-setting and goal-seeking. Perhaps nothing more complicated than the contrariness of prepubescent children might explain fluctuations from theoretical expectations!

In summary, Atkinson has identified an important tendency of the highly-motivated (i.e., predominantly success-oriented) individual. He will seek situations in which he has approximately an intermediate chance of success. He takes risks which allow him to feel that, through his own efforts, he has a .50 probability of reaching a goal. Contrasted with him is the predominantly failure-oriented individual who will avoid situations with a .50 chance of failure. Instead, he will choose either situations where success is virtually assured (i.e., low-risk goals) or where success is so unlikely that he can attribute his failures to factors other than his own efforts (i.e., extremely high-risk goals). If one were to train for high achievement motivation, then, one of the aims would be to encourage intermediate risk-taking. Indeed, as later work will cite, this is precisely the course that has been taken by many motivation training programs in the past.
Weiner

The idea of achievement motivation as a constellation of certain expectancies held by an individual about his own performance has been adopted by Weiner (1974) as an alternative to the affective arousal model proposed by McClelland and the elaboration of the model by Atkinson. A cognitive approach, it has as its basis an attributional theory of causation in part derived from Rotter's (1966) contention that high achievers attribute their success or failure to internal causes (i.e., their own skill or ability or the effort expended on a task) while low achievers attribute success or failure to external causes (i.e., luck or the difficulty of the task). Also, in part, it is derived from Heider's (1958) distinction between stable causal attributes which remain fairly invariant, such as ability, and variable causal attributes, which exist only transiently in a situation, such as the effort expended in completion of a task. This dual conceptualization offers an orthogonal framework of causality described by the following four factor interpretation of expectancy:

<table>
<thead>
<tr>
<th>External factors</th>
<th>Internal factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable Characteristics</td>
<td>Task Difficulty</td>
</tr>
<tr>
<td>Variable Characteristics</td>
<td>Luck</td>
</tr>
</tbody>
</table>

According to such a scheme an individual with internal locus of control is likely to see that it is the stable characteristic of his ability and the variable characteristic of effort that he expends on a task, rather than the difficulty of the task or sheer luck which is
responsible for the extent to which he will be successful on a task. Alternatively, an individual with an external locus of control would be likely to see task difficulty and luck as responsible for success on a task. It is a proposition of the theory that high achievement motivation is associated with internal locus and, thus, with the idea that high achievement motivated persons attribute their success and failure to both their own ability and effort and very little or not at all to the difficulty of the task and to sheer luck in the situation.

Several findings, however, have raised significant questions concerning the expected behavioral translation of Weiner's theory. Schultz and Pomerantz (1976) found only a weak relationship between high achievement and internal locus of control. Specifically, high need achievers did tend to attribute success to the internal factors of ability and effort, and these were the same people who would undertake achievement-oriented tasks, in agreement with the findings of Weiner and Potepan (1970). However, Schultz and Pomerantz (1976) also found that there was very little relationship between either the ascription of success to ability or to effort and either preference for or performance of academic achievement tasks after the effects of achievement motivation and other internal ascriptions were controlled.

In short, although achievement motivation was strongly related to achievement activities for all subjects, this was true for internalizers as well as externalizers. Thus, "locus of control did not distinguish high need achievers who prefer achievement activities from those who do not" (Schultz & Pomerantz, 1976, p. 50).
Furthermore, these researchers' findings were not in accord with Weiner's theory or with Weiner and Potepan's (1970) contention that achievement motivation and the attribution of failure to lack of ability are highly correlated. Extending this finding, attributing failure to lack of ability was not negatively related to achievement activity, as the theory would also predict. Given these negative findings, Schultz and Pomerantz concluded that "there appears to be little evidence to suggest that the effects of achievement motivation on achievement behavior are mediated by the attribution of failure to lack of ability or . . . to the lack of effort" (p. 49).

With these serious reservations about the theory, it would seem that attributional theory remains largely incapable of doing what is essential to comprehension of the achievement phenomenon, namely, the explanation of achievement-oriented behavior in terms by which one can differentiate between the behavioral outcomes of persons described as high or low in need achievement. Outcomes defined for high achievers were either identical to those defined for low achievers (Schultz & Pomerantz, 1976) or were actually unsupported by antithetical results in lower achievement groups (Kukla, 1972).

In conclusion, while Weiner's theory has received, at best, marginal support, Atkinson's (1966) risk-taking model has continued to find much positive support from a wealth of research studies, previously cited (e.g., Atkinson, 1966; Maehr & Sjogren, 1971).

**Summary**

The three theoretical viewpoints of achievement motivation have provided a foundation upon which a training program may be based. In
brief, McClelland has founded his theory on a learning framework which provides a basis for assuming that training can affect motivation. He has also enumerated several attributes of the motive on which a training program would presumably focus. These include (1) competition with an external standard, (2) competition with one's own record, (3) unique accomplishment, and (4) work toward a long-range goal. Lastly, McClelland has provided a reliable and relatively valid instrument of assessment, the TAT.

The theory of Atkinson has added to the McClelland work by proposing a dichotomy between the success- and the failure-oriented individual. It is the predominantly success-oriented person who will be assessed as the highly achievement motivated one. On tasks of skill, he is more likely than the failure-oriented individual to choose goals with an intermediate chance of success.

Finally, the attribution theory of Weiner was considered and was rejected as a model for the current study due to several serious criticisms of it.

The focus now turns to the antecedents of achievement motivation. With McClelland's assertion that all motives are learned, there is a concern with knowing some of the origins of the trait as it naturally develops in the young child. These may, then, be applied to a training program.

Let us now turn to a discussion of the origins of achievement motivation.

Origins of Achievement Motivation

McClelland has indicated that achievement motivation is learned. The question then turns to the exact mechanisms by which this occurs,
and with that to the origins of the motive. Since the present study is designed to train children in acquiring certain features of the highly motivated individual, there is a good deal of interest in knowing how this occurs in the child's natural environment.

It is the aim of this section to explore the specific child-rearing practices which seem to give rise to the motive. From these, inferences may be made as to those features which are most salient for the fostering of high motivation in the individual.

Both McClelland's and Atkinson's work have led to speculation about the developmental origins of achievement motivation (Argyle & Robinson, 1962; Feld, 1967; McClelland et al., 1953, 1961; Rosen & D'Andrade, 1959; Winterbottom, 1958) which, as an issue, has not been entirely resolved. Research on risk-taking behavior by McClelland (1958) indicates that the motive to achieve has been learned by the child as early as age 5, while Moss and Kagan (1961) have found sex differences in which "strivings for intellectual mastery ... [emerge] as a stable phenomenon at ages 3-6 for girls and 6-10 for boys" (p. 510).

Heckhausen (1967) has cited various early observations of children "wanting-to-do-it-alone" at about age two during ordinary care-taking activities such as eating or dressing, but these early mastery attempts are undoubtedly unrelated to achievement-related behavior after age three. The emergence of more mature cognitive ability is probably a prerequisite for emergence of the motive after the age of 4 1/2 when a realistic decision about eventual success on a task of equal probability of success and failure becomes possible (Heckhausen, 1967). On a ring-toss game, children of age five were capable of making adult-like
decisions about preferred levels of difficulty in completion of the task (McClelland et al., 1953). On the other hand, while Moss and Kagan (1961) have cited high correlations between certain childhood measures of achievement strivings (e.g., TAT achievement themes) and adult behavior, this predictive ability increased at adolescence from what it had been in childhood.

A good deal of this literature has dealt with certain parental environments which serve to foster achievement-oriented motives and behaviors. McClelland et al. (1953) first suggested a positive relationship between independence training by parents and need Achievement scores. They found, in a cross-cultural study, that "both the age at which independence training is instituted and the severity of independence training correlate very significantly with n Achievement score" (p. 295). Supporting these findings are ones reported by Winterbottom (1958) in which middle-class boys scoring high in need Achievement had mothers who made demands on them in terms of both independence and mastery at an earlier age (before age 8) than boys scoring low in need Achievement. Furthermore, they concluded that "mothers of boys who are high in n Achievement will be more frequently and intensely rewarding when demands for independence are fulfilled and will be more frequently and intensely punishing when these demands are not fulfilled" (Winterbottom, 1958, p. 463).

Gradually, data began to appear, however, which called into question the nature of the association between independence training and achievement. McClelland (1961) reported findings on lower- and upper-class families which failed to find any significant correlation between
age of independence and mastery demands made by mothers and son's need for achievement score, as Winterbottom (1958) had found for her middle-class sample. McClelland concluded that a curvilinear relationship exists between the age of such demands and achievement such that demands on the child which come too early, which is the case in many lower-class homes, or demands which come too late, the case in many upper-class homes, produce less than optimal conditions for high need achievement.

As Smith (1969) points out, however, gearing parental demands to a particular child would be more important than in selecting a particular age to impose such demands on the child. Such terms as "early" or "late" must always be used in relation to a particular child and his present level of performance. It would appear that an optimal period of time exists for the individual child when he will best benefit from parental pressure to set high standards of excellence. Indeed, Bartlett and Smith (1966) found achievement-related motives to be unrelated at all (in boys) to the age at which parental demands are made.

In further questioning the findings of Winterbottom (1958) and of McClelland et al. (1953), Rosen and D'Andrade (1959) have minimized the role of independence training in producing high achievement motivation. They sought to separate achievement training--the notion of doing something well--from independence training--the notion of doing something on one's own--and found "a division of labor between the fathers and mothers of high need achievement boys" (p. 216). Mothers of high achievement motivated boys were more likely to stress achievement training than independence training and they expected "the boys to build higher towers and place [their sons] farther away from the peg in the
Ring Toss experiment" (p. 217). On the other hand, fathers provided boys with a high degree of autonomy, "an opportunity to compete on his own ground, to test his skill, and to gain a sense of confidence in his own competence" (p. 217). Whereas maternal warmth, dominance and involvement in a son's performance contribute chiefly to enhancing achievement strivings, it is the father's "general hands-off policy" which is more likely to instill independence, rather than achievement in the boy.

As a result of Rosen and D'Andrade's (1959) work, Heckhausen (1967) has recommended that one might contribute to "high achievement-related attitudes of the parent generation" by having the mother assume a direct teaching role through reinforcement and punishment of desirable and undesirable behaviors, respectively, and by having the father take on the role of "a benevolent and attractive model." He would have the son imitate his behaviors, while allowing the son independence.

Smith (1969) has commented, however, that the relationship between independence and achievement is still unclear since:

It would appear that a certain amount of independence in performing a task would be necessary in order for the child to feel a sense of accomplishment. On the other hand, insistence on a high degree of independence might mean that the parent was willing to settle for poorer performance so long as no supervision was required. The latter situation would not appear to be especially conducive to the development of a desire to do well at things (Smith, 1969, p. 106).

In summarizing the work which had been done up to that point, McClelland, in The Achieving Society (1961), suggested three dimensions of child-rearing as being optimal for producing high need achievement. These are:
1. Setting reasonably high standards of excellence at a time when sons are capable of attaining them.

2. A willingness to allow sons to attain goals without interference.

3. Pleasure in enjoying the son's achievements without allowing overprotection or indulgence.

Because McClelland holds learning to be responsible for the development of strong tendencies to strive for excellence, it follows that many of the same principles true for the learning of other behaviors can be applied to achievement-oriented behaviors. If, as McClelland (1961) and others (e.g., Heckhausen, 1967; Smith, 1969) suggest, there is a set of optimal conditions under which the achievement motive will be learned, then it should be possible, under those conditions, to apply known learning principles—including the influences of direct and vicarious reinforcement—to fostering the motive. The implication of parental standards of excellence on the child at an age when he is best able to accept and internalize those demands has been shown repeatedly to occur through direct social reinforcement for desired behavior, accompanied by aversive measures, often in the form of punitive demands for excellence.

McClelland et al. (1953) for instance, have stressed how achievement may be maintained in families through "negative reinforcing agents—punishment for failure to do something for oneself, and the like" (p. 309) as well as rewards for successful outcomes in behavior. Such an overt reaction to the child's achievement (or independence) behavior is only one medium through which the motive may be communicated to the
child. There may be more subtle expectancies of the parent, as Winterbottom (1958) has suggested, which are responsible, especially in the way the mother may structure the achievement-oriented situation.

These cues may complement or even override overt forms of reinforcement, as when parents convey one set of achievement expectancies to boys and another to girls.

Summary

Overall, there is much evidence to support the notion that direct forms of reward and punishment by parents influence the development of achievement-oriented behavior. Moreover, Rosen and D'Andrade (1959) have pointed to a focusing on achievement, rather than independence, training. Thus, any training procedure should be careful to separate the two.

Aside from direct reinforcement, however, there are indications from Winterbottom (1958) and from Crandall (1969) that less overt processes may operate as well in the fostering of achievement motivation. In the next section, Veroff adapts a social comparison hypothesis to explain the development of need Achievement, which appears to be related to the work of Bandura and his colleagues concerning the modeling of standards of performance.

A Social Comparison Hypothesis

Beyond direct reinforcement of overt or subtle behaviors of the child is the suggestion by some researchers (Argyle & Robinson, 1962; Veroff, 1969) that some sort of modeling or identification effect may be taking place.
In this section, these effects will be discussed. In particular, there will be an effort made to relate the research concerned with the origins of achievement motivation to Bandura's modeling of standards of performance research. Veroff's social comparison hypothesis will also be examined in connection with these two lines of investigation.

Indications that these two areas may have some relation to one another have appeared from time to time in the achievement motivation literature. Argyle and Robinson (1962), for instance, have postulated that "children often identify with their parents, and that when their parents are hard-working and successful they will wish to be like their parents and thus acquire a high $n_Ach$" (p. 108). Their research has supported this contention by showing a positive relation between parental achievement and achievement motivation in the child (using the McClelland-Atkinson TAT measure), especially in the case of boys and their fathers. A similar positive relationship was found between measures of identification (using similarity of measures on the Semantic Differential and Q-sort, as well as direct questioning) and achievement behavior in the child, confirming the idea that parental achievement will have an effect on children who strongly identify with the same-sex parent.

As an alternative to a reward-and-punishment explanation for the development of achievement motivation, Veroff's (1969) social comparison hypothesis has taken into account processes which are very similar to modeling. Initially he separates the concept of achievement motivation into two subsets: an autonomous aspect, which "brings internalized personal standards into play" (p. 47) (i.e., competition with one's own
norms), and a social aspect, which "brings standards of excellence based on social comparison into play" (p. 47) (i.e., competition with the norms set by others). Veroff has suggested that every motive can be identified within the framework of being either a social achievement motive or an autonomous motive, or some integration of the two. While some social situations foster one type of motive, others foster the other type, and some contribute to both aspects.

Autonomous achievement motivation can be traced back to the competence motive described by White (1959) in which repeated experiences of success in performing actions which the child was formerly unable to do provides the child with some feedback as to his own capabilities such as walking, using language, climbing stairs, running, dressing himself, and effectively manipulating objects. Social achievement motivation, on the other hand, Veroff contends, does not come originally from contrasting one's own performance with that of others, since the very young child is too egocentric to do this. Rather, it is the reinforcement of the child's behavior by siblings or parents continued over a long period of time which is responsible for the first emergence of this ability to judge one's own ability with respect to externally imposed standards. Thus, it is only later--probably in the early school years--that social comparisons become possible, and are predated by the autonomous aspect of achievement motivation.

Social comparison, at its beginnings, is purely functional. It allows the child to learn more about his own capabilities vis-à-vis the performances he sees in others. This is its informative function. But
on another level it also allows the child to receive positive social approval from his environment if his efforts are successful. Thus, he begins to see that he is not, in Veroff's (1969) words "discrepantly incompetent," and provides him with knowledge about his relationship to the "norms for proper performance and information" (p. 50).

Social comparison is not independent of autonomy. The child who sees himself as effective in dealing with the world in his own terms can begin to look beyond himself later on to accept social demands imposed on him from outside. Thus, there is a developmental progression from successful autonomous orientation (Am I capable of performing this action myself?) to a sense of autonomous achievement motivation (How is my performance in comparison with what I can do?) to a sense of social comparison motivation (How does my performance compare with that of others?). At the most mature level there will be an integration of both the autonomous and the social aspects of achievement. Veroff (1969) describes this level:

A child must regain a strong sense of his own independence--some sense of his own effectiveness apart from the social groups to which he belongs. A sense of independence and effectiveness, however, should certainly be facilitated in grade school by the simultaneous occurrence of sufficient encouragement of autonomy along with comfortable reference groups for social comparison (p. 56).

Thus, although Veroff does not specifically fit a notion of achievement motivation into a modeling framework there is implicit in the theory a sense of adherence to norms which are held by the group, of conforming to such norms, and then using them as a reference point in setting one's own behavioral standards of excellence. It might be further conjectured that the highly motivated individual is one whose
behavior not only tries to meet standards that he, himself, imposes, but standards which have been set by significant others in the environment. It would then be a matter of modeling the standards of those significant others on future occasions and using the standards as yardsticks for one's own performance. To the extent that an individual identifies with the significant other (note the earlier cited work of Argyle & Robinson, 1962), he will be concerned with seeing to it that his own performance compares favorably with that of his comparison group or person.

In terms of the present study, there is a strong indication that to the extent a child identifies with the protagonist-model in a story, he will compare his own behavior to that of the model. Particularly as he grows older and develops a sense of what Veroff refers to as "social comparison motivation," the child should begin to use the model as a point of reference in answering the question "How does my performance compare with others?"

A good deal of evidence, chiefly from the work of Bandura and his associates (e.g., Bandura & Kupers, 1964; Bandura & Whalen, 1966), does suggest that individuals will adopt the standards of behavior they observe in others, and on future occasions will reward or punish their own behavior on the basis of the observed standards. Bandura and Kupers (1964) found that children's patterns of self-reward and self-punishment closely resembled those of models whose standard-setting behavior had been observed by the children. Subjects who had observed models setting high standards for self-reinforcement also set high standards for reinforcing their own performance. Likewise, children who observed a
model setting low standards of achievement imitated that behavior in terms of their own performance.

In a Bandura and Whalen study (1966) boys and girls, aged 8 to 11, were assigned either to a condition in which they failed or were successful on a bowling game, when compared with an experimenter-determined criterion score. In each of these two groups, one-fourth of the subjects were exposed to a model setting a very high standard for self-reward, one-fourth were exposed to a model setting a very low standard for self-reward, one-fourth were exposed to a model setting a moderately high standard for self-reward, and a control one-fourth observed no model. According to social comparison theory (Festinger, 1954), exact replication of a model's performance would occur only to the extent that a subject saw the model as similar to himself in terms of several characteristics, including ability level. Where model performance deviated greatly from that of the subject, as when the subject observed the model doing very much better than himself, it would be predicted that the comparison person's behavior would be too divergent to serve as a model for his own standard-setting behavior. Where the model's achievements matched or were somewhat lower than the observer's achievements, then the model would probably be considered a suitable person to imitate.

The results found no differences in the magnitude of self-reward as a result of the subject's prior success or failure; however, in accord with the predictions and with social comparison theory, children who observed a model setting low standards of performance were most generous in their self-reward, while children observing a model setting high
standards of self-reward rejected the self-imposed contingencies of the model. Bandura and Whalen (1966) compared the latter situation to one in which the offspring of eminent individuals see the parent as too discrepant from their own levels (i.e., too "unreachable") and, thus, set comparatively lower standards of achievement for self-reward.

Thus, while in general subjects are apt to imitate the standard-setting behavior of a model, the limitation (predicted by social comparison theory) of a perceived similarity between observer and model may serve to modify the actual performance of the model, especially where the ability of the model appears to be too far above that of the observer to be considered attainable by the observer.

