STUDENT-TEACHER RELATIONSHIPS AND ACHIEVEMENT NEED GAINS IN YOUNG CHILDREN

CHRISTINA DE SIMONE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY
AND COUNSELLING
McGILL UNIVERSITY
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ABSTRACT

The view that achievement motivation remains relatively fixed after the age of six years was challenged. Rather, it was hypothesized that teacher-pupil interaction patterns would influence achievement motivation in young children. More specifically, it was predicted that positive teacher-pupil interactions would be directly associated with changes in achievement motivation, whereas negative teacher pupil interactions would be inversely associated. Generally, the hypotheses were supported but analyses also provided support for the idea that there is considerable stability in achievement motivation by the age of six. Implications of these results are discussed, recommendations for future studies are offered.

RESUME

La notion que la motivation à accomplir demeure relativement fixe après l'âge de six ans est disputé. Plutôt, est proposé l'hypothèse que les manières d'interaction entre enseignant(e)s et écolier(e)s aurait une influence sur la motivation à accomplir chez les jeunes enfants. Plus spécifiquement, est prédit que des manières positives d'interaction entre enseignante(e)s et écolier(e)s se relierait directement aux changements à la motivation à accomplir et que des manières negatives d'interaction entre enseignant(e)s et écolier(e)s se relierait inversement aux changements à la motivation à accomplir. En générale, ces hypothèses furent supportées. Les analyses supportèrent aussi la notion que la motivation à accomplir demeure relativement stable à l'âge de six ans. Les implications de ces resultants sont avancées ainsi que des recommendation envers des études futures.

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CHAPTER 1

INTRODUCTION

The history of the systematic study of achievement motivation stretches back more than a quarter century (McClelland, Atkinson, Clark & Lowell, 1953). Initially, research in this area focused primarily on the measurement of a particular motive denoted as "need for achievement" or achievement motivation. Soon work with this construct began being related to such diverse topics as specific child-rearing patterns (Winterbottom, 1958) and to the economic growth of nations (McClelland & Winter, 1969). The area of female achievement motivation came under investigation (Horner, 1969); new forms of measurement were proposed (Mehrabrian, 1968), new related concepts such as risk-taking were studied (Atkinson & Feather, 1966) and the work branched out in many other directions of research. From these beginnings, research and theory on achievement motivation became quite multi-faceted and multi-directional.

However, most if not all of past research efforts on achievement motivation have treated this concept as a trait that becomes relatively stable around the early years of schooling. Also, a majority of studies of achievement motivation were carried out in the laboratory, thus limiting them to a set of relatively artificial environments.

More recently, interest has begun focusing on the development of achievement motivation in natural contexts (Maehr, 1978). One of the major assumptions in this study is that achievement motivation is believed to develop from the interactions of personality and environmental variables. Hence, the phenomenon under investigation in

this research is the relationship of achievement motivation to its contextual setting. Schools and teachers are very important situational variables for children, and since achievement motivation is thought to be more flexible in younger than in older children, kindergarten and grade one children are perhaps particularly sensitive to schools and teachers (Pedersen, Faucher,& Eaton, 1978).

The present study examines teacher-pupil interactions in an attempt to determine whether certain patterns of behavior, on the part of primary teachers, are related to the achievement motivation of pupils who spend a considerable amount of their waking hours in school under their direction.

Not only does the present study differ from earlier studies in its theoretical orientation,but it takes a different approach to the measurement of achievement motivation, too; this is in the form of a new instrument prepared specifically for this study, which therefore has not been validated by other researchers. The reason for devising a new instrument is that existing measures have been primarily projective, and paper-and-pencil tests (Murray, 1938; Mehrabrian, 1968; & Adkins & Ballif, 1975) which may have suited the research questions of earlier studies, but they could neither have satisfied the demands arising from the conceptual framework of the present study, nor of many future studies, as well, given the growing interest in the ecological validity of social science research. Existing measures did not facilitate the study of achievement motivation in natural settings (i.e., the classroom). Also the author was concerned about ethical, racial, sexual, and other biases which have been shown to exist in earlier measures of

achievement motivation. Hence, the disadvantages arising from the use of a previously untried instrument seemed less important than those arising from the use of tools which are not appropriate to apply in the classrooms of young children, and which would give misleading results.

Achievement motivation was measured by the instrument alluded to previously, called the Behavioral Index for Achievement Motivation (Appendix A). The instrument was designed to cause the observer to focus on nine behaviors (as will be described in the methodology section) which seemed to be descriptive of the construct. Teacher-pupil interaction was measured by using a system similar to the one developed by Brophy and Good (1969, 1970). Scores on each of these two measures were collected and various statistical analysis were performed.

Clearly, there are limitations to this study, as will become apparent. Nevertheless, some interesting results emerged which, it is hoped, will pave new directions for further research.

The review of the literature which follows portrays the theoretical and research development of this construct called achievement motivation.

CHAPTER 2

REVIEW OF THE LITERATURE

In this chapter, the theoretical and empirical development of achievement motivation is described to date. The reader will note that the forefathers of achievement motivation (McClelland et al., 1953) conceived this construct as being relatively stable by the ages of five to six years. The earlier research reflected this attitude. The setting was usually the laboratory and the tasks were artificial, thereby removing individuals from their natural contexts and usual activities.