**Summary**

What these findings all point to is the saliency of a social comparison framework in exploring achievement-oriented behavior. In setting standards of excellence to which one will adhere, it is not enough to rely solely on a direct reinforcement-punishment explanation, as McClelland has emphasized. In many, if not a majority of situations, observance of a model with whom the individual can identify may be sufficient to bring about the sort of learning which McClelland has claimed to be responsible for the establishment of the achievement motive in individuals.

Thus, the origins of achievement motivation and achievement-oriented behavior may be manifold and complex with no one source unique in producing observed behavior. Certainly, if one accepts a learning basis for the achievement motive—and no theory at present would contradict that fact—then one is left to decide how such behavior is transmitted to the individual in the course of the socialization process.
McClelland et al. (1953), Winterbottom (1958), and Rosen and D'Andrade (1959) have all suggested that one or both parents are in some way instrumental in developing both the motivation and the behavior in their offspring, and they have strongly supported a direct reward-punishment explanation for this transmittal from parent to child. Social comparison theory, on the other hand, has suggested a modeling basis for the acquisition of behaviors of setting high or low standards of excellence (Festinger, 1954; Veroff, 1969) and the work of Bandura and his associates (e.g., Bandura & Kupers, 1964) has provided much support for such a viewpoint.

There is one point to note, however, in regard to the demonstration of laboratory-induced standard-setting behavior, such as that of the Bandura studies. While it is clear that an observational learning situation can be set up to encourage certain behaviors, it should not follow that in a naturalistic setting an act of purely imitation is responsible for observed achievement behavior. Rather, it is likely that a variety of processes are at work for a given individual in producing apparent achievement-type behavior.

Although certain levels of standards can apparently be induced in a subject through modeling, this in no way suggests a causal relationship unless every variable, present and past, has been adequately controlled. Clearly this would be an impossibility. Still, the research does support an important implication for the application of learning principles to the acquisition of desired and desirable behavior. Namely, if one wished to produce a given behavior, then, regardless of how that behavior might normally come to appear in the course of actual
development, it would be possible to apply the proper learning principles at the present time. In the case of achievement behavior, earlier attempts and the attempt made in the present study have applied certain learning concepts—including modeling—in the pursuit of what can be considered a desirable behavior, the increasing of achievement motivation.

**Achievement Motivation Training Programs**

Thus far, the research has concentrated on the theoretical basis of achievement motivation and on the developmental origins of the motive. As the previous section has noted, evidence that learning can be artificially brought about through reinforcement or modeling strategies does not necessarily mean that the same processes can account for learning which occurs naturally in the developmental process. Still, many of the same principles of trait acquisition can apply in either case. Discovering that parents, at some point, do reinforce particular behaviors gives the psychologist a clue as to the sort of efforts in which he might engage in order to produce the same sort of behavior.

Therefore, an exploration of the antecedent conditions which appear to be associated with the development of the achievement motive has been undertaken. From the data collected by such investigations, a series of training procedures has produced encouraging results.

These procedures have employed a wide range of tactics, including direct reinforcement, game-playing, and self-exploration exercises. Although at least one such training program (deCharms, 1976) has used role-taking as a device to bring about change, none of the programs to date has successfully used a modeling procedure to increase achievement
motivation. Certainly there have been no attempts to encourage achievement-oriented behavior through the sort of story-content program of the present study.

A single project (Harris, 1972) did attempt to modify level of aspiration and other achievement-related goals and behaviors in male potential high school dropouts through observational learning techniques. Reading content was not employed; however, live and filmed models, representing paraprofessional or semi-skilled occupations, were presented to the subjects. Although there were gains in some peripheral areas of interest, no significant change was obtained on measures of educational or occupational aspiration.

Several attempts, reported below, using non-modeling techniques, have been made in recent years which have produced interesting results. They have, in general, relied upon McClelland's model of achievement motivation and upon Atkinson's risk-taking hypothesis.

The McClelland-Winter Program

One such attempt was made by McClelland and Winter (1969), who acknowledged that while early childhood may be a critical time for the acquisition of social motives through their association with more basic, primary drive states, it is certainly possible to alter life-long motivational networks, even in adulthood. Their approach was, first, to systematically apply a huge range of achievement-oriented experiences to make possible an almost-certain rise in motivational levels. Then through a subtractive process they sought "to isolate what variables or what combinations of training variables produce the maximum increase in achievement in most people" (McClelland & Winter, 1969, p. 44).
used an assortment of games, paper and pencil exercises, and outside reading tests related to:

1. Learning what factors comprise the "achievement syndrome" (competing with a standard of excellence, long-term involvement with a work problem, etc.) so as to form an "associative network" among the various facets of achievement-related behaviors, which gradually replace old associations to the same environmental cues (i.e., achievement motivated thoughts become more salient than anxiety-laden ones in response to the same environmental cues).

2. Training individuals to see how the achievement syndrome is relevant, in concrete and specific ways, to their own lives.

3. "Helping [individuals] to define more precisely what goals they will set for themselves and how they will go about measuring progress toward those goals" (McClelland & Winter, 1969, p. 66).

4. Establishing interpersonal relations among trainees and between trainer and trainee which are characterized by warmth.

This newly-formed group becomes a reference group in which members share a common experience and which removes the strangeness of the situation.

The first tactic, concerned with information about the "achievement syndrome," drew from information McClelland gathered in The Achieving Society (1961). According to this earlier work four modes of action were cited as characteristic of people with high need Achievement:

1. They tend to set moderate goals for themselves and to work harder when the chances of succeeding are only moderately great . . . .

2. Men with high n Ach prefer work situations in which they can take personal responsibility for the performance
necessary to achieve the goal. In fact, they typically avoid gambling situations in which they have no control over the outcome . . . .

3. Men with high n Ach like to get feedback as to how well they are doing, and are responsive to that concrete feedback . . . .

4. Men with high n Ach typically show more initiative in researching their environment . . . . They are searching for new opportunities to try out their achievement skills, or to find ways of realizing the goals they have already set for themselves (McClelland & Winter, 1969, pp. 50-52).

These four action-based aspects of high need Achievement—moderately high goals, personal responsibility, concrete feedback, and taking initiative—have become important themes through many training programs. They were, in fact, incorporated into the stories used in the present study as secondary aspects of the plots. Many other attempts to alter achievement-related behaviors have, likewise, included these themes as relatively well-proven aspects of the achievement motive.

The McClelland-Winter approach to raising motivational and behavioral levels of achievement in Indian businessmen was assessed over a period of two years following training. Interviews and several indices of business activity showed significant results. Over the two years, 29 out of 34 men who took the course were significantly more active in business.

Supporting these data were the results of a training program conducted with American businessmen which contrasted men taking a company-run training course with a course employing McClelland training strategies. In terms of business activity, 11 men taking the company's course showed less rapid advancement in the two years following the
course, while 11 matched subjects taking the McClelland achievement course advanced more rapidly over the same period of time.

Overall, the McClelland training programs showed the relative usefulness of such courses for men in entrepreneurial positions (McClelland & Winter, 1969).

Academic Training Programs

Many of the tactics of the McClelland courses, geared mainly to men in leadership business positions, have great relevance to general training procedures in the raising of motivational and behavioral levels of achievement. On the other hand, a few programs have been developed in recent years specifically toward the raising of achievement levels of students in academic settings. For these programs specific strategies have been adopted and/or altered to fit the needs and life-situations of individuals in an academic sphere. It should be noted that the major thrust of these attempts has been focused on adolescent students (Alschuler, 1973; Kolb, 1965; Ryals, 1975) and on the years prior to puberty (deCharms, 1976). None, until now, has dealt with the primary school-aged child, particularly at the first- through fifth-grade level.

Kolb (1965) provided the first successful training course for bright underachieving high school boys from a high socioeconomic background. He hypothesized that the success of his program was due to the boys' returning to environments encouraging the same behavior and values which the course had emphasized. The findings underscored the need to have the environment continue to support the values laid down in the training course. In short, Kolb's results emphasize the need to extend the achievement-oriented environment beyond the actual training
period if the program outcomes are to be of long-lasting duration. The finding that the boys sustained the gains in grades which they made 1 1/2 years after completing the course add substance to this argument.

Procedures employed by Alschuler (1973) were based on principles laid down at an earlier time (Alschuler et al., 1971). These principles involved a six-stage sequence of events aimed at providing for both immediate and long-term gains. They were:

1. "Focus attention on what is happening here and now" through the introduction of novel learning situations (games, interpersonal exercises, role play, etc.).

2. "Provide an intense, integrated experience of new thoughts, actions, and feelings" through the use of exciting emotionally-charged activities designed to elicit involvement.

3. "Help the person make sense out of his experience by attempting to conceptualize what happened." This involves teaching the vocabulary and theoretical concepts of achievement motivation, by explicit instruction as to the elements of achievement behavior and planning.

4. "Relate the experience to the person's values, goals, behavior, and relationships with others." This involves relating the motive to actual life activities of the trainees (career goals, sports, academics, leisure activities, travel, etc.).

5. "Stabilize the new thought, action, and feelings through practice." Students must try out their experiences, helping them to identify and plan the goals they ought to set in a variety of life-situations (e.g., setting goals for study).
6. "Internalize the concept" through teacher and peer-group support with "phased withdrawal of that support as students begin to accept responsibility for their own goal-setting behavior" (quotes from Alschuler et al., 1971, p. 131).

In the Alschuler (1973) study ninth-graders at a junior high school in a working class area near Boston were placed in either a Mastery-oriented or in a Satisfaction-oriented training course. The Satisfaction-oriented course contained games, exercises, and role play with no tests required to prove competency. In contrast, the Mastery-oriented course provided the same experiences, but relied upon tests and the accumulation of points to indicate competency. The devices employed in both groups included training with verbal resource material (vocabulary workshops, story-writing, etc.), game-playing (Ring-Toss practice, Darts and Dice games, etc.), and role playing (i.e., taking on the role of the high achiever). In addition, group discussions were aimed at helping students to consider the usefulness of the training to their own lives.

The results indicated that boys in the Satisfaction-oriented course liked the training far more than boys in the Mastery-oriented course. However, an assessment two weeks after the training showed both courses were equally effective in terms of recall of the concepts. Girls found both courses equally enjoyable and they showed the greater gains in the program, contrary to the findings of other studies (McClelland, 1972). For both boys and girls, gains were upheld by approximately 30% of the subjects 1 1/2 years after completing the course. Furthermore, the effectiveness of the program continued long after the students forgot
many of the vocabulary and conceptual terms taught to them. This was true both for students who initially enjoyed the courses and for those who did not. Students reported the program had been useful to them in their daily lives, confirming the probability that the sixth, and last, of Alschuler's stages—internalization of the concept—had been accomplished.

The Origin-Pawn Concept

Whereas much of the theory behind the Alschuler training program was based broadly upon McClelland's conceptualizations of highly achievement motivated persons, a training program instituted among sixth- through eighth-graders in a poverty area of St. Louis by deCharms (1976) focused primarily upon the concept that the highly motivated person is more concerned with internal than with external causation of behavior. Adapting Heider's (1958) distinction between personal and impersonal causation, deCharms said that the high achiever feels more that attainment of goals rests with the individual himself and less with factors external to the individual. It also follows from McClelland's (1961) observation that men with high need Achievement take personal responsibility for the performance necessary to attain a goal. Weiner's (1974) previously cited attribution theory of achievement motivation, derived from the work of Heider and Rotter, made similar distinctions.

According to deCharms (1968) individuals distinguish between being either an Origin or a Pawn. The Origin "experiences himself to be the locus of causality for his own behavior [while the Pawn] perceives the locus of causality for his behavior to be external to himself" (deCharms, 1968, p. 328). It was the aim of deCharms' training
procedure to have, first, the teachers of students involved in the study re-evaluate their own status in terms of being an Origin and, second, for the teachers to engage in activities aimed at having the students re-evaluate themselves in terms of being an Origin. The teachers, then, served as models for the children, and they further served to develop classroom activities aimed at altering (1) self-concept, (2) achievement motivation, (3) realistic goal-setting, and (4) Origin-Pawn concepts.

Exercises such as "The Real Me," instituted in the sixth grade, personal perception training in the seventh grade, and personal development techniques in the eighth grade were focused on the first of these areas, self-concept; writing stories of success and achievement in the sixth grade served to foster the second goal, achievement motivation; a spelling game, in which students were trained to select reasonable, yet challenging, words to spell subsequently was aimed at the third goal, realistic goal-setting; and finally, instruction and practice in being an Origin in actual life situations was emphasized in training for the fourth goal, Origin-Pawn concepts.

The results of the program demonstrated the effectiveness of these four approaches in directing trainees toward thinking of themselves in terms of, and acting as, Origins rather than as Pawns. One successful unit at the sixth-grade level, success-and-achievement story-writing, produced in boys, but not in girls, a higher quantity of achievement words. On the spelling words unit "the number of moderately hard words chosen increased progressively over the five-week period while the number of hard and easy words chosen decreased" (deCharms, 1976, p. 73). On this task deCharms was able to point to success in
having the children learn to choose more realistic goals for themselves.

At the seventh grade, person perception training was encouraged in order to promote self-knowledge, interpersonal sensitivity to the feelings of others, and cognitive complexity (i.e., "the ability to see many aspects of another person rather than just a few" [deCharms, 1976, p. 78]). Training on this measure and a simultaneous training procedure which emphasized internal control and goal-setting, along with the taking on of personal responsibility for one's actions, resulted in increased Origin scores in the seventh graders.

Finally, the eighth grade served primarily to follow-up the work which was accomplished earlier.

On the whole, gains in motivation and goal-setting were obtained. As a result of training, movement by both "Internals" and "Externals" was in the direction of the expected trend toward goals of moderate difficulty; however, motivation increases on a projective measure of achievement motivation were only minimal after training in the sixth and seventh grades, with little carryover beyond the year of training. Additionally, although Origin scores showed significant increases, this was not accompanied by a shift from "external" to "internal" locus of control. deCharms has attributed this to theoretical differences between the measures, even though being an Origin should be considered virtually analogous to having an internal locus of control.

What is most significant, however, was the effect of training on actual achievement performance. On the Iowa Test of Skills, improvement was quite dramatic, with very significant positive and long-lasting
effects on the academic achievement of the students, especially for boys.

In light of these encouraging results in performance and only moderate gains in directly-measured motivational components, deCharms explored the extent to which motivation acted as a mediating variable in producing particular indices of performance. As deCharms had postulated, the data "seem to establish the Origin concept as a mediator between the personal causation training and increased academic achievement" (deCharms, 1976, p. 157).

Specifically, where a child saw himself as responsible for his own behavior—in short, an Origin rather than a Pawn—academic achievement was most likely to occur.

Other Training Programs

Other studies, relying more heavily on the McClelland-Atkinson theories in toto, have not produced entirely satisfactory results.

The work of Ryals (1975), in particular, grew out of the McClelland work and was aimed at low-achieving eighth- and tenth-grade boys. He aimed to change the behaviors McClelland (1961) identified as being associated with high achievement motivation. By providing guided instruction with the Ring-Toss game, for example, students were trained in the setting of moderate goals. Other features of Ryals' (1975) program included attempts to have students (1) obtain and use concrete feedback, (2) seek out innovative action on a challenging task, and (3) take personal responsibility for their own behavioral outcomes.

Unfortunately, the results appeared to support only marginally the hypothesis that training would make a difference in the experimental
subjects' school performance. The students, who were teacher-trained, not expert-trained as were McClelland trainees, showed only minimal gains in grades and the author questioned the benefits of such a training procedure as being worthwhile. Overall, grades only increased from the magnitude of D+ to C- or C, although Ryals suggested that, perhaps, the program was able to halt a trend toward failure by the students. Still, despite the encouraging results of previously cited training programs (Alschuler, 1973; McClelland & Winter, 1969) these results (and some of the results of deCharms [1976]) show that the procedures employed are far from foolproof.

An important issue is the connection between motivational variables and behavior. It will be recalled that TAT scores were occasionally found not to correspond to performance measures of achievement (e.g., Bendig, 1958, 1959; Vollmer & Kaufman, 1975). Again, Klinger's (1966) argument that achievement behavior is a product of much more than motivational levels is relevant here.

McClelland (1972) has discussed the relationship between achievement motivation training programs and school performance and has, by and large, rejected any simple causal relationship between the two. In his own residential training program, potential high school dropouts made only minimal gains in school grades (on the average, from D+ to C-). This program was characterized by short, intensive courses conducted by a trained staff, and can be contrasted with the generally highly successful programs conducted by deCharms (1976) in St. Louis. In the latter study deCharms used classroom teachers as trainers and integrated the program into the regular classroom work. In examining these studies,
McClelland (1972) concluded that achievement motivation training is beneficial when it is conducted under conditions similar to those employed by the St. Louis group.

What factors, then, can be specified as influencing the effectiveness of motivation training in promoting in-school and out-of-school achievement-oriented behavior? McClelland (1972) has suggested several, gleaned from the research:

1. That training will be most effective at or above junior high school age. Although "games" input was effective for younger children in the studies, "thought" exercises required too much abstraction for those subjects.

2. The Harvard studies were more effective with boys than with girls, but the St. Louis studies showed that long-range changes in non-school related achievement was possible for girls. Another sex difference, manifested by the Alschuler (1973) study showed that, in the long run, girls gained more from Mastery-oriented courses than boys, while boys liked and responded better to Satisfaction-oriented courses.

3. Achievement motivation training improved performance in subject matter requiring more concrete action (e.g., in science more than social studies). This is explainable on the principles that highly achievement motivated persons prefer to get concrete feedback on their performance and tend to set goals in terms of concrete standards.

4. Programs which successfully brought about change in behavior were ones that taught achievement motivation "in thought and action [through] self-study, [in] goal setting and planning, and [with] some morale building or group solidarity inputs" (McClelland, 1972, p. 137).
Such programs were more successful than ones with only part of this group of activities, except that with younger trainees teaching specific strategies was more important than teaching only achievement thinking.

5. From the work of Kounin (1970), McClelland suggests that the classroom climate which best fostered achievement behavior following motivation training was one in which the teacher (1) got and held the attention of students through challenge arousal, zest, and variety in learning situations, (2) obtained maximal student participation in the learning process, and (3) made students feel accountable for their behavior, for performance under a teacher who is aware of what is happening in his/her classroom is beneficial in this regard.

This would seem to suggest that atmosphere and climate of a situation and not necessarily the content and the method of a training procedure are most crucial in bringing about actual change in trained individuals. On the other hand, McClelland's methodology includes training subjects on how to write TATs with high need achievement content and, thus, precludes use of the TAT as a post-training assessment measure. This would leave open the question of whether or not motivational levels had actually been increased as a direct result of the training procedure. McClelland (1972) says that "while we have constructed an explanation of the impact of achievement motivation training which does not require an increase in n Achievement levels, we cannot be certain that such an increase does not occur" (p. 145).

Summary

Summarizing the achievement motivation training studies, a number of salient points can be extracted. From the work of McClelland (1961)
any training program should stress four aspects of the motive: (1) moderate goal-setting, (2) preference for concrete feedback, (3) high degrees of initiative in exploring the environment, and (4) taking personal responsibility for one's own success and failure. deCharms' (1976) Origin-Pawn concept, supported by Weiner's (1974) attributional theory of achievement motivation, would make this last point, perhaps, most salient as a means of bringing about change.

In planning such a planning program, Alschuler et al. (1971) suggested six stages to such a program:

1. Focusing attention on achievement behaviors;
2. Providing an intense, integrated environment of new thoughts, actions, and feelings;
3. Conceptualizing the motive;
4. Relating the experience to life situations;
5. Stabilizing the experience through practice; and
6. Internalizing the concept through teacher and peer support.