It is only until recently that researchers have began to think of exogeneous variables affecting the development of achievement motivation (Maehr, 1978). This new attitude has led to the study of achievement motivation in its natural habitat (i.e., the individual's usual surroundings). Such an approach has made research aims more realistic. This will be discussed in further detail in this chapter.

I. McClelland - Atkinson Model of Achievement Motivation

Murray (1938) was a central influence in achievement motivation research and in the development of achievement theory. He is perhaps best known as the originator of the Thematic Apperception Test (TAT). A series of pictures of ambiguous scenes involving one or more persons, the TAT is used to provoke verbal reactions from which the achievement motivation of an individual can be assessed.

McClelland et al. (1953) and McClelland (1958, 1961) were greatly influenced by Murray. The motive most thoroughly examined by McClelland and his colleagues has been the achievement motive, or the need for achievement (N.Ach). This motivational tendency refers to the positive

or negative anticipatory goal reactions aroused in situations that involve competition with a standard of excellence, where performance may be evaluated as a success or a failure.

A. Measurement of Motives

McClelland, Atkinson, Clark and Lowell (1953) employ a TAT when measuring need for achievement. The rationale for this method is that the fantasy content is by definition less influenced by culture pattern variables and less influenced also by past learned experiences than the more structured personality tools. However, one of the greatest disadvantage with the TAT is, that like other projective-based instruments, it makes trait assumptions about the person in question which may not always be applicable. In other terms, the TAT does not consider an individual's context in which a particular behavior or reaction is emitted. Hence, it is mainly for this reason, as will be discussed later on, that the TAT was not used in the present study.

Following the publication of The Achievement Motive (1953), McClelland turned from the laboratory to an analysis of economic development and the role of achievement needs in stimulating societal growth.

B. Experimental Verification of McClelland's Work

McClelland (1961) went to great lengths to assemble historical data about the economic aspects of many nations. In one study, for example, he showed that the kilowatt hours of electricity consumed, which is a good index of economic prosperity, was greater in Protestant countries than Catholic ones. These findings led McClelland to conclude that Protestant values led to child rearing methods that instill higher

achievement needs with the eventual consequence being greater economic growth and productivity in Protestant countries.

Considerable weight was attached to a study by Winterbottom (1958), who interviewed mothers of eight to ten year old boys who varied in need achievement levels. She discovered that mothers of boys with high achievement motivation recalled beginning independence training at an earlier age than did the mothers of low achievement motivation boys; furthermore, they reported that they showed more encouragement and reinforcement of such independence than did the mothers of boys with low achievement motivation, who had been more restrictive of their sons.

Rosen and D'Andrade (1959) created a situation in which they could directly observe parental behavior as their sons attempted the difficult task of building a tower of blocks while blindfolded. Parents of high achievement motivation boys gave relatively high predictions about their sons achievement and these expectancies were fulfilled. Highly motivated boys asked for help from their fathers less frequently than others and received more warmth and approval from their mothers when successful.

Smith (1969) points out that an independent person may often achieve little. Independence may be a prerequisite, but not a guarantee of achievement, which may also necessitate traits such as assertiveness or initiative. Achievement training in which children are taught how to evaluate their performance against a standard may also be more crucial than the development of independence. Furthermore, dependency is difficult to measure, because its form of expression may become more subtle at older ages. A child who manifests no signs of dependency, such as separation anxiety, may still be highly dependent. Dependency itself

might even be considered a goal to be achieved by some children, because social approval is a frequent consequence of achievement, and the perception of high achievers as such, may also be highly dependent on others. It is conceivable that truly independent individuals, such as nonconformists, may also score low in achievement. Finally, there is the problem of the interpretation of correlation between aspects of childrearing and achievement motivation. Mother's warmth may be higher in response to achievement - oriented children, rather than serving as the cause of this characteristic in their children. Consequently, DeCharms and Moeller (1962) measured achievement imagery in children's readers used between 1800 to 1950. Patent office records were searched for the same period to provide some index of achievement in society during that time. A high correlation was obtained between the two indices, with both rising between 1800 and 1890 before showing a decline.

A similar content analysis of children's readers (McClelland, 1961) for the period between 1920-1929 was conducted for 23 different modern societies. Correlations for this decade between achievement imagery and an index of economic growth, based on kilowatt hours of electrical consumption, during the period 1929-1950 were calculated. The data reported by McClelland (1961) provide suggestive evidence that achievement motivation is an important factor influencing economic growth. Therefore, it would be of some interest to determine whether the economic growth of nation could be accelerated by increasing the achievement motivation of some members of society.

To increase the achievement motivation of individuals, McClelland and Winter (1969) offered a three to six week training course (to

businessmen) in which they learned about the thoughts and actions of achievement behavior of highly achievement-oriented individuals. Course participants displayed more instances of achievement - related behaviors and accomplishments than control individuals not enrolled in the course. Thus given appropriate intervention strategies the achievement motivation of individuals can be modified at least in the short run. This perspective is quite different from McClelland's own earlier view in which he firmly believed that achievement motivation seemed to be a relatively stable personality characteristic rooted in experiences in childhood.

C. Atkinson's Model and Definition of Terms

While McClelland was carrying on more naturalistic studies of achievement motivation, Atkinson (1957) became involved in the formulation of a general theory of behavior, leaning heavily upon mathematical derivations and computer simulation (Atkinson & Birch, 1970).

According to Atkinson (1957), the tendency to approach an achievement - related goal (TS) is conceived as a product of three factors:

1) the need for achievement, also known as the motive for success (MS);
2) the probability that one will be successful at the task (PS); and
3) the incentive value of success (IS).

It is postulated that these three components are multiplicatively related, that is, TS=MSxPSxIS, ignoring signs.

PS refers to a cognitive belief that a goal-oriented action will lead to some outcome.

IS and PS are negatively related to each other. Thus, the incentive

value of success increases as P decreases. The more difficult a task is, the more pride experienced. Litwin (1958), as reported in Atkinson and Feather (1966), found that the farther away one stands from a peg in a ring - toss game, the greater the reward assigned for success. Similarly, Strodtbeck, McDonald and Rosen (1957) found occupations in which the attainment of success is more difficult to attain are accorded greater prestige and salary (IS) than occupations in which success is believed to be relatively easy.

The tendency to avoid achievement tasks is conceived by Atkinson as analogous to that of the hope of success. It is postulated that the tendency to avoid failure (TAF) is a multiplicative function of the motive to avoid failure (MAF), the probability of failure (PF), and the incentive value of failure (-IF).

The motive to avoid failure is considered a capacity to experience shame, given the non-attainment of a goal (failure).

In addition to the personality factors, two environmental factors influence the avoidance of achievement activities: PF and IF. It is assumed that a negative emotion, "shame" acts as the incentive to avoid failure. Greater shame is believed to be experienced following failure at a less difficult task.

The resultant tendency to approach or avoid an achievement - oriented activity (TA) is postulated to be a function of the strength of the tendency to approach the task minus the strength of the tendency to avoid the task: TA=TS-TAF.

D. Experimental Verification of Atkinson's Work

Atkinson and Litwin (1960) and McClelland (1958) tested out their

predictions in a laboratory setting where subjects were engaged in a ring toss game. Participants chose a distance between one and fifteen feet from the goal where they felt it was appropriate for themselves to stand. As expected, high achievement motivation subjects prefer intermediate distances relative to low achievement motivation subjects who select very small or large distances. By selecting very easy or very difficult tasks there is either sure success or sure failure and consequently less anxiety will be aroused. Low achievement motivation participants cannot tolerate uncertainity. This factor is assumed to be responsible for the avoidance of moderately difficult tasks by the low achievement motivation person. There is too much uncertainity involved here; there is a 50-50 chance that success or failure will occur and this situation generates too much anxiety.

Another type of situation has been to examine reactions to continued failure. Feather (1961) gave subjects an unsolvable mental problem, which he described to them as being either very easy or very difficult. They were told that if they wished to, at any time, they could switch to an alternate task. The question of interest was whether individual differences in persistence with the unsolvable first problem will be related to differences in achievement motivation. The predictions were that high achievement motivation individuals would switch when confronted with extraordinarily difficult tasks but persist on easy tasks because continued failure would lead them to revise their perceptions of the task from easy to intermediate difficulty. In contrast, it was predicted that low achievement motivation subjects who prefer very easy or very difficult tasks would persist longer in the face of failure in difficult

tasks. There would be certain failure so anxiety or uncertainity would be absent. However, confronted with perpetual failure on an easy task, low achievement motivation subjects would switch to another task. In this case, their perception would be that the task was of intermediate, and not low difficulty. The results confirmed the expectations.

Moulton (1965) and Weinstein (1969) found that regardless of one's stated choice or level of aspiration, however, all subjects described their tasks as being of intermediate difficulty. Most of the high achievement motivation subjects who normally select tasks of intermediate difficulty chose the difficult alternative if they had succeeded on the first task but selected the easy task if they had failed on the first.

Thus, the effects of success and failure are quite different, depending on both the original difficulty level of the task and the individual's achievement motivation level. Exactly the opposite situation exists for the low achievement motivation individual. Regardless of whether the outcome is success or failure, if it leads to the revised assessment that the task is of intermediate difficulty, the level of aspiration will decline. However, if the outcome makes the task appear very difficult or very easy, the level of aspiration will rise for the low achievement motivation individual.

II. 1970 - A New Approach

The original approach to the theory of achievement motivation (Atkinson, 1957) was based on a view of behavior as a reaction instigated by the presentation of a stimulus. Atkinson and Birch (1970) called for an approach emphasizing the "dynamics in action" in which behavior is seen as a continuous stream of successive actions.

Brown's (1974) experiment illustrates this new approach. Subjects worked on two types of task, an achievement situation involving an anagram solution and a non-achievement task in which ratings or opinions of different trait words were made. On the achievement task, feedback was given so that success or failure was experienced after such anagrams. The time required by subjects to deposit their work on one task into a compartment in front of them before switching to the alternate task was recored.

The results indicate that persistence on an achievement task is not only a function of success or failure but is also influenced by the type of expected subsequent task. Similarly, persistence on the non-achievement task appeared to be affected by the nature of the subsequent task too.

The achievement motivation theory deals with achievement as an intrinsic motive. Intrinsic motivation or incentive to perform the laboratory tasks is defined only in terms of perceived or expected task difficulty and ignores any qualitative factors affecting interest. The omission of extrinsic motives lends to the artificiality of the studies, because most real life achievement situations are tied to a mixture of intrinsic and extrinsic motives.