Apropos of these final three points Kolb (1965) and Alschuler (1973) suggested that the environment be structured to support the gains of the training program. Alschuler's (1973) and deCharms' (1976) programs attempted to do this by introducing a program directly into the classroom and having trained teachers incorporate it into the regular learning situation. In addition, deCharms' (1976) work has suggested that, at least for boys, gains will be most lasting when they are aimed more at "satisfaction" than at "mastery." Girls, on the other hand, showed long-term gains under both conditions, pointing to possible sex differences in cases where training for girls has been successful in the first place.
Finally, McClelland (1972) has called attention to the possibility that the climate created by the classroom teacher in encouraging "achievement consciousness" among the students is an important factor in bringing about change.

Thus, a growing literature of achievement motivation research has begun to be joined by training procedures based upon specific tenets of all or part of the McClelland-Atkinson theory and results of thirty years of experimentation in the field. The basic hypothesis of the achievement motive as a learned state of "affective arousal" may be most vital to the thesis presented here—that modeling theory can be applied to the fostering of achievement motivation. Beyond that premise, and granting for the moment that the content of the training program is of great importance in determining behavioral outcomes, the literature has a great deal to offer in suggesting the approach and direction to this highly important endeavor.

At this point, Veroff's social comparison theory and the Bandura modeling studies can offer an alternative approach to those offered here. The support of both the theoretical framework of the Veroff hypothesis and the empirical evidence of the Bandura work strongly suggest that a modeling strategy can be employed. The present study was designed to test that idea.

A summary of the literature review will now follow, and will provide the highlights of the research which will serve as a basis for the hypotheses proposed in the study.
SUMMARY OF THE LITERATURE REVIEW AND HYPOTHESES

McClelland et al. (1953) set forth the proposition that every motive is learned, and can be aroused in the presence of relevant and salient cues. The achievement motive is typical and, indeed, has been most extensively investigated by McClelland, Atkinson, and their colleagues. This assertion as to the original source of achievement motivation as a learning experience has led to several training programs. They have shown the practicality of teaching achievement-related motives directly, on a concrete level, to adults in a business setting (McClelland & Winter, 1959) and to children in a school setting (e.g., Alschuler, 1973; deCharms, 1976; Kolb, 1965), with concurrent positive changes in achievement-oriented behavior.

With a good deal of research in the past fifteen years devoted to the important role that modeling may play in the learning of behaviors (e.g., Bandura, 1969), it is not unlikely to suppose that such observational learning may be used to train for motivation. Incidentally, to date only one study (Harris, 1972) has actually attempted to raise achievement levels through a modeling approach. While the success of that program was mixed, it does indicate that at least some changes on this dimension are possible.

Support for achievement-orientation as a learned motive has come from explorations into the nature of the origins of achievement motivation. Researchers have looked to the roots of achievement motivation in terms of parental reinforcement for setting high standards of excellence (e.g., Rosen & D'Andrade, 1959; Winterbottom, 1958) and also in terms of social comparison theory (Veroff, 1969). This latter
explanation has been described as closely allied to a modeling or identification process (Argyle & Robinson, 1962). Bandura and his associates (e.g., Bandura & Kupers, 1964) have conducted research which seems to parallel social comparison theory in demonstrating the effective modeling of self-reward behavior of others in the setting of self-imposed standards for performance on tasks, especially where the person perceives the abilities of the model as not too far above his own (Bandura & Whalen, 1966). There is ample evidence, therefore, to support a contention that achievement-oriented behavior is learned—and possibly modifiable—through a modeling paradigm, in addition to directly administered reinforcement or punishment.

1. It would be predicted, then, that achievement motivation can be increased by providing opportunities for achievement-oriented behavior to be modeled.

Because learning is assumed to take place throughout childhood, the implication would be that with increasing age one would expect a gradual strengthening of the motive from the time of its first appearance at about kindergarten age to its firm inculcation in the pre-adolescent period.

2. From this it would be predicted that levels of achievement motivation are more stable and better developed with increasing age (as learning experiences accumulate).

While much of the literature has specifically cited the modeling of live and filmed models, a small body of research has begun to look at symbolically-modeled behavior through the content of reading matter (e.g., Bandura & Mischel, 1965; Fisher & Torney, 1976; Masters &
Driscoll, 1971). A good deal of the modeling studies, both live and symbolic, have looked at the modification of school-related behaviors (see Nagle, 1976). It is the thesis of the present study that achievement-related motives are modifiable in the same way as other school-related, but more directly observable, behaviors such as attending behavior or work preference behavior. Social comparison theory and the self-reward literature make this a tenable hypothesis, given the many demonstrations of the modifiability of achievement-oriented behaviors through other training methods.

Developmentally, a great many studies (cited in Gerst, 1971) have shown the feasibility of teaching even very young children through a modeling procedure, provided sufficient verbal cues are present for the child to extract the meaning of the observed activity from the total situation. Coates and Hartup (1969) have shown a developmental trend toward an increasing ability to cognitively code observed behavior. Thus, while older children are able to supply the relevant verbal cues to make sense of what they have witnessed, the younger child is able to perform equally well only when the appropriate cues are supplied to him. When such verbal mediators are available to all children learning through imitation is possible even at the level of the pre-school child (Flavell, Beach & Chinsky, 1966). It is to be expected that as the child grows older and becomes more cognitively mature (in a Piagetian sense), performance will come to approximate that of children whose cognitive structures allow them to provide their own verbal cues. By encouraging learning completely through verbal content, as when behaviors
are described in a story, learning should be facilitated in children of all ages.

3. It would be predicted from the foregoing that in a verbally-presented modeling situation, imitation will be enhanced more when verbal cues concerning the context of the modeling situation are explicitly stated than when they are implicit within the context of the story.

4. In addition, one would expect an interaction between the age of the child and the explicitness of achievement theme cues in the story, such that in a verbally-presented modeling situation, children at all age levels can be trained in achievement motivation; however,
   a. At older ages imitation will occur when achievement content cues are either explicit or they are implicit within the reading material, such that these children will be able to use either the cues provided in the story or they can supply their own cues.
   b. Younger children, on the other hand, will show imitation only when relevant cues are explicitly presented to them.

Finally, the literature also suggests that in many cases achievement motivation and achievement-oriented behavior are related to one another.

5. From this it would be predicted that behavioral aspects of achievement will reflect the motivational levels of children, such that an increase in motivation will be accompanied by increases in actual classroom achievement performance.
Hypotheses

In attempting to apply a modeling approach to the training of achievement motivation a series of stories were read to boys at three grade levels: First-, third-, and fifth-graders heard stories containing either achievement-oriented themes or non-achievement-oriented themes ("irrelevant stories"). Among the former group, one-half of the subjects heard stories where the achievement theme was explicitly stated at the close of the story (AE condition), while one-half heard stories where the theme was implicit and was embedded within the story's context (AI condition). The irrelevant, non-achievement-oriented, stories contained themes which were unrelated to the achievement motive and subjects in this group served as controls (C condition) for the remaining two conditions.

Since several studies (Crandall, 1976; Heckhausen, 1967; McClelland, 1953, 1958) have shown low correlations among different measures of achievement motivation, it may be assumed that each measure is assessing a different aspect of the motive. Therefore, in practice, four dependent measures were independently employed in an attempt to assess levels of motivation in subjects definitively. Consequently, all mention of "achievement motivation level" refers to scores on each of the four measuring devices. When "achievement-oriented behavior" is mentioned, the reference here is to a rating scale completed by the teachers of the achievement behavior of students in her class taking part in the study. More explicit descriptions of these five measures will be found in the following sections.
With this as the framework and the previously cited expectancies as guides, five hypotheses were proposed.

Assessment of the results of the study was planned to employ two forms of analysis: examinations of post-experimental achievement motivation scores and also of pre- to post-experimental change scores. Thus, each of the following hypotheses will be presented here and then reported in the results section in light of the two separate analyses.

**Hypothesis I:** As a result of training, there will be a significant increase in levels of achievement motivation for subjects in the AE and AI conditions and no significant increase for subjects in the C condition.

Thus, the effect of training should be to raise motivation levels in experimental, but not in control subjects. Posttest and change scores should show a main effect due to experimental condition.

**Hypothesis II:** As a result of training, subjects in the AE condition will show significantly greater increases in levels of achievement motivation than subjects in the AI condition.

Since achievement cues are more salient in AE stories, posttest and pre- to post-experimental change scores should be significantly greater for subjects in this group than for subjects in the AI group, where themes are implicit within the stories.

**Hypothesis III:** Prior to training, subjects in each successively older age group will have higher levels of achievement motivation than subjects in younger groups.

This hypothesis denotes the extent to which, with increasing age, achievement motivation becomes more durable as a result of previous
learning experiences. This will be reflected in pre-experimental scores showing a main effect due to age.

**Hypothesis IV:** As a result of training, subjects in the AI condition will show higher levels of achievement motivation as age level increases, while subjects in the AE condition will show no differences as age level increases.

Since AE stories will contain explicitly-stated cues for all subjects, they should be effective for younger as well as older children. The AI stories, on the other hand, will not contain sufficient verbal cues for younger children to derive the thematic content of the story. These subjects should show significantly less of an increase in achievement motivation level as a result of the training. Thus, posttest and pre- to post-experimental change scores should show an interaction effect between age of subject and experimental condition.

**Hypothesis V:** Between pre- and post-experimental testing, teachers' rankings of students in AE and AI conditions, in terms of achievement-oriented behavior, will increase, while there will be no increase in rank for students in the C condition.

While the literature remains equivocal on this point, the expectation derived from McClelland's (1953) theory is that measures of achievement motivation should be accompanied by analogous achievement-oriented behavior in various environmental settings. Although school-related behavior is only a small portion of the total behavior pattern of students, it is a significant portion, and one which is important for the present and future success of the child. Therefore, despite the admitted inadequacy of teacher ratings (Cronbach, 1970) and
their potential unreliability, this measure is aimed at providing a crude index of the extent to which the training has transferred to real-life situations.

From the hypotheses relating to achievement motivation level, the pre-experimental data would be expected to show only one significant main effect, that of age. Post-experimental data, on the other hand, should show a significant main effect among the three experimental conditions, AE, AI, and C, and a significant interaction effect between age and experimental condition.

In comparing pre- and post-experimental achievement motivation scores in order to assess the effectiveness of the training procedure, change scores should show a significant difference between the two training groups, AE and AI, and an interaction between age and condition.

Finally, the single hypothesis relating to achievement-oriented behavior should show the effectiveness of the motivation training procedure, reflected in a significant difference between pre- and post-experimental rankings by teachers of their students' level of achievement-oriented behavior.
CHAPTER II. METHODS

The purpose of the current study was to show that a treatment procedure of reading achievement-oriented stories to children, through a symbolic modeling process, results in an increase in the achievement motivation level of listeners to the stories. In brief, the procedure which was followed is as follows: A pre-treatment treating period to assess initial levels of achievement motivation in the children (hereafter to be referred to as the pretest), the treatment procedure itself, and finally, a post-treatment testing period to assess the effects of the treatment on the children (hereafter to be referred to as the posttest). Following the pretest, children at three age levels were randomly assigned to one of three experimental conditions, previously described: An achievement-explicit story group (AE condition), an achievement-implicit story condition (AI condition), and an irrelevant-story group (C condition). A 3x3 fixed factorial design, with three levels of age and three experimental conditions, was thus employed.

With one exception, both pre- and periods consisted of the same measuring devices, leading to a change-score analysis of the data. Specific details about the subjects, the experimental setting, the pretest procedure, the method of assignment to treatment groups, the actual training procedure, and the posttest procedure will follow.

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SUBJECTS

The subjects used in the study were first-, third-, and fifth-grade boys attending three elementary schools in the Columbus, Ohio public school system. The mean ages of the samples were 6.9, 9.1, and 10.9 years, respectively. A white, middle-class population was selected as being potentially more conducive to responding to the story material than would be populations at lower socioeconomic levels, whose verbal ability has been shown in several studies (e.g., Eells et al., 1951; Jensen, 1963; John, 1963) to be inferior to that of the middle class. Since sufficient comprehension of the stories was considered a prerequisite for their being effective inducers of change, adequate receptive verbal ability became an important criterion in the selection of an appropriate experimental population.

Non-Use of Females

The original plan for the study was to include both boys and girls; however, girls were eliminated from the design for three reasons. First, TAT-achievement scores have been shown (Crandall, 1976) to have minimal validity as predictors of achievement behavior in females and, furthermore, need-achievement imagery has not been shown to increase for females as a result of arousal of the motive as it does for males (Horner, 1974). Since the TAT measure has been considered the single best assessor of need Achievement, it was selected in this study to be a principal index of achievement motivation level. Therefore, it was felt that its prior poor results for females would make impossible a valid interpretation of the girls' performance on that task.
Second, several previous achievement motivation training programs have produced equivocal results for female subjects. While Alschuler (1973), for example, did find that gains in achievement behavior were more lasting for girls than for boys, deCharms' (1976) program was more effective for boys than for girls. Programs inaugurated by McClelland and Winter (1969), in fact, have ignored women altogether in their entrepreneurial training groups.

Finally, from a purely practical point of view the original plans for the current study would have entailed the use of over 300 subjects if girls had been included. From the standpoint of testing and training so large a sample, given severe constraints in terms of time, space, and personnel, there was a need to reduce the sample size to approximately half the original projections.

Elimination of the girls, then, effectively accomplished the feat of reducing the total sample size. It also led to greater confidence that the measures and training procedure were appropriate to the sample under study.

Sample Selection

All three schools participating in the study contained, by confirmation of the school principals and by inspection of the housing in the areas of the schools, homogeneous populations of white, middle class populations.

Permission slips were distributed by way of the classroom teachers to all the children in the three grades of the schools. Four hundred eighty slips were distributed and of this number 305 (63.5%) were returned. A subsequent follow-up to the original permission slip,
in the form of a second notice to parents, produced a few additional subjects. When the girls were eventually eliminated from the study, 140 boys remained to begin pretesting. There was no reason to think, however, that this sample of boys differed in any way from boys whose parents had not returned the slips or who had refused their sons permission to participate in the study.

Of the 140 boys who were pretested, 132 remained in the study to be included in the posttesting. The remaining eight subjects had either moved away from the school district (n=5), had attended the reading sessions too infrequently\(^2\) (n=2), or were absent from school on the final day of the posttest (n=1). These subjects were dispersed relatively evenly among all three grade levels and experimental conditions so that bias was not introduced by selective withdrawals from the study.

THE SETTING

Both testing and story-reading took place in the children's own school. One of the schools was very large and hectic with virtually no spare rooms. Here testing and reading were done exclusively in hallways where there was occasionally much noise and movement. The children seemed accustomed to the apparent confusion, and, as the teachers confirmed this to be the usual case, there did not appear to be any ill-effects on the children's performance. By contrast, the other two schools were quieter and less crowded. An abundance of space permitted

\(^2\) A later section will detail the criterion of reading group attendance which qualified an experimental subject to be included in the posttest.
testing and reading to take place in quiet, empty classrooms with far less commotion. Although it was unlikely that differences in atmosphere among the schools contributed to performance differences among the students, it is conceivable that either student attention or experimenter attitude had some effect on the outcome at each school. An analysis of pre- and post-test TAT-achievement motivation scores at each of the three schools, however, indicated that despite differences in atmosphere and activity level among the various school buildings, performance was comparable for subjects at each location.

PRETESTING

Instruments

Each subject was tested individually on four tasks:

1. McClelland's TAT measure of achievement motivation
2. A Sentence Completion measure
3. A Story Preference measure
4. Goal-setting by use of a Ring-Toss game.

In addition, teachers completed a Student Rating Scale as an index of classroom achievement behavior.

TAT Measures of Achievement Motivation

The Thematic Apperception Test (TAT), originally developed by Murray (1938) as a projective device to assess a host of personality dimensions, was adopted by McClelland (1953, 1958) as a means of assessing need achievement through the analysis of fantasy production. Its benefits, outlined by Heckhausen (1967), include the fact that (1) the subject remains unaware of the actual purpose of the test,
(2) inner motives can be "tapped" before they are altered in the act of becoming conscious behaviors, and (3) the method allows the experimenter to sample thoughts, events, interpersonal relationships, and experiences which are rarely available through the direct observation of behavior. Furthermore, the relatively good reliability and validity of the measure has already been demonstrated.

Administration of the TAT followed the guidelines used in ordinary clinical administrative circumstances and those in McClelland's own research. A series of two to six ambiguous pictures are presented to the subject, who is asked to make up a story which specifically answers the following questions:

1. Who is (are) the man (men) in the picture? What has happened?
2. What is (are) the man (men) doing now in the picture?
3. What is (are) the man (men) thinking about?
4. What is going to happen? (Adapted from McClelland, 1955)

In order to standardize the procedure, none of the questions was probed although the testers did encourage reluctant subjects to produce more complete responses.

While a large number of different pictures have been employed in various achievement motivation studies, a total of three pictures of this collection were finally selected for use in the pretest and a comparable series of three were presented at the posttest. At the pretest, the following set of cards was employed (and were uniformly presented in this order):

2. Card B (from the original McClelland series of cards):
   Two men in a workshop operating a machine ("Inventors"
card).

3. Card 7BM: An older and a younger man are speaking to
   one another ("Father-son" card).

On the basis of much prior research, these three cards have served
to elicit achievement themes when presented to achievement-oriented
persons. McClelland (1958) has suggested that the ideal situation in
the selection of appropriate thematic cards is the presentation of cues
which "suggest vaguely the content area of the motive being measured
but do not elicit strong or specific associations based on particular
cultural or personal past associations" (p. 34). Because of the high
validity and reliability and a history of nearly thirty years of use,
the TAT was employed in this study as the principal dependent measure of
achievement motivation.

It has been argued that the TAT has produced the most relevant
data when it has been used with persons at or above the age of
adolescence (Kagan, 1960). The scoring guide developed by McClelland
et al. (1953) and elaborated by Atkinson (1958), which employs 13
categories relating to achievement-orientation, has been extensively
employed in adult and adolescent studies. On the other hand, the
projective protocols of young children are frequently too unproductive
and limited in detail to allow for such a detailed scoring system.
Fortunately, Veroff (1969) has successfully employed a simplified
system which he has used with over 3000 children as young as 4 years
of age. While Veroff used this system with only a two-card TAT set,
its appeal in terms of both parsimony and simplicity of scoring lent
itself well to use in the current study, both pre- and posttest.

A copy of the guide appears in Appendix A, but basically it
reduces the number of scoring categories to three. The first category
of response, involving a set of three sub-categories, is for the
occurrence of achievement imagery, and is worth two points. The second
category, involving a set of two sub-categories, is for occurrence
of task-related imagery without expressed achievement content, and is
worth one point. Finally, a third category is for the occurrence of
all themes unrelated to either achievement or task completion and is
worth zero points. Thus, on each of the three TAT cards a child
could score either zero, one or two points for a total of zero to
six points.

Sentence Completion

A five-item Sentence Completion measure (see Appendix B) was
devised by the investigator as a second means of eliciting underlying
motives. Whereas the TAT used pictorial cues to elicit responses, the
Sentence Completion measure provided verbal cues within an open-ended,
less structured framework. The item stems were selected because they
appeared to provide an opportunity for elicitation of the motive in
subjects whose concerns were achievement-oriented. Yet, in accordance
with the McClelland et al. (1953) description of good TAT cards, cues
were not too obviously achievement related.

A Sentence Completion measure has been used in the past to elicit
responses relating to a variety of personality variables, e.g., Sacks
and Levy (1950) reported use of the Sacks Sentence Completion Test (SSCT)
for assessment of variables relating to the family, to sex attitudes, to interpersonal relationships, and to self-concept. Kimball (1952) used a third-person approach to the assessment of traits associated with underachievement, such as aggression (e.g., "When Jack really became angry he...").

Finally, McClelland et al. (1953) used a 50-item Sentence Completion test, constructed by Dr. Jules Holzberg, as a further projective measure of achievement motivation. It is of note that Sentence Completion scores were unrelated to TAT scores, which McClelland et al. (1953) attributed to conscious control over responses on the Sentence Completion measure. This is also true of self-ratings, but not true of TAT responses, where the intent of the measure is less obvious.

In the present study, use of a Sentence Completion task had as its goal a second approach to achievement strivings which dominate the intrapsychic activities of the subject. Since the McClelland et al. (1953) research did not find the Sentence Completion measure yielding results consistent with the TAT, it appeared valuable to obtain this second source of information, while recognizing the shortcomings of this approach.

The measure was scored as "no achievement" or "achievement" (0 or 1) on four of the five items for a total of 0 to 4 points. The fifth item, "When I grow up I want to be a...," did not eventually yield useful information which could discriminate between achievers and non-achievers and it was not scored.

**Story Preference**

A five-item Story Preference measure (see Appendix C) was devised by the investigator. McClelland has stated (e.g., in McClelland &
Winter, 1969) that the individual high in achievement motivation prefers work situations which allow him to reach a goal—where he can personally work toward the goal—rather than situations in which success or failure is out of his control. It may, thus, be inferred that such a person prefers achievement-oriented contexts over non-achievement-oriented contexts of pure luck or chance.

The Story Preference measure was therefore prepared on that assumption. Five sets of paired story plots were presented in a forced-choice situation with one member of each pair designated as "achievement" and the other member designated as "non-achievement." The order of plots within each pair was randomly presented, such that on two of the pairs the achievement plot was presented first and the opposite was true with the remaining three pairs. A score of 1 was assigned for each achievement choice made by the subject, for a total of 0 to 5 points on the measure.

**Ring-Toss Game**

In accordance with Atkinson's (1966) theory of goal-setting, McClelland et al. (1953) and others (e.g., Litwin, 1966; Mahone, 1960) have observed that the highly achievement motivated individual tends to set moderately high goals for himself on tasks of skill in which he sees his own efforts responsible for attaining a goal. The point at which this individual will engage in a task, according to Atkinson, is where the probability of success on the task is approximately .50. In the present study, as in previous ones (e.g., McClelland et al., 1953; Litwin, 1966), a Ring-Toss game was used to operationalize the hypothesis.
Subjects high in achievement motivation are defined as those who stand at a moderately far distance from the peg. That is, they do not stand so near the peg that there is little reward for achieving success, nor do they stand so far away that success is remote and any success can be attributed to luck rather than skill. In the present study, each subject was given a choice of three floor marks to stand behind at some distance from the peg. The child was told that he was to choose one of the three positions and remain there for all tosses of the rings. The child had four chances to make "ringers."

For the youngest children (that is, first-graders) floor marks were set at 2-1/2, 6 and 10 feet from the peg. For the older children the marks were set at slightly more challenging distances, 3, 7 and 12 feet from the peg, to take into account their generally taller stature. In order to create an achievement-arousing situation and to induce the children to put forth their best efforts, a contest was created. All the children were told that each floor mark carried with it a certain number of points (1, 5 and 50 for the three distances, respectively) and the child in each class who scored the highest number of points would win a prize. The reward seemed to serve as a good motivator for the children and they actively sought to win the prize. In actuality, a "prize" of candy was awarded to every child after the conclusion of the study since "everyone had done so well."

This test was scored either + or -, depending upon whether the subject stood at the middle ("achievement") position in relation to the peg or at either the near or far extremes ("non-achievement").
Originally, questions corresponding to Weiner's (1974) four self-evaluation achievement-related attributes—effort, luck, task difficulty, and ability—were to be included, but they were excluded due to procedural difficulties.

Student Rating Scale

One other measure employed was a Student Rating Scale (see Appendix D) completed by the teacher to assess classroom evidences of achievement behavior. Teachers were provided with the Alschuler et al. (1971) definition of achievement motivation reproduced verbatim earlier in this report and then asked to rank-order the boys in their class participating in the study in terms of that definition, with rank 1 assigned to the boys adhering most to the definition.

Thus, a total of five instruments were included in the pretest procedure. Four of these—the TAT measure, the Sentence Completion task, the Story Preference task, and the Ring-Toss game—were employed to assess the initial level of achievement motivation in each boy. One measure was completed by the classroom teachers—the Student Rating Scale—to assess the initial teacher perceptions of achievement behavior in the classroom. Various other measures, including various questionnaires (Carney, 1965; Edwards, 1954), paper-and-pencil (Costello, 1967; Smith, 1973), and rating scales (see McClelland, 1958), have been all proposed as substitutes for the TAT, which is both time-consuming and inefficient to administer and to score. None has, to date, met with great success. A graphic projective technique, relying on the interpretation of "doodles," has been developed by Aronson (1958) and used with samples of children, while French (1958)
has developed a verbal projective device (The French Test of Insight) which is scored according to McClelland's TAT scoring system. Attempts have also been made to simplify and systematize the TAT, most often through a multiple-choice variation (e.g., Hurley, 1955), and unusual measuring devices have been developed, such as the "gumpgookies" objective-projective test of motivation, developed for use with children aged 3-1/2 to 9 years (Adkins & Ballif, 1972). On the whole, though, these devices have proven less than satisfactory, to varying degrees, with reliability and validity (with the TAT usually used as the criterion measure) significantly poorer than that of the TAT. Thus, consideration of "easier" or "faster" approaches than the TAT were abandoned here as the central measure of need Achievement, in favor of what has proved to be, by time and research, the best currently-available measure—the McClelland TAT.

Data Collection

Each subject was tested individually by a single experimenter, trained in the administration and scoring of each instrument. All but one of the testers were female, but since different experimenters were used to pretest, read to, and postest each subject, every child was exposed to the male experimenter at some point during the study. This helped to control for bias which might occur due to effects of sex of experimenter. In addition, earlier story-content effects research (Winer & Brandenburg, in press) has shown experimenter's sex to be an irrelevant variable.

In order to control for bias due to order of presentation of the tasks, the sequence of tasks administered to each subject was varied by use of a random numbers table (Peatman, 1963).
Scoring of the TAT

Scorers of the TAT protocols were familiarized with Veroff's (1969) scoring system and with McClelland's (1955) rationale for the use of the TAT in assessing achievement motivation levels. Each of the three testers rated all the protocols in order to obtain a correlation of interrater reliability. On the pretest this reached a very acceptable correlation of .87, derived from the rater reliability analysis for repeated measures in Winer (1971).

With a high interrater reliability correlation there was justification for reaching a consensus of scores in order to obtain a single score for each subject. Where all three raters concurred the score obtained was, of course, used. This occurred in 17.1% of the cases. Where two raters concurred and the third rater differed by one point, a decision was made to automatically accept the decision of the majority ("the 2/3 rule"). This occurred in 43.6% of the cases. For the remainder of the sample (39.3% of the cases), a consensus score was ascertained by discussion and mutual agreement after reviewing the individual protocols.

Assignment to Achievement Level

With completion of the pretest procedure, subjects were assigned to treatment groups. An important consideration in doing so was an attempt to make each treatment group as representative as possible in terms of all the pretest levels of motivation. For this purpose TAT score, as the principal index of achievement motivation level, was used as the criterion measure.
Thus, an arbitrary system was devised to trichotomize the total sample into levels of low, medium, and high need achievement. The system was as follows:

<table>
<thead>
<tr>
<th>TAT Score</th>
<th>Achievement Motivation Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0, 1, 2</td>
<td>Low</td>
</tr>
<tr>
<td>3, 4</td>
<td>Medium</td>
</tr>
<tr>
<td>5, 6</td>
<td>High</td>
</tr>
</tbody>
</table>

TREATMENT GROUP ASSIGNMENT

Following the pretest subjects were randomly assigned to one of the three treatment conditions—Achievement-Explicit (AE), Achievement-Implicit (AI), Control (C)—which have been described earlier. Two restrictions were placed upon complete randomization of assignment:

1. Approximately equal numbers of subjects at each achievement motivation level (low, medium, high) were placed into each condition at the three schools.

2. Approximately equal numbers of subjects from each classroom within a single grade level were placed into each condition at the three schools.

Assignments of Subjects

The 3x3 design of the study produced a total of nine treatment cells: three treatment conditions at each of three age-levels. Although exact division of the 140 pre-tested subjects would theoretically have allowed for 15 or 16 subjects by condition, in actuality the two restrictions placed upon strict randomization of the subjects into conditions made for unequal sample sizes, ranging
from 10 to 20. This inequality was, therefore, due only to the nature of the randomization procedure and not to any selective placement of the subjects. The exact subject assignment is given in Table 1, below:

Table 1
Assignment of Subjects Into Experimental Treatment Conditions

<table>
<thead>
<tr>
<th></th>
<th>AE Condition</th>
<th>AI Condition</th>
<th>C Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>N=18</td>
<td>N=19</td>
<td>N=17</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>N=17</td>
<td>N=20</td>
<td>N=15</td>
</tr>
<tr>
<td>5th Grade</td>
<td>N=12</td>
<td>N=12</td>
<td>N=10</td>
</tr>
<tr>
<td></td>
<td>N_AE=47</td>
<td>N_AI=51</td>
<td>N_C=42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>N=140</td>
</tr>
</tbody>
</table>

The reduced number of subjects in the 5th grade was due to (1) the smaller number of boys enrolled at this grade level than at lower grade levels, and (2) the smaller percentage of permission slips returned by parents at this grade level than at lower grade levels.

Control of Variables

As previously stated, the subjects in all three schools came from uniformly white, middle-class areas of the city and it is assumed that socioeconomic level was held constant across all treatment conditions.

A one-way analysis of variance determined that age level at each grade did not significantly differ among the three treatment conditions.

Unfortunately, intelligence test scores were regarded by the schools as too confidential to be released for this study so no data as to comparative IQ scores across conditions were available. However, since the students in the study were selected from "normal" classes in
the Columbus school system and were then assigned in a semi-randomized system to treatment groups, there is no reason to expect difference in IQ among the various conditions.

The principal experimenter in the study was a male; however, the assistants were all females. As cited earlier, since a different experimenter pretested, read to, and posttested each subject, it was arranged that the male took some part in the testing or training of each subject. Thus, the experience of all subjects in this regard was similar in all conditions.

TREATMENT

Story Content

The treatment consisted of reading to the subjects a total of 28 stories whose themes were of one of three varieties, corresponding to the three treatment groups:

Achievement-Explicit: The achievement theme was explicitly stated at the end of the story. A paragraph was added which paraphrased the particular principle of motivation which the story was designed to convey. This statement related to the actions of the protagonist and emphasized the relevance of the theme and the protagonist's behavior to the listener.

Achievement-Implicit: The plots of these stories were identical to those in the AE condition; however, the achievement theme was implicitly contained within the plot. No specific reference to the story's motivational principle or to the listener's relationship to the protagonist was present. Rather, the principle was expected to be inferred from the thoughts and behaviors of the protagonist.
Control: Stories were read whose plots contained no specific achievement-oriented thematic material. They involved humans, animals, and inanimate objects engaged in activities considered to be irrelevant to the achievement motive (e.g., visiting a grandmother, finding seashells on a beach).

The stories used were original and devised by the investigator in order to (1) insure that the plots of the stories would be unfamiliar to all the children, (2) control the exact content of the stories, (3) control the length and difficulty of the stories, so as to make them generally equivalent to one another, and (4) attempt to control for the interest level of each story. Previous research has stressed the importance of similarity between the model and the observer in fostering imitation (Bandura, 1969), especially in terms of similarity of sex (Maccoby & Jacklin, 1974) and in terms of similarity of ability on tasks (Bandura & Whalen, 1966) between model and observer. For this reason only male models were included in the achievement-oriented stories, engaging in activities with which the listeners to the stories could identify. These activities included both in-school and out-of-school situations. Among the former subjects were academic testing situations, school sports events, and recess activities (e.g., block-building). Among the latter subjects were neighborhood sports events and everyday problems to be solved (e.g., obtaining change to pay for bus fare). The control stories also used male protagonists, but the plots were more varied and unrestricted. Samples of the stories can be found in Appendix E.
Atkinson (1958) has differentiated between success-orientation and failure-orientation as complementary aspects of the achievement motive. Since a success-orientation can be considered the more positive dimension of the two, the achievement-oriented stories all stressed a striving for some positive goal, rather than the avoidance of a negative goal. Furthermore, McClelland (McClelland et al., 1953) has cited the importance of clarifying specific goals to be reached. As a result, the stories all made clear a concrete goal toward which the protagonist was working, and resulted in success in reaching that goal through his own efforts, followed by both intrinsic (e.g., pride in achievement) and extrinsic (e.g., a prize or social approval) rewards.

The experimental stories each contained one of six different achievement-related themes. Four of these themes were derived from the four dimensions of achievement motivation first cited by McClelland et al. (1953):

1. Competition with a stated external standard of excellence [e.g., breaking a school record (4 stories)].
2. Competition with one's own record of accomplishment (4 stories).
3. Attaining a unique accomplishment [e.g., making a new invention (4 stories)].
4. Working toward a long-term goal, such as desired object or a life-activity (4 stories).

An additional set of six stories was based upon Atkinson's concept of achievement-oriented behavior being the setting of moderate goals for oneself, rather than easily obtainable ones or ones which are beyond the ability of the individual to reach by his own efforts.
Finally, a sixth set of six stories consisted of a more general achievement goal of overcoming an obstacle to reach a desired outcome.

**Reading Procedure**

Each subject who was present for the entire series of readings heard a total of 28 stories over 14 days in a 3-1/2 week period. Two stories were read each day to the children in small groups, four days each week.

While the achievement-oriented stories read on a single day contained the same achievement theme, the ordering of themes across the total treatment period was randomly assigned, with the one exception that since one of the stories contained a plot which was almost identical to that of the goal-setting exercise of the Ring-Toss game, it was arbitrarily placed at a point midway through the story readings.

The reading schedule was planned so as to complete the reading of the stories at mid-week. This was done so that posttesting could commence the next day, before too much time had elapsed. Since some subjects, of necessity, were tested after the weekend following the story reading, posttest scores measured immediately after the story reading were compared with scores measured a few days later. The results of this procedure are discussed in a later section. In setting up the reading groups there was, of course, the necessity of having all the listeners in a single group chosen from the same experimental condition. This meant that a group's members were at different achievement levels, and where there was more than one classroom on a single grade, members were chosen from each of the classrooms. These stipulations caused group sizes to vary widely,
from ten (at a school with three classrooms on a grade and extensive participation in the study) down to one (where only one classroom existed on the grade and only three boys from that room were involved in the study). The mean group size was 5.0.

The children were taken from their classroom to a convenient and, where possible, a relatively quiet location in a nearby classroom or hallway and then returned to the classroom after the reading session. Each story was about seven minutes in length, for a total of about 15 minutes of reading each day. No discussion of the stories was held after the reading so as to insure that any effects produced were due solely to the stories and not to the discussions afterward.

While the same stories were read to the children at all three grade levels, the groups consisted of children at the same grade level. In most cases the boys from one class in the school were familiar with the boys from the other classes on that grade so that the children felt compatible and at ease with one another.

As reported earlier, posttesting began on the day immediately following the reading of the last pair of stories. It is to that procedure that we turn.

. POSTTESTING

Posttests were administered at the close of the reading program, individually, to each subject. The tests were identical to those used in the pretest with one exception and one addition to the series. Again, as for the pretest, the ordering of the tasks for each child was varied randomly to control for order-of-presentation effects.
Teachers again rank-ordered their students in terms of achievement-orientation.

**TAT Measure of Achievement Motivation**

The exception in the posttests to the pretest procedure consisted of the replacement of the three cards used in the pretest TAT measure by a comparable set of three pictures, never before seen by the subjects. This substitution was made in order to control for the bias of a second administration of the same stimulus cues.

The cards which were used in the posttest were the following:

1. Card 8BM: In the foreground a boy is standing alongside a gunlike object, while in the background an operation is proceeding ("Operation" card).

2. Card H (from the original McClelland series of cards): A boy is sitting at a desk before an open book (Boy-at-Desk" card).


**Story Completion Question**

An important consideration regarding the effectiveness of the training program was the children's ability to comprehend the meaning of the stories read to them. Thus, in order to ascertain whether or not the children had understood the general themes of the stories a final question was asked of all the subjects after all the other tasks had been administered. Specifically, the boys were asked:

"What do you think all those stories were about?"
In order to clarify exactly what was wanted of the child, a follow-up question was sometimes asked:

"What was the same about all the stories we read?"

These questions were asked of both experimental (AE and AI) and control subjects, although, of course, only the experimental subjects were expected to find a commonality among the story themes.

**Scoring of the Post-Tests**

As was true for the pretests, the testers scored their own protocols using the same scoring guides as in the earlier administration. In scoring the TAT protocols, however, only a partial interrater reliability check was made. Since the interrater reliability had been very high \( r_3 = .87 \) for the pretest data, and since the same scorers were employed to score the posttest data, only a random selection of 28 protocols was used for the latter verification. Again the correlation was acceptably high \( r_3 = .69 \), with the lower correlation attributed mainly to the smaller sample size than was used for the pretest protocols (140 vs. 28).

**ANALYSIS OF THE DATA**

A two-way analysis of variance (computer program SOUPAC) was used to determine the effectiveness of the experimental treatment.

The effects of age and experimental condition were analyzed for significance of differences among the means in the cells of the 3x3 experimental design. In preparation of the posttest scores for analysis, subjects in the two experimental conditions, AE and AI, were included only if they had been present at the reading sessions a
significant number of times to assume that an effect of the treatment would be possible. This criterion was attendance at 10 of the 14 training days. As was indicated earlier, all but two subjects met this criterion and the two were eliminated from statistical analysis involving posttest data.

SUMMARY

This section has focused on the methods employed in the study. It has dealt with seven topics: (1) subjects, (2) setting, (3) pretest procedure, (4) treatment group assignment, (5) treatment procedure, (6) posttest procedure, and (7) analysis of the data.

The subjects were 140 first-, third-, and fifth-grade boys who were students at three Columbus, Ohio elementary schools. They were first pretested to ascertain initial achievement motivation level using the following instruments: (1) McClelland's TAT measure, (2) a Sentence Completion task, devised by the investigator, (3) a Story Preference task, also devised by the investigator, and (4) a Ring-Toss game. In addition, teachers were asked to rank-order their boys in terms of their observed achievement behavior in the classroom.

A training program, in which either achievement- or non-achievement-oriented stories were read to the boys was followed by a posttest series of tasks, virtually identical to the pretest series.

A two-way analysis of variance was performed to test the effectiveness of the training program.

The results of this procedure are described in the following section.
CHAPTER III: RESULTS

The data analysis employed achievement motivation scores derived from each of the pre- and posttests, specifically, the TAT, Story Preference task, Sentence Completion task, and Ring-Toss game. An additional dependent measure, employed to test Hypothesis V, was teachers' rankings of the students according to observed classroom achievement behavior.

Since each test was selected to test for achievement motivation from a different perspective, and since the scoring of each scale was based upon widely different assumptions, each of the five experimental hypotheses was analyzed in terms of the individual measures, separately. The TAT measure, which has the highest proven reliability and validity of those employed in the study, served, however, as the principal index by which the treatment effects were measured.

Analysis of the data was based upon the 3x3, age-by-experimental conditions (first-, third-, and fifth-graders in C, AI, and AE conditions) factorial design. The scored achievement motivation measures (TAT, Story Preference Task, and Sentence Competion Task) were subjected to a two-way analysis of variance. For this purpose the SOUPAC computer program was used. Separate analyses were conducted on the pretest and posttest data. In addition, change scores were derived by calculating the difference between scores obtained
before and after the experimental treatment and a separate analysis was conducted on these scores.