A. Intrinsic and Extrinsic Motivation.

Deci (1971) rectified, to some extent, this problem of artificiality by looking at the effects of external rewards on intrinsic motivation to perform an activity. Intrinsic motivation has been defined by Berlyne (1966) as the inherent satisfaction to participate in and complete a task in the absence of external reward.

Deci (1971) hypothesized that different rewards may have different effects according to the interpretation of the individual. Specifically, money may be used an an incentive for an activity which originally was highly intrinsically motivating.

To test his hypothesis, Deci presented twenty-four college students with a puzzle-solving task. Twelve subjects were instructed that they would receive one dollar for each correctly solved puzzle. The other twelve were instructed only to solve as many puzzles as they could, with no mention of a reward. After the experimental sessions, all subjects were given an eight minute free-choice period, wherein they could continue solving puzzles or read a variety of magazines.

The results suggested that the control (unpaid) subjects spent significantly more of their free-choice time on puzzle-solving than the experimental (paid) subjects. This according to Deci, indicated a decrease in intrinsic motivation due to a shift in the perceived locus of causality for task participation.

In this experiment, Deci assumed that his puzzle-solving task was intrinsically motivating for all subjects. His only attempt to verify that assumption was a post-hoc measure of student's attitudes towards the task. All students indicated that the task was enjoyable. However, these results may also be explained in terms of dissonance theory (Festinger, 1957) - that is, subjects who were not rewarded rated the task as highly as the rewarded subjects because they needed to justify their participation. Further, if one accepts the notion that extrinsic rewards decrease intrinsic motivation one should expect to find subjects who were rewarded to rate the task as less enjoyable than did the

non-rewarded subjects.

Deci's (1972b) study made essentially the same prediction as the 1971 study with the exception that subjects who were paid before the free choice were expected to spend a greater proportion of free-choice time on puzzle-solving as a result of perceived inequitable input - output ratio. That is, these subjects would perceive that they were paid more money than the task deserved, and would consequently, attempt to compensate for overpayment by a high level of puzzle solving activity during the free period.

He presented ninety-six subjects with the same puzzles used in 1971. Each subject solved puzzles in one of the following conditions:

1) not rewarded;
2) rewarded with money;
3) rewarded with money after the free-choice period;
4) or verbally rewarded in combination with one of the first three.

In all money-rewarded conditions, subjects were aware of the forthcoming reward.

The results supported Deci's predictions. The unpaid subjects spent a significantly greater proportion of their free time on puzzle solving than either of the paid groups; and subjects paid prior to the free-choice period spent more time with the puzzles than subjects paid after the free-choice period.

Deci has offered no theoretical explanation for the implication that expected rewards are more powerful inhibitors of intrinsic motivation than received rewards. However, Clader and Staw (1975a) criticise Deci's experiment for not providing a clear notion of whether the drop during

free-choice is due to a drop in intrinsic motivation or fatigue. Moreover, Feingold and Mahoney (1975) find the experimental sessions are brief and there is no mention of reinforcement effect.

Deci (1972a) has reported an additional study within the same general paradigm as his previous research on contigent rewards, but including several additonal variables.

Subjects were confronted with puzzles and placed in one of six conditions:

1) threatened with punishment for poor performance;
2) given positive verbal feedback about their performance;
3) given negative verbal feedback about their performance;
4) rewarded with money contigent on participation;
5) rewarded with money contigent on performance; and
6) given no reinforcement of any kind.

The results suggested that rewards contigent on performance, threats, punishment, and negative verbal feedback decreased intrinsic motivation, whereas, positive verbal feedback increased intrinsic motivation. However, rewards contigent upon participation (i.e., contingent rewards) had no effect on subsequent behavior.

Boggiano and Ruble (1979), however, reported that children who were offered candy simply for playing with a hidden - figures game (task - contigent reward conditions) showed less subsequent interest in the task than children who were not offered a reward. In contrast, children in the performance - contigent reward condition who expected that candy was contigent on finding a particular number of figures showed the same level of subsequent interest as did the children in the no reward control

condition. Thus, while intrinsic motivation was undermined by task - contigent rewards, it was unaffected by performance - contigent rewards.

Deci's (Deci, 1975; 1980; Deci & Ryan, 1980) analysis suggests that in the Boggiano and Ruble study, making the reward contigent on the task enhanced the controlling aspect of the reward and undermined intrinsic motivation as a result. In contrast, describing rewards as performance - contigent should have enhanced their informational aspect of the reward. Since all children met the absolute standard, the reward should have functioned as positive competence feedback and enhanced intrinsic motivation. Contrary to Deci's theory, performance contigent rewards did not enhance intrinsic motivation in this study.

One explanation which Deci and Ryan (1980) proposed was that the controlling aspects are more salient for tangible rewards (such as candy) than for symbolic rewards (such as the Good Player Award). Controlling aspects are least salient for verbal reinforcement and other verbal rewards. This interpretation implies that tangible rewards are better able to convey the value of positive (competence) feedback than are other forms of rewards. In fact, to date the only reward empirically demonstrated to have an enhancing effect on intrinsic motivation is praise (Anderson, Manoogian, & Reznizck, 1976; Deci, 1971; Swann & Pittman, 1977).

Anderson, Manoogian, and Reznick (1976) supported Deci's findings. In this experiment children were asked to perform an intrinsically motivated activity (i.e., free style drawing):

a) while expecting money or an award;

b) while receiving positive verbal reinforcement; or

c) while simply in the presence of an experimenter (control group). Subsequent intrinsic motivation, measured by the amount of time performing the target activity, was expected to decrease after receiving money or an award, increase after receiving positive verbal reinforcement, and remain unchanged in the control condition.

Money and awards, expected to be perceived as sufficient to justify performance, reduced intrinsic motivation during a free-play period. Positive verbal feedback predicted to be insufficient to justify performance, resulted in increased intrinsic motivation. Unexpectedly, a large decline in intrinsic motivation occured in a control group where the child was ignored, or not paid attention to.

Two other recent experiments have attempted to determine how the nature of the reward affects children's intrinsic motivation (Dollinger & Thelen, 1978; Swann & Pittman, 1977). Unfortunately, like the Anderson et al. (1976) study, in each case the manipulation of the nature of the reward was compounded with other aspects of rewards previously demonstrated to affect intrinsic motivation. Although not explicitly designed to test Deci's hypotheses, the experiment reported by Swann and Pittman (1977) included a condition in which children who drew to earn a Good Player Award received, in addition, a gold star when they were done, and a condition in which children received the expected Good Player Award and were praised as well. As compared with these children who received only the expected Good Player Award, children receiving an additional gold star were less likely to draw during the subsequent free-play period. In contrast, the level of free-play period drawing by children who have received the Good Player Award and were praised exceeded both

the level shown by children receiving only the expected Good Player Award and by children not offered a reward to draw.

However, interpretation of these results is problematic. While the gold star was merely task contigent, praise was performance contigent. As Boggiano and Ruble (1979) have demonstrated, task-contigent rewards (i.e., rewards contigent simply on engaging in the acitivity) undermine intrinsic motivation, while performance contigent rewards do not. Thus the differential effects on intrinsic motivation in this experiment could be explained in terms of the nature of the reward or in terms of the difference in perceived contigency.

Dollinger and Thelen (1978) attempted, however, to hold constant the positive competence feedback conveyed by three types of rewards (i.e., tangible, symbolic, and praise). Children were given four mazes to solve and told that they would be rewarded for each good one. Thus, rewards in all three conditions were performance contigent. In addition, rewards were also worked on a second, nonrewarded task during the experimental session. Furthermore, there were both task-contigent and performance-contigent elements in the manner in which rewards were administered. Since all had a practice session that demonstrated that they could, in fact, solve the mazes, it is likely that they believed they would earn at least one reward By working on the mazes. In this sense, rewards were task contigent. In addition, the number of rewards earned depended on the quality of the performance and, hence provided positive competence feedback. The complexity of the rewards used makes comparisons of the results obtained with previous research problematic. In fact, assessment of time spent on mazes during a subsequent free-play

period indicated that children receiving either verbal or symbolic rewards did not differ from children in a no-reward condition in contrast to results reported by Swann and Pittman (1977) for verbal and symbolic rewards. Furthermore, tangible rewards undermined intrinsic motivation, in contrast to the Boggiano and Ruble (1979) experiment demonstrating that performance - contigent tangible rewards do not undermine intrinsic motivation.

B. An evaluation of reinforcements and their influence on achievement motivation.

Brophy (1981) and Walker (1979) contend that the effects of praise as a reinforcement are not always clear cut because there is little consensus among the authors' definitions of this term. Praise, according to Brophy, does not only tell about the degree of success but expresses positive affect such as surprise, delight and excitement. Praise as such, then appears to have a weakening rather than strengthening effect on achievement after the ages of seven and eight (Kohlberg, 1969). After this age children are no longer as interested in pleasing authority figures as they are in pleasing peers. Hence, praise delivered to the wrong person, or in the wrong way, or under the wrong circumstances may be not only ineffective but counterproductive (Eden, 1975; Dunkin & Biddle, 1974; Rosenshine & Furst, 1973; Brophy & Everston, 1976; & Good & Grouse, 1977).

Kruglanski, Riter, Amitai, Margolin, Shabtai, and Zaksh (1975) have investigated another of the conditions for interaction between intrinsic motivation and extrinsic rewards the "content-consequence" hypothesis. The results of their study have suggested that whenever a tangible

reinforcer is inherent to a task (i.e., getting money for a coin-toss game), its presence should enhance intrinsic motivation. In contrast, if a tangible reinforcer is not normally associated with a task (i.e., getting money for a block building game) its introduction may decrease, satisfaction.

In contrast to Deci's (1971, 1972a, 1972b) interpretation of the interaction between intrinsic and extrinsic factors, Kruglanski et al., (1975) have demonstrated that extrinsic rewards may enhance intrinsic motivation if they are perceived to be inherent to the task content. Unfortunately, no measure was made of the quality of performance for the subjects in these studies. Without such, we are unsure of the implications for those classroom systems of contigent reward wherein rewards may not be normally regarded as intrinsic to task performance. Should noninherent, contigent-extrinsic rewards prove to be both quantitatively and qualitatively inferior to inherent contigent rewards, a major re-evaluation of such reward systems would be necessitated.