As one means of assessing the extent to which the experimental treatment differentially affected subjects, a posttest analysis of variance was employed. If there was to be, indeed, a difference among the groups as a result of the treatment procedure, a posttest analysis would provide an index of that difference. While some writers (e.g., Kirk, 1968) have supported the use of a repeated measures analysis of variance to compare pretest and posttest data in a typical treatment-effects experimental design, recent researchers (Huck & McLean, 1975; Overall & Woodward, 1975) have cast doubts on the usefulness of this approach. They have begun to support the use of change scores as providing equivalent, or in some cases superior, ability to test null hypotheses involving the pretest-posttest control design. In addressing themselves, specifically, to the repeated measures ANOVA, Huck and McLean (1975) cite several arguments in favor of its replacement by a simpler change score analysis approach. Among these arguments is the difficulty in (1) adequately performing appropriate post hoc comparison tests from the repeated measures analysis, and (2) the interpretation of the data derived from such an analysis. Thus, the authors conclude that:

... the repeated measures ANOVA does not yield additional information beyond that which can be obtained from a simpler analysis of [change] scores. And since the former approach is potentially confusing and in some cases controversial, while the latter approach is straightforward and easy to follow, there is much to recommend the [change] score approach to the data analysis (Huck & McLean, 1975, p. 516).

Overall and Woodward (1975) have concurred with this opinion. While the principal objection to the use of a change score analysis has
been the complete unreliability of change scores, they have demonstrated algebraically that this will not affect the power of one to reject the null hypothesis. In fact, "[change] scores with zero reliability provide a superiority basis for rejection of the null hypothesis" (Overall & Woodward, 1975, p. 85).

Thus, the decision made here was to rely on pretest-to-posttest change scores as being as well able (or perhaps better able) to assess the effects of the experimental treatment, rather than a repeated measures analysis.

Data obtained from the fourth dependent measure of achievement motivation, the Ring-Toss game, were scored and analyzed as a dichotomous variable. These were subjected to chi-square procedures, as well as procedures of exact tests of probability. Chi-square tests were also used to analyze the changes occurring between teachers' rankings of students before and after the treatment.

These procedures attempted to examine the data obtained in relation to the five hypotheses proposed. The present section will be organized according to the following plan: First, the mean scores obtained on the various measures of achievement motivation and classroom achievement behavior will be given and summarized in Appendix F. Second, each hypothesis will be considered individually. Since an analysis of variance was performed on both posttest and change scores, results from each analysis will be reported separately. Each hypothesis will be discussed with reference to the relevant individual tests of motivation employed in the study. Finally, a section will be devoted to additional analyses, not directly related to the testing of the specific hypotheses.
For the reader's interest a complete set of statistics, summarizing the mean scores obtained by subjects at each grade level and for each experimental condition will be provided in Appendix F.

In that appendix, pretest scores will be listed first, followed by posttest scores, and finally, by the pre-to-posttest change scores.

In each case a score of zero reflects the lowest achievement score possible on that task. To review the scoring of the measures:

The TAT measure was scored on a 0 to 6 scale, the Story preference Task on a 0 to 5 scale, and the Sentence Completion on a 0 to 4 scale.

The results obtained from the Ring-Toss measure were analyzed by tallying the number of subjects in the pre- and posttest selecting either a high or a low achievement-oriented position. A positive (+) tally indicates that the subject selected an intermediate (i.e., high achievement-oriented) position on this task, while a negative (-) tally indicates that the subject selected either a near or far (i.e., low achievement-oriented) position.

Finally, the results of the teachers' rankings of students indicate the number of students who, on the post-experimental ranking, were ranked either higher or ranked the same or lower than they had been on the pre-experimental ranking. These data are presented for the sample as a whole, as well as for each grade level.

Tables summarizing the Ring-Toss and Student Rating Scale data can also be found in Appendix F.

The analyses performed on these data in testing the individual hypotheses will follow.
Tests of the Hypotheses

Hypothesis I (Posttest Data)

Examining posttest scores, subjects in the AE and AI conditions will have higher levels of achievement motivation than will subjects in the C condition.

The prediction here was that on post-experimental testing there would be a main effect due to experimental condition. As indicated in summary Table 2 such a main effect was evident for the TAT measure only. The mean TAT scores for the C, AI, and AE groups were 2.88, 3.08, and 3.44, respectively. A significant difference (p < .05) among these means indicates an effect of the experimental treatment. Furthermore, subsequent post hoc comparisons between means by use of the Scheffe Test (1959) demonstrated that the AE group, in particular, differed significantly from the control group (p < .05). No other analysis or between-groups comparison was significant.

A comparison among the three treatment groups was made between the number of boys who, on the posttest Ring-Toss task, selected either an achievement-oriented or a non-achievement-oriented risk position. This comparison for the C, AI, and AE groups was 32 (achievement-oriented) vs. 9 (non-achievement-oriented), 36 vs. 12, and 32 vs. 11, respectively. A chi-square analysis of this data revealed no significant difference among any of the three experimental conditions [$X^2(2) = .04$, n.s.].

---

The Scheffe procedure, as a means of making post hoc comparisons among means, is generally considered a very conservative test. For this reason Scheffé (1959) and others (e.g., Winer, 1971) have advised that a .10 significance level, rather than the usual .05 level be used.
TABLE 2
SUMMARY TABLE OF 3x3 ANALYSIS OF VARIANCE ON TAT POSTTEST SCORES

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>157.934</td>
<td>2</td>
<td>10.745</td>
<td>8.368&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Treatments</td>
<td>7.928</td>
<td>2</td>
<td>3.964</td>
<td>3.087&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>11.568</td>
<td>4</td>
<td>2.892</td>
<td>2.252</td>
</tr>
<tr>
<td>Within groups</td>
<td>157.934</td>
<td>123</td>
<td>1.284</td>
<td></td>
</tr>
</tbody>
</table>

MEAN POSTTEST SCORES

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>AI</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>2.88</td>
<td>2.44</td>
<td>2.50</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>2.80</td>
<td>3.32</td>
<td>4.00</td>
</tr>
<tr>
<td>5th Grade</td>
<td>3.00</td>
<td>3.72</td>
<td>4.00</td>
</tr>
</tbody>
</table>

<sup>a</sup> p < .05
<sup>b</sup> p < .001
Thus, on the basis of the posttest data, Hypothesis I was, for the most part, supported.

On the other hand, despite efforts at randomization of subjects among the various reading groups, a significant main effect of experimental condition on the pretest was found (p < .04), with subjects in the AI group scoring significantly lower than subjects in either the C or AE groups. This would cast doubt upon the interpretability of the posttest findings on this measure. For this reason an analysis of the change scores becomes important, so as to put into perspective the findings on the posttest relative to those of the pretest.

**Hypothesis I (Change Score Data)**

Between pre- and post-experimental testing, **there will be a significant increase in levels of achievement motivation for subjects in the AE and AI conditions and no significant increase for subjects in the C condition.**

The prediction here was that change scores would show a main effect due to experimental condition. Specifically, subjects in the AE and AI experimental groups would have significantly higher achievement motivation scores than control subjects.

An examination of the TAT results shows that mean change scores from pre- to posttest for the C, AI, and AE groups were -.24, .48, and .37, respectively. As summary Table 3 indicates, these scores did show a significant main effect due to experimental condition (p < .02).

A post hoc analysis comparing the means by use of the Scheffé
### TABLE 3

**SUMMARY TABLES OF 3x3 ANALYSIS OF VARIANCE ON TAT CHANGE SCORES**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Square</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.393</td>
<td>2</td>
<td>0.196</td>
<td>0.094</td>
</tr>
<tr>
<td>Treatments</td>
<td>18.189</td>
<td>2</td>
<td>9.095</td>
<td>4.338*</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>14.489</td>
<td>4</td>
<td>3.622</td>
<td>1.728</td>
</tr>
<tr>
<td>Within groups</td>
<td>257.899</td>
<td>123</td>
<td>2.097</td>
<td></td>
</tr>
</tbody>
</table>

**MEAN CHANGE SCORES**

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>AI</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>+.25</td>
<td>+.39</td>
<td>+.19</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>-.33</td>
<td>+.26</td>
<td>+.60</td>
</tr>
<tr>
<td>5th Grade</td>
<td>-.90</td>
<td>+1.00</td>
<td>+.33</td>
</tr>
</tbody>
</table>

*a p < .02*
Test showed the specific effect taking place within the AI group as contrasted with the control subjects \( (p < .05) \). In addition, when subjects in the AE and AI groups were combined and then contrasted with control subjects, a significant difference was found \( (p < .05) \).

As Figure 1 indicates, over the pre- to posttest period, both experimental groups, AE and AI, experienced increases in TAT-measured motivational level at the same time control subjects were showing a slight (non-significant) decrease in motivational level.

No other experimental measure of achievement motivation on which an analysis of variance was performed provided significant results in relation to this hypothesis.

An additional test was conducted on the TAT measure to determine the significance of the difference between the obtained change scores and a score of zero. Any relative difference between control and treatment subjects would produce significant results on the foregoing analysis of variance. This would be especially true where change scores for control subjects fell below zero (i.e., showed a decline from pre- to posttest) while comparable scores for treatment subjects remained only minimally above zero (i.e., increased from pre- to posttest). Demonstration that a change score was not significantly different from zero would then serve to temper any conclusion based only on the type of relative difference between control and treatment subjects just described. A one-sample t-test was, thus, performed for each measure between the mean of the treatment group and a score
FIGURE 1

PRE- TO POSTTEST CHANGE IN TAT-MEASURED LEVELS OF ACHIEVEMENT MOTIVATION AMONG THE C, AI, AND AE TREATMENT GROUPS
of zero. As Table 4 indicates, only one such test was significant at the .05 level, while one more was marginally significant at slightly above this level.4

The group showing a significant improvement in performance was the AI sample, as measured by the TAT (p < .05). This would support the notion that improvement in the performance of at least one group of experimental subjects can be contrasted with a failure to find significant improvement among control subjects (whose change scores did not differ significantly from zero).

Turning to the Ring-Toss data, Table 5 provides a summary of the numbers of subjects selecting each risk position (achievement- or nonachievement-oriented) during the pretest and the posttest periods, within each of the three treatment groups. An exact test of probability devised by Shaffer (1972), designed to test data contained in multi-factor contingency tables, was performed. In an analysis of change in performance between pre- and posttesting on this measure, no significant difference was found among the three experimental groups, in terms of numbers of subjects showing change from pre- to posttest (p=.70).

Thus, on the TAT measure, at least, Hypothesis I was largely supported. This support would indicate that the experimental procedure had made an impact on subjects hearing the achievement-oriented stories. However, the hypothesis was unsupported by other measures of achievement motivation.

4The group displaying marginal significance were the fifth-graders in the AI group, as measured by the TAT, whose mean change score was +1.00.
### TABLE 4

SUMMARY TABLE OF ONE-SAMPLE t-TESTS AMONG TAT CHANGE SCORES

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Mean Change Score</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Grade</td>
<td>+.25</td>
<td>15</td>
<td>0.69</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>-.33</td>
<td>14</td>
<td>1.00</td>
</tr>
<tr>
<td>5th Grade</td>
<td>-.90</td>
<td>9</td>
<td>1.63</td>
</tr>
<tr>
<td>Overall</td>
<td>-.24</td>
<td>40</td>
<td>1.04</td>
</tr>
<tr>
<td>Achievement-Implicit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Grade</td>
<td>+.39</td>
<td>17</td>
<td>1.44</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>+.26</td>
<td>18</td>
<td>1.00</td>
</tr>
<tr>
<td>5th Grade</td>
<td>+1.00</td>
<td>10</td>
<td>2.08a</td>
</tr>
<tr>
<td>Overall</td>
<td>+.48</td>
<td>47</td>
<td>2.01b</td>
</tr>
<tr>
<td>Achievement-Explicit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Grade</td>
<td>+.19</td>
<td>15</td>
<td>0.54</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>+.60</td>
<td>14</td>
<td>1.33</td>
</tr>
<tr>
<td>5th Grade</td>
<td>+.33</td>
<td>11</td>
<td>0.66</td>
</tr>
<tr>
<td>Overall</td>
<td>+.37</td>
<td>42</td>
<td>1.53</td>
</tr>
</tbody>
</table>

*a* *p < .07* (Marginal significance)

*b* *p < .05*
### TABLE 5

**SUMMARY OF THE FREQUENCY OF SUBJECTS IN EACH TREATMENT GROUP SELECTING EACH OF THE RISK-POSITIONS ON THE RING-TOSS MEASURE**

<table>
<thead>
<tr>
<th>Treatment Groups</th>
<th>AI</th>
<th>AE</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest:</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>18</td>
<td>17</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>Posttest:</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>

\[ p(\text{treatment} \times \text{pretest} \times \text{posttest}) = .70 \]

\(^a\) High-achievement risk position designated by "+"

\(^b\) Low-achievement risk position designated by "-"
Hypothesis II (Posttest Data)

On the posttest, subjects in the AE condition will have higher levels of achievement motivation than will subjects in the AI condition.

It was predicted here that, overall, subjects in the AE condition, who had been exposed to more saliently-presented achievement themes, would show greater improvement than would subjects in the AI condition, who had not been exposed to as salient cues.

On the TAT (the only significant measure in the overall analysis of variance) the mean posttest scores of these two groups, AI and AE, were 2.61 and 3.11, respectively. A Scheffe Test, comparing these means in a post hoc analysis, found no significant difference between the groups.

Since, again, the pretest TAT had shown a significant main effect among experimental conditions, we must turn to the change score analysis to make a more valid assessment of the results on this issue.

Hypothesis II (Change Score Data)

Between pre- and post-experimental testing, subjects in the AE condition will show significantly greater increases in level of achievement motivation than subjects in the AI condition.

The prediction here was that due to the greater salience of achievement themes in the AE stories, there would be greater change among subjects hearing these stories than among subjects hearing the AI stories.

Turning to the TAT measure scores (again, the only significant measure on the analysis of variance) the mean change scores of the two treatment groups, AE and AI, were +.48 and +.37, respectively.
A Scheffe Test performed between these means failed to find a significant difference between the change scores of the subjects in these groups.

Since none of the other experimental measures for which an analysis of variance was performed yielded a significant main effect of condition, no further comparison between means was made.

An exact test of probability (Shaffer, 1972) performed on the Ring Toss results, comparing pre- and posttests, reported earlier, found no significant interaction between these sets of test scores and experimental condition. Thus, on this measure as well, no significant difference in performance between the two experimental groups (AE and AI) could be found as a result of the treatment procedure.

To summarize, Hypothesis II was not confirmed. Subjects who heard stories containing explicitly stated achievement themes did not increase in achievement level to a greater extent than subjects who heard stories whose achievement theme was implicit.

Hypothesis III

Prior to training, subjects in each successively older age group will have higher levels of achievement motivation than subjects in younger groups.

It was predicted that, prior to any specific procedure, subjects' achievement motivation levels would show an increase along with increasing age. A main effect due to age was, therefore, expected on each of the pretest measures.
The mean pretest scores at each grade level (first, third, and fifth), on each test measure were as follows: On the TAT measure the means were 2.43, 3.15, and 3.41, respectively. On the Story Preference task the means were 3.61, 3.81, and 4.35, respectively. Finally, on the Sentence Completion task the means were 1.56, 1.90, and 2.18, respectively.

As Tables 6 through 8 indicate, the analysis of variance strongly supports Hypothesis III for the TAT measure (p < .001), the Story Preference measure (p < .001), and the Sentence Completion measure (p < .002). A chi-square test of significance was to be performed on the Ring-Toss data, comparing subjects at the three grade levels who did or did not select a high achievement risk position in performing the task. Exactly equal numbers of subjects within each of the three levels chose each of the two possible positions (27, 26, and 17 subjects at the first-, third-, and fifth-grade levels, respectively). Thus, no chi-square test was necessary.

Except for the Ring-Toss measure, then, Hypothesis III was supported. Increasing levels of achievement motivation were associated with increasing subject age between the first- and fifth-grades.

Hypothesis IV (Posttest Data)

In analyzing the posttest data, subjects in the AE condition will show no differences in achievement motivation level across age, while subjects in the AI condition will show successively higher achievement levels in each older age group.
TABLE 6

SUMMARY TABLE OF 3x3 ANALYSIS OF VARIANCE ON TAT PRETEST SCORES

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>23.816</td>
<td>2</td>
<td>11.908</td>
<td>7.680&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Treatments</td>
<td>10.438</td>
<td>2</td>
<td>5.219</td>
<td>3.366&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>4.299</td>
<td>4</td>
<td>1.075</td>
<td>0.693</td>
</tr>
<tr>
<td>Within groups</td>
<td>203.118</td>
<td>131</td>
<td>1.551</td>
<td></td>
</tr>
</tbody>
</table>

MEAN PRETEST SCORES

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>AI</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>2.71</td>
<td>2.16</td>
<td>2.44</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>3.13</td>
<td>2.95</td>
<td>3.41</td>
</tr>
<tr>
<td>5th Grade</td>
<td>3.90</td>
<td>2.75</td>
<td>3.67</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>p < .04</sub>
<sup>b</sup><sub>p < .001</sub>
TABLE 7

SUMMARY TABLE OF 3x3 ANALYSIS OF VARIANCE ON STORY PREFERENCE PRETEST SCORES

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>12.726</td>
<td>2</td>
<td>6.363</td>
<td>7.704&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Treatments</td>
<td>0.421</td>
<td>2</td>
<td>0.211</td>
<td>0.255</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>10.240</td>
<td>4</td>
<td>2.560</td>
<td>3.099&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Within groups</td>
<td>108.203</td>
<td>131</td>
<td>0.826</td>
<td></td>
</tr>
</tbody>
</table>

MEAN PRETEST SCORES

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>A1</th>
<th>A2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>3.88</td>
<td>3.63</td>
<td>3.33</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>3.60</td>
<td>3.45</td>
<td>4.41</td>
</tr>
<tr>
<td>5th Grade</td>
<td>4.30</td>
<td>4.50</td>
<td>4.25</td>
</tr>
</tbody>
</table>

<sup>a</sup>p < .02
<sup>b</sup>p < .001
TABLE 8
SUMMARY TABLE OF 3x3 ANALYSIS OF VARIANCE ON SENTENCE COMPLETION PRETEST SCORES

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>8.549</td>
<td>2</td>
<td>4.275</td>
<td>6.835a</td>
</tr>
<tr>
<td>Treatments</td>
<td>2.108</td>
<td>2</td>
<td>1.054</td>
<td>1.685</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>0.686</td>
<td>4</td>
<td>0.172</td>
<td>0.274</td>
</tr>
<tr>
<td>Within groups</td>
<td>81.930</td>
<td>131</td>
<td>0.625</td>
<td></td>
</tr>
</tbody>
</table>

MEAN PRETEST SCORES

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>A1</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>1.47</td>
<td>1.53</td>
<td>1.67</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>2.00</td>
<td>1.70</td>
<td>2.06</td>
</tr>
<tr>
<td>5th Grade</td>
<td>2.10</td>
<td>2.00</td>
<td>2.42</td>
</tr>
</tbody>
</table>

\(^a_{p < .002}\)
It was predicted that an age x experimental condition interaction would occur, such that subjects at all ages would model with equal ease the stories with the more explicit achievement cues (AE stories), while only older subjects would be likely to imitate the stories with fewer explicit achievement cues (AI stories). Thus, at the first grade level, imitation was expected among subjects in the AE condition, but not among those in the AI condition. On the other hand, fifth-graders in both the AE and AI conditions were expected to model the behaviors in the stories. Third-graders were expected to be intermediate in their modeling performance between that of the younger and the older subjects, with imitation in the AI condition mid-way between that of the first- and fifth-graders.