It would follow that any activity could best be monitored by creating situations wherein participation in the activity could be causally attributed to the content rather than the consequence of the activity.

In contrast to the previous experiments, Pallak, Costomiris, Sroka, and Pittman (1982) administered verbal and symbolic rewards in a manner designed to ensure that they conveyed equal positive competence information. The experimenter stressed either verbally or by giving an award that such were given for the quality displayed by the particular picture the child had drawn. It was found that children attending

schools that did not use symbolic rewards to mark off achievement were less likely to draw during the free-play period when given an expected symbolic reward, but were more likely to draw when given a verbal reward. Children attending schools that did not use symbolic rewards to mark achievement, however, did not react differentially to symbolic and verbal rewards but instead were more likely to draw when the reward was expected than when it was unexpected. The nature of prior experience with rewards and reward contigencies may affect the relative salience of informational and controlling properities and thereby enhance or undermine intrinsic motivation.

According to Bates (1979) these studies demonstrate that certain reward systems may inhibit children's desires to participate in educational activities.

III. Criticisms of Early Studies.

A. Achievement motivation, Feedback and the Person.

McDermott (1977), however, believes that while the type of feedback given to a child, as shared between pupil and teacher, does affect achievement, the more important question is, what does that particular feedback mean to the child?

The point McDermott wishes to get across is that the use of less direct forms of coercing children into attending to classroom tasks are not uniformly better or worse than the authoritarian approach. If there is no proper relational foundation between the teacher and the child, the child is no more likely to follow a gentle suggestion than a direct order.

Rist (1970) has also worked in the area of relationships in the

classroom among pupils and teachers, in particular the teacher's influence on student's achievement with respect to their social class. The author's particular concern was with the teacher's expectations of potential academic performance as influenced the students' social status.

Rist found that teachers, based on prior expectation, replicate the social class system within the classroom, and even turn the emerging classroom social structure into a caste system. Thus children of low-status parents are assigned to "slow" groups, whereas children coming from more affluent families are placed in groups expected to do well; these "promising" children received more praise (encouragement) and instruction than the other pupils, and of course, achieve more. Moreover, there is little or no opportunity for upward mobility among the students who are not initially expected by the teacher to succeed.

Rosenthal and Jacobsen (1968) have sought to demonstrate the existence of a type of educational self-fulfilling prophecy: if teachers expect high performance, they receive it, and vice versa. A major criticism that can be directed at much of the research based on this model is that although the studies may establish that a teacher has differential expectations and that these influence performance for various pupils, they have not eludicated either the bias upon which such differential expectations are formed or how they are directly manifested within the classroom milieu.

Rist's research, unlike that of Rosenthal and Jacobson, is very persuasive. It does not, however, provide data that link objective performance on tests to differential expectations and to differential treatment, but it does suggest ways in which differential expectations

are formed and how they become translated into different treatments of different students.

Pedersen, Faucher and Eaton (1978) also looked at teacher expectations. Their study showed that teacher expectations, especially in the first year of school, can influence their performance during the later school years and adult life. Pedersen et al. suggest that teachers who expect little from their students have students who performed poorly in school and who also lag behind as adults, whereas teachers who have high expectations for their students got better results. Apparently, teacher-expectations influence the evolving academic self-concepts of the children, which in turn influence levels of effort, academic achievement, and even adult socio-economic status. However, the teacher's influence is not the sole factor in explaining school achievement. The authors recognize that family environment, peer interactions and other variables play a key role.

One of the criticisms advanced by Brophy (1983) of most existing approaches to classroom motivation is that they have concentrated on the "expectancy" term of achievement motivation while relatively ignoring the "value" term, and in particular, ignoring the fact that students can learn to value learning for its own sake. This notion has also appeared in the work of Maehr (1976) on what he calls "continuing motivation" and in the work of Condry and Chambers (1978); Kruglanski (1978); and Lepper and Gilovich (1982). The latter writers have shown that quality of task engagement is higher and concern about quality of the output or product is greater when people choose to engage in tasks for their own reasons than for exogeneous reasons (to earn reward or avoid punishment).

8. Instrumentation and Methodology and Classroom Research.

Another criticism of early studies in achievement motivation has been directed towards the measurement procedure as used by McClelland et al. Although the use of achievement imagery as an index of achievement motivation may prove workable for certain purposes, serious problems exist here. Some of these relate to such technicalities as reliability and utility of the thematic measures (Entwisle, 1972; & Klinger, 1966, 1967).

More basic as far as analyzing culture and achievement is concerned is the self-evident cultural bias that exists in these measures (Maehr, 1978). The TAT stimuli that are characteristically employed in eliciting imagery are manifestly ethnocentric in nature. They were developed in all American settings, and they show it. They probably are not appropriate for subcultural groups in the United States, as research with Blacks (Mingione, 1965, 1968) and women (Alper, 1974; French & Lesser, 1964; Lesser, Kravitz & Packard, 1963) would suggest.

The point is that in the study of culture and achievement motivation, one dare not focus on the person to the exclusion of the context (Maehr, 1978). Indeed, it may be argued that by focusing so heavily on the role of personality in achievement, McClelland et al. may have done just that. Therewith, they have created an ethnocentric approach to motivation, an approach that simply compares other cultures to a Western prototype (Maehr, 1974a, 1974c) without doing justice to the potential for excellence that exists within other cultures.

Educators have yet another reason for not focusing exclusively on the role of personality in achievement. Such a focus may suggest that

there is little or nothing that can be done by the teacher to foster an interest in achievement.

Maehr (1978) identifies three behavioral patterns of behaviors which comprise most of the instances in which motivation inferences are made: 1) persistence; 2) directional change; and 3) performance variation. These, or some combination of them must occur in a task for which there is a standard of excellence; in other words, the activity must be such that it can be evaluated in terms of success or failure. The outcome on the task is potentially attributable to the individual's performance. That is, achievement is something to which the person makes a contribution. Something is done by the individual; it is not done to the individual. Furthermore, some level of challenge and therewithin, a certain related sense of uncertainity of outcome must be involved.

The behavioral patterns identified as the indicators of motivation are certainly not behavioral patterns that are limited to one or another cultural group. Certainly, tasks exist in all cultures for which there are standards of excellence, levels of challenge, and the possiblity of self-attribution of some sort. Whatever difference there may be, then between cultures in the exhibition of achievement motivation, this difference relates to the tasks on which it would be demonstrated. It might be said, then, that this new definition assumes a universal will to achieve; the question is merely in which of the ways, conditions and context this will be actualized.

It should be stressed that this definition not only suggests a greater openness in viewing the motivation of members of different cultural groups; it should also lead to an important, substantive shift

in interpreting and promoting achievement behavior. The characteristic focus on the person and personality variables in achievement motivation research gives way to a focus on situation, context, and immediately impinging events. If all people demonstrate achievement motivation at some place or time, the question becomes: Why do some demonstrate it here and others there? What is it about here and there that makes a difference? (Maehr, 1978).

IV. New Aims in Achievement Motivation

Previous work on achievement motivation has not ruled out the role of situational factors; but by stressing the role of personality, rather than focusing on behavioral patterns in a context, the situational impact on achievement motivation has been played down or even ignored.

The seminal work of Maehr has vastly influenced the perspective of the present research. The present study examines achievement from an interactionist view point. This contruct is conceived as a combination of personality and situational variables. The exogeneous factor believed to affect achievement motivation is teacher - pupil interaction patterns. Such interaction patterns take many forms, of which verbal feedback is important. It is predicted that positive verbal interactions would be associated with increases in the achievement motivation of young children; negative verbal interactions would be associated with decreases in the achievement motivation of young children; and simply ignoring children would also correlate with decreases in achievement motivation.

Walker's (1979) and Brophy's (1981) work on teacher praise, a form of positive verbal interaction, indicates that, at least up to the ages of seven or eight (Kolberg, 1969), praise functions as a weak reinforcer

and has a differential impact on the two sexes. Although sex differences are not a concern of the present study, it will be interesting to see what impact it has on our general subject population.

Moreover, in contrast to the usual classroom interaction study, the present study looks at the classroom as a dynamic milieu which reflects itself, in part, in the interactions which take place between teacher and pupil. The phenomenal work of Brophy and Good (1970) and Brophy (1979, 1981, 1982, 1983) have also described this outlook. The underlying implication, of Brophy's (1983) work in particular, is that we do not need to remove subjects from their natural habitat in order to study achievement motivation. For too long a time the study of achievement has been examined via artificially presented tasks or in a laboratory situation where the people being studied could choose from a provided menu of activities. The classroom, however, is a work setting in which students must cope with activities that are compulsory and subject to evaluation, not a play setting offering free choice according to personal preferences. During academic activities, students are not playing ring toss games nor trying to solve interesting puzzles. They are, contends Brophy, responding to intellectual challenges in a public setting, under conditions in which their performance will lead not only to subjective judgments of success or failure but to external evaluation and subsequent reward or punishment.

Moreover, the duration of these laboratory tasks are usually very short lasting only a few hours. The present study, however, extends over a period of a few months of daily observations.

In line with Maehr's (1978) work, achievement motivation in the

present study was examined by looking at actual behaviors rather than employing the traditional projective - based or attitude - based approaches. People might say one thing but do another when actually confronted with the situation. Thus, on the grounds that a behavioral measure would give a more accurate estimate of a person's achievement orientation a behavioral checklist was devised.

Finally, the other potentially interesting factor about this study was that its methodology includes elements of an ethnographic approach. There is little tampering with the environment under study. The research took advantage of naturally occuring phenomena. Moreover, the author was in the classroom observing and could therefore get a better picture of this construct called achievement motivation. Although, the observer was interested with a particular area, participating in the natural environment allowed one to take a broader view of the whole person. The underlying philosophy, then becomes to conceive and perceive achievement motivation not only as part of the person but also in relation to situational or interpersonal aspects of that individual's behavior. Too often in the past, achievement motivation, being removed from its natural context, has come to be perceived and studied in a very compartmentalized manner.

It is with these goals in mind that the author was able to study achievement motivation.

CHAPTER 3

EXPERIMENTAL INVESIGATION

Phase I: The Pre-test

Method

Subjects. The initial phase (pre-test) of this study was carried out on three kindergarten classes. The school is situated in the Northeastern part of a large Canadian city, Montreal, serving a generally Caucasian, Catholic, working class population. The ethnic composition of the classroom is about eighty-five percent Italian-Canadian, ten percent English-Canadian, and five percent French-Canadian which is representative of the general school population.