In comparing posttest performances of the three treatment groups, no age x condition interaction took place among any of the experimental measures on which an analysis of variance was employed. Similarly, a chi-square analysis of the posttest Ring-Toss data revealed no significant differences among treatment groups at any age levels \([x^2(2) = .04]\).

Although no significant effects were evident from the posttest data, a more meaningful analysis can be provided by the change score data, especially in light of the aforementioned significant main effect of experimental condition on the pretest TAT. Analysis of these data provides that information. It is to an analysis of those data that we now turn.
FIGURE 2

EXPECTED AGE x CONDITION INTERACTION AMONG CHANGE SCORES

FIGURE 3

AGE x CONDITION INTERACTION OBTAINED AMONG STORY PREFERENCE CHANGE SCORES
Hypothesis IV (Change Score Data)

Between pre- and post-experimental testing, subjects in the AI condition will show higher levels of achievement motivation as age level increases, while subjects in the AE condition will show no differences as age level increases.

It was predicted here that an age x condition interaction would exist among the change score means. Specifically, younger subjects would undergo as great a change in motivational level as older subjects when the achievement themes were explicitly stated (i.e., in the AE condition). On the other hand, younger subjects would not be significantly affected by the story content when achievement themes were stated implicitly in the story (i.e., in the AI condition). Figure 2 represents this expectation.

The analysis of variance results reveal that a significant age x condition interaction among change score data took place only on the Story Preference measure ($p < .02$), as the summary on Table 9 indicates. A series of post hoc comparisons among the means, using the Scheffé Test, were employed to explore the nature of the interaction, which is graphically presented in Figure 3.

These comparisons, summarized in Table 10, first contrasted AE group scores with control group scores at each level. Mean change scores within the AE group at the first, third, and fifth grade level were +.13, -.20, and -.17, respectively. The comparable control group change scores at these grade levels were -.44, +.33, and +.20, respectively. The expectation that significantly higher scores would
### TABLE 4
SUMMARY TABLE OF 3x3 ANALYSIS OF VARIANCE ON STORY PREFERENCE CHANGE SCORES

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>3.609</td>
<td>2</td>
<td>1.805</td>
<td>1.537</td>
</tr>
<tr>
<td>Treatments</td>
<td>0.944</td>
<td>2</td>
<td>0.472</td>
<td>0.402</td>
</tr>
<tr>
<td>Age x Treatments</td>
<td>14.509</td>
<td>4</td>
<td>3.627</td>
<td>3.089^a</td>
</tr>
<tr>
<td>Within groups</td>
<td>144.414</td>
<td>123</td>
<td>1.174</td>
<td></td>
</tr>
</tbody>
</table>

**MEAN CHANGE SCORES**

<table>
<thead>
<tr>
<th>Grade</th>
<th>C</th>
<th>AI</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade</td>
<td>-.44</td>
<td>+.56</td>
<td>+.13</td>
</tr>
<tr>
<td>3rd Grade</td>
<td>+.33</td>
<td>+.47</td>
<td>-+.20</td>
</tr>
<tr>
<td>5th Grade</td>
<td>+.20</td>
<td>-+.64</td>
<td>-+.17</td>
</tr>
</tbody>
</table>

^a p < .02
TABLE 10

SUMMARY OF POST HOC COMPARISONS BETWEEN MEANS OBTAINED FROM ANALYSIS OF VARIANCE ON STORY PREFERENCE CHANGE SCORES

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Mean Score Comparison</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE-1st vs. C-1st</td>
<td>+.13 vs. -.44</td>
<td>6.40b</td>
</tr>
<tr>
<td>AE-3rd vs. C-3rd</td>
<td>-.20 vs. +.33</td>
<td>5.60a</td>
</tr>
<tr>
<td>AE-5th vs. C-5th</td>
<td>-.17 vs. +.20</td>
<td>2.80</td>
</tr>
<tr>
<td>AI-1st vs. C-125</td>
<td>+.56 vs. -.44</td>
<td>20.00e</td>
</tr>
<tr>
<td>AI-3rd vs. C-3rd</td>
<td>+.47 vs. +.33</td>
<td>0.40</td>
</tr>
<tr>
<td>AI-5th vs. C-5th</td>
<td>-.64 vs. +.20</td>
<td>14.20d</td>
</tr>
<tr>
<td>AE-1st vs. AI-1st</td>
<td>+.13 vs. +.56</td>
<td>3.60</td>
</tr>
<tr>
<td>AE-3rd vs. AI-3rd</td>
<td>-.20 vs. +.47</td>
<td>9.00c</td>
</tr>
<tr>
<td>AE-5th vs. AI-5th</td>
<td>-.17 vs. -.64</td>
<td>4.40</td>
</tr>
</tbody>
</table>

a < .10
b < .05
c < .025
d < .005
e < .001

x In opposite direction from expectancy
be obtained by AE group subjects than by control subjects at each age was confirmed only among first-graders ($p < .05$). The third-grade comparison was moderately significant in the opposite direction from expectation (i.e., control scores were higher than AE group scores, $p < .10$), while there was no significant difference between control and AE group scores among fifth-graders.

Second, AI group scores were contrasted with control group scores at each grade level. The expectation here was that first-graders would not be affected by the AI stories, and their scores would not differ significantly from those of control subjects. On the other hand, fifth- and perhaps third-graders in the AI group would show an effect of hearing the stories and their scores would significantly differ from those of the control group. The mean change scores within the AI group at each of the three grade levels were +.56, +.47, and -.64 for the first-, third-, and fifth-graders, respectively. These were contrasted with the control subjects' change scores, previously reported. The expectation was not confirmed at the first-grade level. At this grade-level the comparison was highly significant ($p < .001$) in the opposite direction from expectation (i.e., control scores were higher than AI group socres). No significant differences appeared at the third-grade, while the comparison at the fifth-grade level was significant ($p < .005$), again in the opposite direction from that expected.

---

$^5$Again, a .10 level of significance was employed in using the Scheffe Test.
Finally, a comparison was made between AI and AE group scores at each grade level. The expectation here was that at the first grade level, AE group scores would be significantly higher than AI scores. This expectation was not supported. At the third-grade level the two groups differed significantly \( p < .025 \), although in the opposite direction from that expected (i.e., AI group scores were higher than AE group scores). Finally, at the fifth-grade level it was expected that the two groups would not differ and this was confirmed by a failure to find a significant difference between their scores.

A separate analysis was undertaken to test for Ring-Toss measure results. This employed the exact test of probability devised by Shaffer (1972), reported elsewhere in this report. An interaction between numbers of subjects choosing each risk position (achievement- or nonachievement-oriented) on the pre- and posttest and age level was conducted for each of the three treatment groups. The specific frequency of subjects on which this analysis was made is given in Table 11.

Among control subjects there was no significant difference among the three grade levels in the numbers of children either changing or not changing their risk-taking position as a result of training \( p = .601 \). No significant difference occurred among members of AI group subjects \( p = .563 \), or among AE group subjects \( p = .193 \), at each of the three grade levels.

Thus, although Hypothesis IV was not supported by an analysis of the posttest data, a significant age \( x \) condition interaction for
### TABLE 11

**SUMMARY OF THE FREQUENCY OF SUBJECTS AT EACH GRADE LEVEL SELECTING EACH OF THE RISK-POSITIONS ON THE RING-TOSS MEASURE**

#### CONTROL GROUP

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>1st Grade</th>
<th>3rd Grade</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest:</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>8</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Posttest:</td>
<td>-</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

\[ p(age \times pretest \times posttest) = .601 \]

#### ACHIEVEMENT-IMPLICIT GROUP

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>1st Grade</th>
<th>3rd Grade</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest:</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Posttest:</td>
<td>-</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

\[ p(age \times pretest \times posttest) = .563 \]

#### ACHIEVEMENT-EXPLICIT GROUP

<table>
<thead>
<tr>
<th>Grade Levels</th>
<th>1st Grade</th>
<th>3rd Grade</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest:</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>8</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Posttest:</td>
<td>-</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

\[ p(age \times pretest \times posttest) = .193 \]
change score data, on at least one of the experimental measures (Story Preference), indicated some support for the hypothesis. Subsequent post hoc comparisons, however, provided little support for the specific expectations based on the hypothesis of differential effects taking place at the three age levels.

Hypothesis V

Between pre- and post-experimental testing, teachers' rankings of students in AE and AI conditions, in terms of achievement-oriented behavior, will increase, while there will be no increase in rank for students in the C condition.

Teachers were asked, as part of the pre- and posttests, to rank the boys in their classes taking part in the study in terms of their perceived achievement-oriented behavior in the classroom. The pretest and posttest ranks of each boy were then compared. The number of boys in each treatment group whose rank increased over the period was contrasted with the number of boys whose rank either decreased or remained the same between the two rankings. Appendix F provides the frequency of boys within each age level and experimental condition who so changed (or failed to change) between the two rankings. A chi-square analysis was performed on this data, which included the results from nine of sixteen classrooms taking part in the study (N=73).

When improvement vs. nonimprovement was examined in interaction with each of the three treatment groups, none of the analyses proved significant, either for the overall sample or for any of the individual grade levels.
Thus, Hypothesis V was not supported, indicating a failure to find differences among the experimental conditions in terms of observed classroom achievement behavior as a result of the treatment employed in the study.

With this analysis, we conclude a discussion of the results obtained in connection with the specific hypotheses proposed in the study. A final discussion follows which examines two issues not directly related to these hypotheses.

Other Analyses

Two analyses conducted following the experimental procedure sought to answer some questions which were not addressed by any of the hypotheses.

The first issue concerns the extent to which the various measures of achievement motivation are related to one another. Although separate analyses of variance were carried out on the various measuring devices on the understanding that each device was based on a separate set of underlying assumptions, there is some interest in knowing whether any of these measures are related (i.e., measuring the same, or related, traits). Table 12 provides a summary of the intercorrelations among the pretest scores on each measure, while Table 13 provides a similar summary based on the posttest scores. A Pearson's r statistic was used to correlate two continuously-measured variables, while a point-biserial procedure was used to correlate a continuously-measured with a dichotomously-measured variable.
TABLE 12
CORRELATION MATRIX OF PRETEST MEASURES

<table>
<thead>
<tr>
<th></th>
<th>TAT</th>
<th>Story Pref.</th>
<th>Sent. Comp.</th>
<th>Ring-Toss</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT</td>
<td>-</td>
<td>.11</td>
<td>.18&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.02</td>
</tr>
<tr>
<td>Story Preference</td>
<td>-</td>
<td>.13</td>
<td>.24&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Sentence Completion</td>
<td>-</td>
<td></td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Ring-Toss</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>p < .05</sub>
<sup>b</sup><sub>p < .01</sub>
<table>
<thead>
<tr>
<th></th>
<th>TAT</th>
<th>Story Pref.</th>
<th>Sent. Comp.</th>
<th>Ring-Toss</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT</td>
<td>-</td>
<td>-.10</td>
<td>.22&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.31&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Story Preference</td>
<td>-</td>
<td>-</td>
<td>-.11</td>
<td>.07</td>
</tr>
<tr>
<td>Sentence Completion</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.23&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ring-Toss</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>a</sup> \( p < .01 \)

<sup>b</sup> \( p < .001 \)
The pretest data indicate statistically significant positive correlations between the TAT and Sentence Completion measures ($r=.18$, $p < .05$) and between the Story Preference and Ring-Toss measures ($r=.24$, $p < .01$). Turning to the posttest data, two of the correlations were positive and significant, specifically, the TAT and Sentence measures ($r=.22$, $p < .01$) and the Ring-Toss and Sentence Completion measures ($r=.23$, $p < .01$). One posttest pairing was negatively and significantly correlated, specifically, the TAT and Ring-Toss measures ($r=-.31$, $p < .001$).

The second issue concerns the extent to which subjects tested on the two days immediately following the experimental treatment differed in their posttest scores from subjects who were tested five to eight days after the treatment. Since there was some concern that the early-tested subjects might demonstrate stronger evidence of the effectiveness of the reading sessions than later-tested subjects, t-tests were performed between each set of subjects (early- vs. late-tested) who had been included in one of the two treatment groups, AE or AI. TAT change scores were selected as the most powerful evidence of the effectiveness of the treatment.

From this data, the mean TAT change score of all early-tested subjects was $+.18$ and of all late-tested subjects was $+.63$. At the first-grade level, the mean of early-tested subjects' change scores was $+.13$ and of late-tested subjects was $+.40$. The similar comparison among third-graders was $+.13$ vs. $+.68$ and among fifth-graders was $+.30$ vs. $+.92$. 
None of these differences was statistically significant, although all of them were in the direction of greater change scores among the later-tested boys, as indicated in Table 14.

Thus, these two analyses revealed (1) some significant correlations among some of the test measures employed as indices of achievement motivation, and (2) a failure to find a significant difference between early- and late-tested subjects, although scores were consistently in favor of the later-tested boys.

**Summary of Results**

Analyses of the data obtained from the experimental procedure previously described resulted in partial support for the hypotheses proposed in the study.

Specifically, Hypotheses I was supported by results from the TAT measure, suggesting a significant effect for the treatment groups in contrast with control subjects. Furthermore, the mean gain in one of the treatment groups (AI group) was significantly greater than zero.

Hypothesis II was not supported by data from either the posttest or change score analyses. This indicated a failure to find significant differences between the gains in performance made by the two treatment groups, AE and AI.

Strong support for Hypothesis III from all the measures (but the Ring-Toss) indicated a significant initial difference in achievement motivation level among the three age groups.

While Hypothesis IV was not supported by data from the posttest analysis, it was confirmed by the Story Preference change score data
<table>
<thead>
<tr>
<th>Grade Level (Age)</th>
<th>Early-Tested</th>
<th>Late-Tested</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade (N=35)</td>
<td>+.13 (N=15)</td>
<td>+.40 (N=20)</td>
<td>0.66</td>
</tr>
<tr>
<td>3rd Grade (N=34)</td>
<td>+.13 (N=15)</td>
<td>+.68 (N=19)</td>
<td>1.20</td>
</tr>
<tr>
<td>5th Grade (N=23)</td>
<td>+.30 (N=10)</td>
<td>+.92 (N=13)</td>
<td>0.87</td>
</tr>
<tr>
<td>Overall (N=92)</td>
<td>+.18 (N=40)</td>
<td>+.63 (N=52)</td>
<td>1.55</td>
</tr>
</tbody>
</table>
suggesting that an age x condition interaction occurred as a result of the experimental intervention. Subsequent post hoc testing failed, however, to substantiate the expected interactions.

Finally, Hypothesis V was not supported, indicating that teachers' rankings of students on the basis of observed classroom achievement behavior was not affected by the experimental procedure.

An additional statistical analysis found that, at the pretest, Sentence Completion and TAT scores were related to one another, as were Story Preference and Ring-Toss scores. At the posttest, significant relationships were found between Sentence Completion and TAT scores, between Ring-Toss and TAT scores, and between Sentence Completion and Ring-Toss scores.

A second analysis found no difference between the scores of subjects tested immediately after the experimental procedure and those tested several days later. A non-significant trend, however, favors the later-tested subjects.

In sum, then, several of the hypotheses proposed received support from the analyses performed on the obtained data. A discussion of these results will follow in the succeeding section.
CHAPTER IV: DISCUSSION

The present study was planned to demonstrate that a motive could be affected by a planned reading program, which applies a social learning approach to behavior.

Boys were read stories containing like-sex models (with whom the children could identify), displaying desirable achievement-oriented attitudes and behaviors. A subsequent assessment of the boys' level of achievement motivation was undertaken to determine whether the stories had, indeed, made an impact on the motive. Furthermore, the relative effectiveness of the treatment in producing change was, in part, dependent upon the age of the listeners to the stories. Specifically, older subjects were expected to benefit more than younger subjects from stories whose achievement themes were implicitly stated, while all subjects were expected to benefit equally well from stories whose themes were implicitly stated.

Social comparison and modeling theories were suggested to account for the general ability of the story content to influence behavior and motives. A verbal mediation hypothesis was proposed to account for developmental differences in the ability of stories to induce that change.

The Major Findings

An analysis of the results obtained in the study indicated that, overall, the achievement-oriented stories did affect the motivational levels of the boys.
A significant main effect of treatment suggested that there were differential effects between subjects who heard the two types of achievement-oriented (experimental) stories and those who heard the nonachievement-oriented (control) stories.

On the TAT, at least, experimental subjects scored higher than control subjects when posttest achievement motivation scores were used as a basis for comparison. Furthermore, the subjects hearing the achievement-oriented stories showed significantly greater increases in motivational level from pre- to posttest than those hearing the nonachievement-oriented stories.

Additionally, the TAT change scores of AI subjects differed significantly from zero, while control subjects' scores did not. It would be expected that the absence of any experimental effect would be reflected in a "zero" change score (as was the case for control subjects). Any significant increase above zero, then, would suggest that the treatment had effected change in the subject. This was the case for at least one of the experimental groups.

On the other hand, the change scores of AE subjects, who were exposed to the more salient achievement-oriented cues did not differ significantly from zero. They would be expected to be the ones, of all the groups, to show the greatest change. An explanation for the failure of some AE subjects to be highly affected by the treatment, will be offered later. It is clear, however, that as a result of treatment, AE subjects did show change in the expected direction (i.e., their TAT scores did increase), and their change scores were not significantly different from those of the more highly affected AI subjects (+.37 vs. +.48).
These results, taken as a whole, support the thesis that a treatment program can be successfully applied to raise achievement motivation scores in young children. They suggest the efficacy of such a program to effect change among children exposed to a directed training program employing readings of particular content. Control subjects as well as experimental subjects received equivalent reading experiences (in terms of quantity of material read). Thus, differences between the groups on subsequent evaluative testing can certainly be traced to the specific content of the stories read and not merely to the reading procedure in general.

As a learning situation, the reading program is able to lend support to McClelland's (1953) contention that achievement motivation is a learned motive. It also is consistent with numerous previous successful attempts to train individuals to set for themselves high standards of excellence.

A less obvious, but theoretically sound, interpretation of the data also indicates the possibility that a social learning (modeling) approach can be used to explain the observed changes in motivational level. Since the characters—and the range of life-situations—portrayed in the stories approximated the children's own circumstances and experiences, it may be possible to assume that their saliency in the stories was instrumental in bringing about change. No comparison of methodologies was, of course, made to determine whether or not a modeling paradigm could unequivocally explain the findings. However, there is every reason to believe that the particular selection of story
cues served to increase the probability that subjects would identify with the main character and would want to imitate his behaviors and thought patterns. This similarity between observer and subject is a basic tenet of modeling theory (Bandura, 1969), especially where this similarity extends to the area of perceived ability to perform a task. As Bandura and Whalen (1966) have observed, where a child perceives a model to be approximately equal in ability to his or her own ability, standards of performance set by the observer will match those set by the model. Thus, in the achievement stories of the present study, an attempt was made to make the characters in the story as similar as possible to the subjects.

In this way, a modeling interpretation of the results appears to be plausible. This justification is supported by the generally positive results obtained when story conditions were so arranged as to encourage experimental subjects to model the behavior and attitudes of the protagonists in the stories. Control subjects, on the other hand, who were not exposed to these cues did not display analogous behavior on the posttest. Furthermore, questioning of control subjects at the close of the posttest period did not reveal that they had detected any particular story cues (either achievement- or nonachievement-oriented) as experimental subjects say they did.

It may be concluded, then, that the boys in the experimental condition had undergone a social learning procedure, probably through the imitation of the behaviors and attitudes contained in the stories read to them.
As a complement to this modeling framework, Veroff (1969) has provided a social comparison theory which appears to be applicable here. Specifically, Veroff has posited that at some point in the child's development, a judgment is made by the child about his own ability in terms of the standards of others he observes in his environment. He does, in effect, develop his own notions about what will constitute an "acceptable" performance from these observances. This is very much in accord with the Bandura findings of an imitation of a model's standard of excellence. It would naturally follow that the environment must provide that standard in the form of the performance of another individual. This would be someone with whom the child could presumably identify, as in the case of the present series of stories, and could logically provide the requisite standards for the child to emulate. The positive results of the study indicate that the stories were generally successful in transmitting information regarding highly achievement-oriented behaviors and attitudes.

On the other hand, the results were not at all clear-cut, or unanimously in the expected direction. The favorable results obtained through use of the TAT measure offer solid support for some of the hypotheses, owing to the strength of the TAT as a reliable measuring device of achievement motivation. Other measures, however, did not provide the same support. Furthermore, the hypothesized developmental trends largely failed to materialize. These issues and others will be discussed next.
Other Findings

One issue to be raised is the nearly total failure of measuring devices other than the TAT to produce significant results as a consequence of the treatment procedure. It is possible, of course, that the stories were, in fact, ineffective in bringing about change. Since, however, the highly reliable TAT measure was able to detect changes in motivational level among subjects, this is an unlikely explanation. A more likely possibility is the low validity and sensitivity of the other devices (especially the Story Preference and Sentence Completion tasks) to measure adequately achievement motivation. The correlations between pretest and posttest scores on the TAT and scores on the remaining measures are low, or even significantly negative. If the TAT is to be taken as the criterion, or at least the most respected, measure of motivational level, it is not surprising to find a lack of confirmation from measures which are so unrelated to the TAT.

While the Story Preference and Sentence Completion tasks were constructed especially for the present study and may be excused from displaying the same validity as more well-tested measures, the Ring-Toss measure, too, failed to produce significant results. This is unexpected since the Ring-Toss game has been used extensively to measure goal-setting preference and was developed directly from the moderate-risk theory elaborated by Atkinson (Atkinson & Feather, 1966).

The expectation here was that persons high in need Achievement would choose moderately difficult tasks on games of skill, in which the
probability of success was about .50, in contrast with low achievement motivated persons who would choose a very low- or very high-risk position.

The results of the study generally failed to find a difference among subjects in the three treatment groups. Yet, the data also reveal that between pre- and posttesting, subjects overall exhibited a shift from positions of very high and very low risk to one of moderate risk. Thus, while for the total sample 50% of the subjects initially chose the moderate risk position, 76% of the subjects chose that position during posttesting, a significant increase (z=4.407, p < .001). One must also consider the behavior of control subjects, for whom change from a nonachievement-oriented to an achievement-oriented risk position on the Ring-Toss could not be considered a result of the training procedure. Here again, there is dramatic movement toward the moderate position during the posttest. While 53% of the control subjects chose that position on the pretest, 78% chose it on the posttest, again a highly significant shift (z=2.40, p < .01) for which the training procedure cannot account.

One must, therefore, suggest a practice effect having taken place which concealed differences among the treatment groups. It may have been the case that experimental subjects had been affected in their risk-taking preferences. However, they, as well as control subjects, had performed the same task on the pretest and so may have revised their conception of the most fruitful position to take on the task.
Despite the statistical findings, however, posttest questioning revealed that when experimental subjects were asked to tell what they thought the stories were about, a good many specifically recalled the "middle" goal rule. This would suggest that the moderate-risk theme had made an impact on the subjects, which other factors (e.g., practice effects) obscured on the actual testing.

Other findings deviated from expectations as well. One of these was the failure to find the scores of AE subjects significantly higher than those of AI subjects. Although achievement cues in stories read to the AE group were more salient and expressed more overtly than stories read to the AI group, no significant difference between the groups was found for either the posttest or change scores. Two possibilities may be offered. On the one hand, it is possible that both groups had reacted equally well to the stories, such that the potency of both treatments had produced a "ceiling effect," with the theoretically weaker condition (AI group) affected as much as the theoretically stronger condition (AE group). Contrary to expectation— and to this reasoning—it was the AI subjects and not the AE subjects who differed significantly more from the controls. Thus, one cannot claim that each condition produced equally effective results.

A second possible explanation seems the more likely. Since the achievement themes of stories in the AE condition were purposely very strong and explicit, it is possible that subjects found them to be too blatant. As a result they had become sensitized— and bored— with the stories and failed in the end to process the information which was being presented so overtly day after day. Evidence for such a
rejection of the material comes from some of the more informal comments made by subjects, particularly at the fifth-grade level. Toward the end of the training period it was not uncommon for subjects to say something to the effect of "We know—we must work hard to get what we want. We don't have to hear the story!"

There is also evidence from the relatively low TAT change scores of fifth graders in the AE condition, who were most vocal in their resistance to the stories. They seem to have comprehended first among the groups the gist of the stories and beyond the first week of readings openly expressed negative reactions to them. It would not be far-fetched to consider these attitudes to have carried over to the subsequent posttests, explaining the low scores which were obtained.

A second finding which deviated from expectation was the nearly total failure to find the age x condition interaction on the change scores predicted by Hypothesis IVA. Although this interaction was significant when measured by the Story Preference task, none of the hypothesized effects took place. Subjects in the AE group, for instance, who were expected to gain the most by the treatment at all age levels, deviated very little from zero at any level. Subjects in the AI condition, on the other hand, were expected to show a positive relationship between age and achievement motivation score gains. They actually showed the reverse relationship, with fifth-graders showing the greatest loss between pre- and posttesting of any single group.

These expectations were based on a verbal mediation hypothesis derived from the work of Coates and Hartup (1969) and of Gerst (1971).
In this work older subjects imitated a model better than younger subjects because they were able to supply the necessary verbal links between the model's behavior and their own. This was suggested as the paradigm for the AI subjects in the present study, for whom achievement themes had to be deduced from the text of each story. On the other hand, supplying the necessary verbal cues should have benefitted both older and younger subjects. This was hypothesized to account for the uniform success of subjects at all ages in the AE condition, where achievement themes were explicitly stated.

Although many explanations are possible (e.g., disinterest by the fifth-graders, lack of comprehension by any of the first-graders in either the AE or AI conditions), perhaps the simplest one would suffice. Namely, this would be the aforementioned unreliability of the measuring device. One cannot trust a measure to produce valid results when it is not reliable, and which does not correlate well with an established measure of the same trait. A test of the reliability of the Story Preference measure, by means of the Kuder-Richardson 21 procedure, yielded a very low ($r_{xx}=.10$) reliability coefficient for the sample. Thus, the results of the measure itself must become very suspect. Although the various indices of achievement motivation attempted to tap different aspects of the trait—and, thus, need not have shown high correlations with other indices—the low reliability coefficient makes its validity questionable as well.

Perhaps, then, the erratic results obtained can be regarded as much a failure of the assessment procedure as a true failure to obtain the desired verbal mediation effect. These two factors, the
technique and the phenomenon itself, cannot be easily separated. Since no other measure, particularly the TAT, yielded a significant reaction, it is probably safe to assume that no interaction exists between the age of the subject and his reaction to the explicitness of the story content. While the principles espoused by Hartup and Coates (1970) have been well-documented in other contexts, no evidence of their hypothesis could be found here.

On the contrary, both younger and older subjects seemed influenced by the presence or absence of achievement-oriented cues in the stories, rather than by the explicitness of those cues.

It was, of course, expected that older subjects' exposure to more learning experiences than younger subjects would be influential in solidifying the achievement motive in the older group. This was borne out by the highly significant age differences on each of the pretest measures. However, there was no indication that these initial differences in motivation level had any real impact on their imitation of either the implicitly- or explicitly-presented themes of the stories.

In summary, then, there is significant evidence on the basis of the principal index of motivational level, the TAT, that reading achievement-oriented stories to elementary school-age boys can have an impact on subsequently-measured levels of achievement-motivation. There was no evidence that presentation of stories containing either implicitly- or explicitly-presented achievement themes to either older or younger children made a significant difference in the imitation of the story content. Age differences in motivational level were certainly
in evidence even before training began, and age may also have played a role in the children's acceptance of, and interest in, the stories themselves.

The discussion of the findings of the study have so far centered on estimates of the motivational level of the subjects. A focus less central to the present investigation, but an important issue, concerns the relevance of the training procedure to more concrete evidences of achievement-oriented behavior. It is to that concern which the discussion now turns, i.e., examining the impact of the experimental treatment on the school behavior of the child.

Classroom Achievement Behavior

Although the study's main interest was, specifically, to raise the motivational level of boys, this aim cannot be divorced from the ultimate goal of any such training program—an actual change in achievement behavior. Since a consideration of behavioral outcomes would have entailed a lengthy and complex assessment procedure which would have gone far beyond the scope of this investigation, a single simple index of behavioral change was instituted to indicate the presence of any such effect.

The teacher's rating scale which was developed, unfortunately, did not yield the expected returns. When numbers of students in the three experimental groups who either gained or did not gain in classroom rank-position were compared, no significant difference was found. Five possible explanations will be offered.

First, one may look to the ratings of the teachers as unreliable in their assessment of the children. Although a detailed description
of the highly achievement-oriented person was provided to the teachers, there is no way of knowing whether this definition actually served as the criterion by which students were ranked. More than one of the teachers, in fact, expressed some doubt as to the basis upon which she was to rank her students. Cronbach (1970) has pointed to rating scales, in general, as unreliable instruments, yet the scale was used in the present investigation since teachers must be considered the single best outside source of information about the behavior of students in the classroom, outside of direct assessment by testing.

Second, the difficulty may not have been so much due to the unreliability of the teacher's rating scale as with her perception of the students' abilities. She may have known, on a cognitive level, the behaviors for which she was looking without actually perceiving them within the students. Differences in children, particularly within a large urban classroom, can go undetected, except by a trained observer. On the other hand, it is unreasonable to assume that all the teachers in the study shared in a lack of perceptiveness.

Third, it may be the case that the posttest ranking was made too soon after the program was completed. It was thought that immediate assessment would tap behavioral evidences of the motive before the effects of the treatment had dissipated. Yet, it is also possible that some sort of incubation period is required in order for the motive to be completely internalized and then expressed in behavior. Immediate behavioral response would, then, be unlikely to appear so soon after the reading program. Some support for this position comes from an issue to be discussed later.
Fourth, the problem may not have involved either faults of the teacher or of the timing of the training program, but rather the measuring device itself. The overall ranking method employed is a rather crude, molar behavioral assessor, without the sensitivity to detect subtle changes in performance. While it was expected that such a device would allow teachers to record any noticeable changes in the boys, it also has the fault of being nonspecific and fails to focus attention on specific behaviors apart from the general impression the teacher may have of the child. Thus, teachers might have noticed changes in specific, individual characteristics of the boys without seeing the global changes which might have warranted an increase in the child's classroom ranking.

Finally, there is a good deal of literature to suggest that motivational change might be unaccompanied by any behavioral change in achievement-orientation (e.g., McClelland, 1972), or that such change might be reflected in some children in other than school-related activities (Alschuler, 1973; Alschuler et al., 1971).

As Klinger (1966) has pointed out, achievement behavior results from far more than motivation alone. Thus, it should not be surprising to find that behavior and motivation do not show simultaneous change. In addition, indices of motivational level have frequently failed to find a correspondence between scores on the TAT, for example, and behavioral evidences of achievement (Bendig, 1958, 1959; Smith, 1969). McClelland (1972) has specified five factors, cited earlier, which are some of the issues determining the success of an achievement motivation
training program to affect actual behavior. Included were factors which were not stressed in the current study, such as the implementation of a program emphasizing self-study or "morale building or group solidarity inputs" (McClelland, 1972, p. 137). McClelland has also cited the need for trainees to be of at least junior high school age, due to the amount of abstraction which must be processed in order for the learned concepts to be put into practice. Although the current study has used young children, the program has been successful, at least as assessed by indices of motivation. It may be the case, as McClelland indicates, that only older subjects can truly benefit when principles must be applied to actual behavioral situations. This may be so despite the attempt made here to present stories of real-life situations with which even the youngest children could identify.

Turning to the second possibility, that behavioral change may manifest itself in nonschool-related activity, it may be that for a given subject increased athletic or social achievement, for example, is the outcome of directed motivational training, rather than academic achievement. The stories did deal with a range of activities, both in-school and out-of-school, and it is still unclear in what specific direction behavioral change is apt to take place. It is safe to assume, however, that prior interest or peer pressure might be among the determining factors which will provide that direction.

It is difficult to say which of these five options led to the negative findings reported in the current attempt at increasing not only motivational levels, but achievement behaviors as well. Perhaps a combination of these was at work. At any rate, it will remain for
further research to explore this complex issue, both in terms of the procedure presented here and in terms of other achievement motivation programs presented elsewhere.

**Early vs. Late Posttesting**

A final issue for discussion concerns the finding that subjects tested some time after the end of training (later-tested) did not differ significantly from those who were tested immediately afterward (early-tested). In this regard, there are two important conclusions to be derived from the data.

On the one hand, it is a good and positive finding, since it indicates that, at least within a limited span of time, the effects of the stories were somewhat long-lasting. Other training programs (e.g., Alschuler, 1973, for boys; Ryals, 1975) have not been as successful in this regard, and positive results quickly dissipated when not renewed by additional training techniques.

On the other hand, while not statistically significant, the mean scores of later-tested subjects were, in every case, higher than the mean scores of early-tested subjects. This suggests the sort of incubation hypothesized earlier, in which the effects of the readings were not processed immediately, but required some period of time to lie dormant. The implication would be to allow additional time following training to ascertain whether a true "incubation effect" does, indeed, take place. One possibility is that an optimal period of time exists following the readings during which incoming information is allowed sufficient time to be internalized—and perhaps put into practice—yet, not long enough for the training to be dissipated and forgotten.
The suggestion made earlier was that more time may have been needed by the subjects in order for the increased motivational levels attained by them to be translated into behavioral terms. If a future verbally-mediated modeling program expects trainees to exhibit an observable behavior change, then it may be necessary to have as a feature of the program a short post-training delay. Only future research, however, exploring various timing parameters can answer this question conclusively.

With this suggestion, a discussion of the data obtained in the study has been completed. Although some suggestions and recommendations have been made regarding future research plans, many more are possible to be derived from the current investigation. We turn now to a consideration of some of them.

Recommendations for Future Research

Both the methodology and the content of the current research have suggested a number of avenues for future research. In part, they are meant to correct and refine the procedure used here; in part, they represent sources of future investigation which fall beyond the scope and intent of the study presented here.

1. More extensive use of behavioral tests. Although the current study was able to demonstrate a significant increase in motivational levels of achievement, it was unsuccessful in demonstrating analogous changes in a particular aspect of actual behavior. Several explanations were offered to account for this failure; however, it must be recognized that the index used was limited in three ways. First,
it dealt with only a small range of possible behaviors, specifically, classroom achievement. Second, it consisted of a relatively crude index of global change and was unable to measure discrete and specific behaviors of the child. Third, it relied upon the subjective opinions of teachers, such that information was gathered second-hand by substantially untrained observers.

It would be of great import to test more conclusively whether the effects demonstrated on a motivational level will be translated into everyday behavior. Direct objective measures of school-based, as well as out-of-school achievement, could be employed for this purpose. These might include standard measures of school-based achievement, such as grades or group tests of achievement, as well as measures of out-of-school achievement, such as athletic prowess. Situational tasks of persistence, risk-taking, and performance-based achievement might also be employed, including many sorts of puzzles and games of skill.

Until motivational variables can be shown conclusively to transfer to performance measures, there must remain doubts as to the ultimate usefulness of any training program. While it is important to show that a motive to achieve can be affected, it is, perhaps, of greater importance to show that achievement behavior has been affected as well, as a consequence of the presence of the motive.

2. Follow-up studies. The study described here, employing immediate assessment techniques, has shown the effectiveness of a reading program in raising motivational levels on a short-term basis. What is needed now is a follow-up to assess these changes one month, one year, or more after the training program. Questions as to the
long-term retention and application of principles acquired through the program are still unclear.

Is the effectiveness of the program of long-lasting duration?

Is it, perhaps, strengthened by environmental support—or weakened by subsequent environmental counter-pressures on the trainees?

These and other questions must be considered. They require extensive testing, both in terms of motivation and in terms of actual behavior. It is conceivable that motivational levels will remain high, for instance, while behavioral evidences of change disappear—or the reverse. Only further research and monitoring of subjects over a long period of time can begin to answer these questions.

3. Training and adequate assessment of females. Although the original plan for the study included the participation of girls, for reasons already discussed, they were eventually excluded. It would be of interest at this time, however, to examine the same issues with a sample of girls. Part of the difficulty in the use of females in a study of achievement motivation has been the general unreliability of measurement devices, particularly the TAT. This would suggest the development of alternative assessment instruments with proven reliability and validity for females, admittedly no easy task. It also suggests the development of story content appropriate to female achievement situations, consonant with the efforts of the women's liberation movement to make available to females appropriate nonsexist, positive-identity materials.

The finding of comparable success with girls would be one aim of such an endeavor. Conversely, such research might conclude that
significant sex differences exist between boys and girls. Evidence for such a difference does exist in abundance, in fact, in the achievement motivation literature and it would be significant for any future training program, particularly in light of the liberation movement.

4. **Use of a nonmiddle-class sample.** A further extension of the method described in the study would be its application, perhaps in some modified form, for a nonmiddle-class and/or nonwhite population. While the rationale for the use of a middle-class sample was a consideration of the higher verbal comprehension ability of that group, there is no reason to exclude other socioeconomic classes if the training material were prepared with the verbal abilities of that group kept in mind. Indeed, an examination of the popular and professional literature emphasizes time and again the low motivational level of students in low SES areas. With the current study providing evidence suggesting the effectiveness of a verbally-mediated training program with a middle-class sample, it becomes not only advisable, but imperative, that it be applied to the very groups most in need of such training. Schools, particularly in socially disadvantaged areas, find it increasingly difficult to teach children whose motivation to engage in academic tasks is low. Research aimed at alleviating some of these difficulties would be an important goal of a more widespread program.

The recommendations made here represent only a sampling of the areas of potential exploration. Other suggestions made earlier in this section, including the need for research into the effect of a post-training delay period and an exploration of the motivation vs.
behavior relationship, represent still other future concerns for investigation.

In closing, we now turn to some of the implications of the research for the psychological, the educational, and the overall communities. **Implications**

What does the work reported here mean for the psychologist? What does it mean for the educator? Most importantly, what is its impact on the child in the community?

For the psychologist, the present research has clearly demonstrated that material presented in verbal form can serve to foster, in children, imitation of a learned motive. Bandura and his colleagues have merely suggested the potential of a modeling paradigm to change a wide range of behaviors. Recent research has further indicated that the content of reading matter can have important effects upon the readers of that matter. In some cases the research has failed to demonstrate a direct link between what has been read and subsequent behaviors which occur. In other cases, the research has been present, but confined to observable, discrete behavior patterns. The significance of the work reported here is its demonstration that something as abstract and intangible as the motive to achieve can be manipulated with very positive results for participants in the procedure. Clearly, the way is open to explore, not only the achievement motive, but other desirable motives, values, and attitudes as well. The psychologist will want to further study this most powerful tool.
For the educator, the investigation holds an important practical significance. The potential to develop in children and adults a motive which can be said to be universally desired is not to be underestimated. McClelland has specifically emphasized, in *The Achieving Society* (1961), the link between a high achievement motivation level of a society's citizens and the economic superiority and advantage of that society. Where the motive to achieve is fostered through the formal institutions of the society, such as the schools, and through the informal practices of its citizens, a strong society is built. The educator, then, will see the present findings as significant on a very practical level. He will want to apply them to the schools and educational media of the community.

Finally, there are the benefits to the child. Nearly across the board there are positive implications for the young person who is being looked to as the hope of the society. A good deal of anxiety in recent years has surrounded the growing notion that America's young people will fail to carry forth the traditional sense of industry and achievement that has been associated with the nation's history. The realization that these positive traits must not be lost should make the present study most welcome to the society. Hopefully, the small theoretical and practical inroads which this investigation makes into the realm of achievement motivation training will be carried forth on a larger scale by psychologist and educator alike for the benefit of the society's citizens and future citizens.
Overall, the findings supported the major hypothesis proposed in the study. Achievement-oriented stories affected the motivational levels of boys, compared with a control sample who heard nonachievement-oriented stories. This was equally the case among experimental subjects who heard stories with explicitly-stated achievement themes and those who heard stories whose themes were implicit in the content of the story. These results were attributed to the modeling theory and social comparison hypothesis proposed by Bandura and by Veroff, respectively.

On the other hand, the results were largely confined to the data provided by the TAT, the principal index of achievement motivation employed. The Story Preference measure did provide the hypothesized age x condition interaction; however, the specific details of that interaction failed to meet prior expectations. It was suggested that the lack of reliability of the measure was largely responsible for the somewhat confused and unexpected findings obtained in that interaction. Along other observations was the noting of a loss of interest in the stories among some of the older subjects, particularly those in the AE condition, which was hypothesized to have carried over to the subsequent posttesting.

Turning to another area of study, there was no evidence to suggest that the gains made in motivational level were accompanied by behavioral changes in classroom achievement, as reported by the teachers. Some of the suggested reasons for this finding included the unreliability of the teacher's ratings, the inadequacy of the measure, the immediacy of the ranking procedure so soon after the treatment, and the general
finding by other researchers of a lack of relationship between achievement motivation and achievement behavior.

Finally, no differences were found between subjects tested immediately after training and those tested some time later, indicating that the effects of the training were somewhat long-lasting. On the other hand, later-tested subjects' scores were consistently, although not significantly, higher than early-tested subjects' scores. The suggestion of an "incubation effect" was posed to account for this, whereby a short time lag following training may have been necessary to foster internalization of the motive.

Several recommendations for future research were suggested, including a more extensive use of behavioral measures of achievement, a series of follow-up studies, and the application of the procedure for females and nonmiddle-class, nonwhite populations.

Implications of the study for the psychologist, the educator, and the society in general were posed.
CHAPTER V. SUMMARY

The study presented here has examined the issue of training elementary school-age children to increase their level of achievement motivation by reading to them stories containing behaviors of highly motivated individuals. A symbolic modeling paradigm was employed for this purpose.

Research strongly suggests that the imitation of live and filmed models can have an impact on a great many behaviors acquired through the life-span (Bandura, 1969, 1971). Indications are that descriptions presented in verbal form have an equally strong impact (e.g., Bandura & Mischel, 1965), such that behavior can be modified significantly by such a procedure.

In assessing developmental trends in the ability of children to model an observed behavior it has been proposed that older subjects can imitate an observed behavior more skillfully than younger subjects because the former are better able spontaneously to supply verbal mediators in the verbal modeling situation. In accordance with the production deficiency hypothesis (Flavell, Beach & Chinsky, 1966), it can be assumed that where such mediators are supplied to young children, performance will match that of the older subjects. Support from research examining a similar lack of ability of younger children to draw inferences from selections of prose (Paris & Upton, 1976) leads to the
supposition that both older and younger children will display satisfactory imitation of behaviors when mediational cues are provided to them. On the other hand, performance of older subjects will be superior to that of younger subjects when cues are implicitly contained within the context of the modeling situation.

At the same time, the achievement motivation literature, which has drawn heavily from the theories and research of McClelland (e.g., McClelland et al., 1953) and of Atkinson (1958), has produced a set of principles defining the highly motivated individual. These include taking the responsibility for the attaining of one's own achievement and the setting of moderately high goals for oneself. Additional work has indicated that achievement-oriented behaviors are learned through certain home conditions at an early age, chiefly through the mother's placing of achievement demands on the child (Rosen & D'Andrade, 1959). With these principles and research efforts as a guide numerous training attempts (e.g., deCharms, 1976; McClelland & Winter, 1969) have successfully raised levels of achievement motivation in children and adults. Social comparison theory applied to the development of the achievement motive has suggested that use of a modeling procedure might produce similar success if it were applied as a training program. The current study has attempted to prove this to be the case.

Specifically it was hypothesized that a verbally-presented modeling situation could raise levels of achievement motivation in children. Where achievement cues were made explicit in such situations, it was predicted that all subjects would benefit; however, where such cues remained implicit in the situation, older subjects would be more
affected than younger subjects by the treatment. Finally, transfer of the motivational training to classroom achievement was also hypothesized.

In order to test these hypotheses, middle-class boys in the first-, third-, and fifth-grade were read a series of stories containing achievement cues which were implicit within the plot of the story or explicitly stated at the conclusion of the story. Results were assessed by administering a series of achievement-related instruments to the children before and after the three-and-a-half week training program. Chief among these devices was the McClelland TAT measure of achievement motivation.

The results were analyzed, where possible, using a two-way analysis of variance in a 3x3 age-by-experimental condition factorial design. Dichotomous variables were analyzed by means of an exact test of probability for contingency tables developed by Shaffer (1972).

In testing the specific hypotheses, there was support from the TAT data for the major prediction that experimental subjects, who had heard the achievement-oriented stories, would be affected by the procedure more than control subjects who heard stories containing non-achievement-related themes. This finding was tempered, however, by the failure of those hearing the explicit-cues stories to change significantly in their motivational level over what it had been at the outset of the study. Two explanations were offered, with the more likely being that the stories had actually been too obvious and may have caused some children (especially at the fifth-grade level) to "tune out" the incoming information, even during the posttesting sessions. Measures aside from the TAT did not produce significant results, perhaps as a result of the
unreliability or lack of sensitivity of the measures themselves to
detect changes in motivational levels. For at least one measure, the
Ring-Toss game, uniform improvement for all subjects between pre- and
posttesting was held responsible for obscuring differences among the
treatment groups.

The developmental trend hypothesis was, by and large, unsupported.
Although initial motivational levels were positively correlated with
school grade, no age-by-experimental condition interaction was found on
any posttest measure but the Story Preference task. Even here, the
specific interactions observed were generally not meaningful and could
not support the hypothesis that older subjects would benefit more than
younger subjects from the implicit-cues stories. Again, the unreliabili-
ity of that measure was held responsible for the unexpected results
obtained in that interaction effect.

Improvements in achievement-oriented behavior did not seem to occur
in conjunction with rises in motivational level. Several explanations
were advanced relating to either the inferiority of the behavior rating
scale, the unreliability of the teachers' ratings, the complex nature of
the motivation-behavior relationship, or the timing of the behavioral
assessment so soon after training. This last point received some
indication of support from the incidental finding that motivational
scores of subjects tested some time after training were somewhat higher
(though not significantly so) than scores of subjects tested immediately
after training. If this proposed "incubation effect" were to be true,
it is possible that changes in behavior could be expected only after a
short latency period had elapsed following training. Further research would be necessary to test such a proposal.

Overall, then, there is reason to support the notion that reading achievement-oriented stories to young children can affect motivational levels. A modeling theory seems most likely as an explanation for the success of the procedure; however, the impact of varied forms of presentation of such a program on different-aged children is still unclear in the face of the results presented here. While a verbal mediation cue explanation seems theoretically sound to explain the effectiveness of the program with children of different ages, there may also be variables which prevented the results here to conform to expectation. In any case, the potential of verbally-presented material to affect children's behavior has been clearly shown. The study suggests further research which would make more extensive use of behavioral tests of achievement, would follow-up children involved in the initial training program, and would employ samples of non-white, non-middle class, non-male children.

The implication of the study for the psychologist, the educator, and the society make apparent the practical benefits of this procedure for raising motivational levels for the nation's young people.
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APPENDIX A

A GUIDE TO THE SCORING OF THE TAT
A GUIDE TO THE SCORING OF THE TAT


Each picture is scored 0 (for stories of unrelated imagery), 1 (task imagery stories), or 2 (achievement imagery stories), so a child can score between 0 and 6 for the set of three TAT pictures.

ACHIEVEMENT IMAGERY (2 points per card)
May include:
1. An explicit standard of excellence
   Concern by a character with making something right, correct, or perfect; or with not making something wrong or incorrect.
   Note A: If comments about the result come from the child, rather than from the character, such as "It will turn out all right" or "He will do it right," DO NOT SCORE HERE.
   Note B: Positive or negative affect about accomplishment or failure, respectively is to be taken as an indication of implicit standards of excellence and can be coded here, e.g., "He is trying his best to find the answer."

2. Career orientation
   Character becomes famous or is concerned about it; becoming an artist; setting up a business, e.g., "The man wants to be a writer."
   Note: Wanting money should not be coded here.

3. Making something
   Writing stories, blueprints, paintings, drawings, buildings from plans, unless making something is clearly a person's daily job or part of a daily routine; code only when there is an emphasis on making a special creative product. E.g., "They are making a new machine--a rocket."
   Note: If the character is only concerned about being "finished" with a task, or there is no elaboration or process beyond "making something," code in category 5—that is, for 1 point.

TASK IMAGERY (1 point per card)
May include:
4. Executing tasks
   An emphasis on merely executing a task—a character in the story is concerned with the steps in the process of overcoming obstacles, working hard. If it is explicit concern about being finished with a task, code in category 5. If there is some elaboration of thinking, doing, such as pointing out the steps toward goals, code in category 3—that is, for 2 points. An example of this category (#4) is, "The men are working hard at their job; they want it to work."
5. Doing something
Doing something, fixing something, working at something with no emphasis either on creativity or in the process of executing work; "working," "doing something," "writing" without ideas about the goal or the goal attainment. Also code here explicit concerns with being finished or having an object being worked on (with no further elaboration), e.g., "They are trying to finish their job."

UNRELATED IMAGERY (0 points per card)
May include:
6. Passive activity
Passive activities, looking at something.
Note: Code "reading a story" in category 5, that is, 1 point.

7. Affiliative goals
Reference to being with, needing, and enjoying people.

8. Other goals
Specific or nonspecific non-relevant goals, or goals not scorable elsewhere.
APPENDIX B

SENTENCE COMPLETION MEASURE
SENTENCE COMPLETION MEASURE

1. When I have to do something that is very hard I...

2. When I grow up I want to be a...

3. When I really try I can...

4. I'm very sad when...

5. I'm the most happy when...
APPENDIX C

STORY PREFERENCE TASK
STORY PREFERENCE TASK

Would you like to hear a story about...

1. A boy who climbs a mountain

    OR

    A boy who likes to learn all about mountains?

2. A girl who can't build a house out of blocks so she gives up

    OR

    A girl who has trouble building a house out of blocks, but she tries, and later she can do it?

3. A sick boy who has just learned how to walk for the first time

    OR

    A sick boy who stays in bed all day because he can't walk?

4. A girl and boy who wish they had a dog

    OR

    A girl and boy who open a lemonade stand so they can earn enough money to buy a dog?

5. A boy who sleeps all day in school

    OR

    A boy who gets a prize as the best worker in the class?
APPENDIX D

STUDENT RATING SCALE
January 19, 1977

Dear Teacher:

The achievement motivation project, with which you have so kindly consented to cooperate, could use some help from you which would take very little of your time.

Below is a definition of an individual who is highly motivated to achieve. Consider the boys in your classroom who are included in the project in terms of this definition, and this definition alone, and indicate on the spaces provided on the attached page the ranking of the boys, in order, from the boy who most closely fits the definition (on space #1) to the boy who least fits the definition. Remember that you are to consider your class only in terms of the definition and not in terms of other aspects of their behavior. Your accuracy in completing this form is an important part of the evaluation of the project.

Here is the definition:

When desire for achievement becomes a dominant concern for a person, it is expressed in restless driving energy aimed at attaining excellence, getting ahead, improving on past records, beating competitors, doing things better, faster, more efficiently, and finding unique solutions to difficult problems. People with strong achievement motivation generally are self-confident individuals who are at their best taking personal responsibility in situations where they can control what happens to them. They set challenging goals demanding maximum effort, but goals which are possible to obtain; they are not satisfied with automatic success that comes from easy goals, nor do they try to do the impossible. Time rushes by them and causes mild anxiety that there won't be enough hours to get things done. As a result they make more accurate long-range plans than people with less achievement motivation. They like to get regular, concrete feedback on how well they are doing so that their plans can be modified accordingly. They take pride in their accomplishments and get pleasure from striving for the challenging goals of excellence they set.

Thank you for your time and effort!

Sincerely,

Ira Brandenburg
Name of School __________________________
Grade Level ____________________________
Teacher's Name __________________________

TEACHER'S RANKING OF BOYS ACCORDING TO LEVEL OF ACHIEVEMENT MOTIVATION

1. _____________________________________
2. _____________________________________
3. _____________________________________
4. _____________________________________
5. _____________________________________
6. _____________________________________
7. _____________________________________
8. _____________________________________
9. _____________________________________
10. ____________________________________
11. ____________________________________
12. ____________________________________
13. ____________________________________
14. ____________________________________
15. ____________________________________
16. ____________________________________
17. ____________________________________
18. ____________________________________

Note: Please use first and last name of child, please.
APPENDIX E

SAMPLES OF THE STORIES
ACHIEVEMENT STORY

DO YOU WANT TO BE A DOCTOR?

If you have ever wanted to become a doctor, you should hear this story about a boy named Richard who became a famous doctor.

Richard so wanted to be a doctor all his life that he studied just as hard as he could in school. He read all the books he could about being a doctor and learned the names for all the instruments in the doctor's office, like the stethoscope and the hypodermic needle. He also asked a million questions of his own doctor, Dr. Smith.

"What is that called? What is this called? Why do you do that? Why do you do this?"

"Please, please, Richard," begged Dr. Smith. "Not so many questions. I know you want to be a doctor, but if you study hard in school, they will answer all the questions you want answered," said the doctor to Richard.

And so Richard took Dr. Smith's advice and studied really hard in school. All the reading, all the math, and especially all the science. Everything. Richard's parents knew Richard had such a strong desire to be a doctor that they were pleased, but also told Richard that perhaps he didn't have to study quite so hard.

"Nonsense," said Richard. "If you want to become a doctor, you have to study hard. I want to be a doctor—and the best one there is."

The time came for Richard to go to medical school—the special school where they taught people to become doctors—and Richard was
so terribly disappointed and unhappy when they would not let him in the school.

"Why?" asked Richard. "Why won't you let me into the medical school? I've studied really hard—probably harder than anyone else who wants to go to your medical school."

The man at the medical school turned to Richard and told him:

"It is true that you are very good student and we can see you really want to become a doctor, but so do so many other boys and girls like yourself. We can't let everyone in this school. We are really very sorry."

Richard was still unhappy, but he decided that he would find a medical school somewhere that would take him in—and would let him become a doctor who would make people who are sick well again.

Richard went to every school he heard of—and just about all of them told him the same thing:

"We know you are a good student and you want so much to become a doctor, but so do so many other people."

At last Richard decided that he would study still harder—and he did that.

And finally one medical school saw how hard Richard had studied—and that school did let him become a doctor.

But not just any doctor, but the best one anywhere. In fact, once when the President of the United States became sick, can you guess who was chosen to operate on the President? You guessed it—Richard—or Dr. Richard as they all called him.
He finally became a famous doctor because he had worked so hard—all by himself—and wanted to become a doctor badly enough. It took a long time, but finally he got exactly what he wanted.

(Sometimes you have to wait a long time and work very hard to get what you want, but if you try and try again, you will get what you want. It really pays to work and try hard for something that you want to get that is sometimes a long way off.)
ACHIEVEMENT STORY

RING TOSS!

One day Brian's dad came home with a new toy for his son to play. The title on the box told Brian it was a ring-toss game, his favorite. His friends had a set and he knew how to play the game already. He knew that the idea of the game was to get the rings of rope around the peg. He could stand anywhere to get the rings around the peg, his father told him.

"Let's play now, dad," begged Brian.

"All right. You'll have to do very well to beat me, though," answered his father, as he took the peg and rings from the box.

"I have an idea," said the father. "It will be more interesting if you can play to earn some money. O.K.?

"Sure, dad."

"I'll pay you $1 every time you get a ring around the peg when you stand far away from the peg--way over there by the doorway.

"I'll pay you no money at all if you have to stand right next to the peg to get it around.

"And I'll pay you 50 cents if you stand somewhere in the middle of the room to get the ring around the peg."

Brian was awfully excited. He very much wanted to buy a go-cart racer and he hoped that he would win enough at ring-toss to buy the racer.

Now Brian had to think of a way to win lots of money. He thought that he would get a lot of money if he stood very far away--every ring
was worth $1, but he was sure he would never get anything from so far away. There was just no chance.

He thought that it was silly to throw the rings from right next to the peg because even though he would get it every time he wouldn't win any money at all—and besides that would be no fun.

So where do you think Brian stood?

He stood right in the middle. He would get 50 cents every time he got a ringer—and here he had a really good chance of getting lots of ringers.

And that was a wonderful idea. He had four rings to throw, and out of those four rings, Brian got ringers with three of them. By the end of the first round of throws Brian had earned $1.50.

He had been smart to stand right in the middle. Here he had the best chance of winning—and after only a few weeks, Brian was so good that he had exactly the right amount of money he needed to buy himself a beautiful blue go-cart. That Brian sure is a smart ring toss player!

(Brian had stood exactly where he should to do his best. If you stand too far away there is no chance of winning—you shouldn't try to do the very hardest thing because then you might not get what you want. The best thing to do to have the most fun is to try for something that is hard to get, but not too hard either. Then you will get what you want and have the best time, too.)
THE BOY WHO LOVED PICKLES

Billy loved pickles.

His mother would buy pickles by the sackful for Billy. She couldn't understand why Billy loved pickles so much but he did.

Billy ate pickles with his breakfast.

He ate pickles with his sandwich for lunch. He even had his school buy pickles so he would have them every day at school.

He ate pickles for dinner.

"What are we going to do about Billy?" asked Billy's mother to his father. "How can we make Billy stop eating pickles?"

"I'm afraid I don't know," was the answer. "I guess we'll just have to buy more pickles until Billy grows tired of them."

But Billy didn't grow tired of them. In fact, he began eating more than ever. Not only did he eat pickles at meal time, but he ate them between meals, too. He woke up in the middle of the night to eat pickles. He even carried them on his way to school.

"Pickle boy, pickle boy," laughed the other children in school.

"Pickle, pickle, pickle. Billy is a pickle."

But even this did not stop Billy who continued eating even more pickles! Billy ate pickle soup, he ate pickle ice cream. He even ate pickle mustard.

"Pickle, pickle, pickle," laughed the other children.

"Billy is a pickle."
But Billy did not stop. He continued to eat pickles day and night.

Pickles were everywhere—in the house, in Billy's room, in Billy's bed, and in Billy's ears. They even stuck out of Billy's ears. Well, you can't eat pickles for so long without something happening, and something sure did happen to Billy. Can you guess what?

One day Billy woke up to find he was a pickle. Yes, Billy had turned into a pickle. And it only goes to show that you can love pickles too much. Was Billy ever sorry he ever bit into a pickle!
APPENDIX F

TABLES OF MEAN SCORES
### TABLE 15

SUMMARY OF MEAN TAT SCORES

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*Change scores may not necessarily follow from the preceding pre- and posttest scores due to subject attrition over the course of the experiment. Pre- and posttest analyses were occasionally based on different sample sizes.*
# TABLE 16

**SUMMARY OF MEAN STORY PREFERENCE SCORES**

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*High-achievement risk position designated by "+"
*Low-achievement risk position designated by "-"
### TABLE 19

**SUMMARY OF TEACHERS' RANKING OF STUDENTS' ACHIEVEMENT BEHAVIOR:**

**NUMBER OF STUDENTS GAINING OR REMAINING/DECLINING IN CLASS POSITION**

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