The fifty - seven kindergarten children were under the supervision of two teachers. One of our teachers, Miss B was working part-time at this school and taught at another school as well. Miss B is still considered to be quite new to the field of teaching. The other teacher, Mrs. A. taught two kindergarten classes at this school.

Design. A field study was undertaken at this particular school because it was accessible and the teachers and principal were receptive to our study. The most apparent weakness of this and any school or classroom study is that the subject population is not randomly chosen, and therefore not an unbiased sample of any general population. However, the phenomenon under study is not likely to be seriously affected by the ethnic affiliation of the subjects. Although there are several studies in the literature suggesting that achievement motivation is somewhat lower for Italians and Catholics (McClelland, 1961; & Rosen, 1961;

Minturn & Lambert, 1964; & Lambert, Hamers, & Frasure-Smith, 1979) than for some other groups, there is neither any reason to believe, nor any indication that the development of achievement motivation in relation to teacher feedback would follow different patterns for Italian or Catholic children as compared to any others. In addition, the present study is not concerned with comparisons of achievement motivation for subjects belonging to different ethnic groups.

There is considerable support for research designs that enable us to focus on ordinary groups in their usual settings (Rosenshine & Furst, 1973; Maehr, 1978; Leiter, 1980; & Brophy, 1983). This study took advantage of the context of an existing setting. The study was designed to examine the effects of certain kinds of teacher-pupil intpraction on the levels of motivation of their students. It was therefore necessary, at the beginning, to establish a base-line measure of achievement motivation for each child, to observe teacher-pupil interacting, and then to examine pupil behavior to see if any change in achievement orientation followed certain patterns of teacher-child interaction. The initial phase (Pre-test), which took place at the end of the kindergarten year yielded a measure of achievement motivation for each child. The second, or post-test phase, which took place after the summer recess, in the early weeks of grade one, allowed the author to observe any changes in pupils' achievement motivation scores, from kindergarten to grade one, as a function of grade-one teacher-pupil interaction.

Test Construction. The early stage of this research involved the selection of a method of measuring achievement motivation. Searches in the literature on achievement motivation and on measurement led to the

field trial of the most promising test available, a test called Animal Crackers (Adkins & Ballif, 1975). The sixty-item instrument uses an objective-projective technique to elicit choices between alternative behaviors that are thought to reflect differences in achievement motivation. The stimuli are pictures of pairs of identical animals depicted in different stances. An example of such a test item is stated below:

This monkey thinks puzzles are too hard.

This monkey can put puzzles together.

The child is instructed that in each picture there are two animals, that these animals look alike but that only one of them is theirs, and this animal likes what the child likes and does what the child does. Children are told to place their fingers on the pictures and to listen to the statements (as the one described above) about the animals, and make a response.

It is said to be possible to administer the test to either individuals or groups of children at the preschool level through grade one (Adkins & Ballif, 1975). The time required to administer the test is given as thirty or forty-five minutes, but the authors remind the test users that attention and effort should be the prime consideration when estimating time limits, and they point out that it is not recommended for use with bilingual children whose lack of facility with English would preclude valid testing.

There are five components which, according to Adkins and Ballif, have been deemed essential in the measurement of achievement motivation. These components are:

1) school enjoyment,

2) self-confidence,

3) purposiveness,

4) instrumental acitivity, and

5) self-evaluation.

In order to assess the utility of this instrument for the present study, the author used it on a pilot sample (a subsample of the kindergarten and grade one students) and found the test to be non-applicable and impractical for the following reasons: First, the time needed to administer the test to a group or individual far exceeded the suggested time limits in the manual. The idea of projecting the test pictures on a screen and having students indicate their responses seemed plausible for a while but was ultimately rejected for a variety of reasons, including limitations of time and personnel available.

Second, most of our subject population is bilingual, and for reasons mentioned earlier, this might have invalidated the results.

Third, the measure does not control for the tendency of children to offer socially desirable responses. In the course of administration, the author felt that the children were giving responses which they seemed to think were socially acceptable but which may not have actually reflected what they might have done in a non-test, usual social setting. Several children actually stated that this was their approach.

Fourth, in examining the items more closely the author discovered that this is not a measure of achievement motivation, but a measure of achievement motivation in combination with other personality constructs such as self-concepts, learned helplessness, introversion/extraversion,

field dependence/independence, etc. These were not deemed relevant to the present study. Inspection of each of the items suggested that only a fraction of them were directly related to achievement motivation; in order to see which, if any were, three independent judges were asked to indicate those of the sixty items which they saw as being directly related to achievement motivation. Subsequent comparison showed that the judges were in agreement on eight of the sixty items. The items included:

1) persistence with task;
2) completing task;
3) attempting difficult tasks;
4) persistence after failure;
5) working independently on a task;
6) working on a task even if there are no prizes;
7) prefering new tasks to old tasks; and
8) doing one's best.

Some of these items have also been used by several other researchers and the present author in assessing achievement motivation, but as indicated by the actual behavior of the pupils rather than by their responses to test items.

The fifth reason, and perhaps the most telling was that it, like most attitude and or projective based techniques, it was designed to study achievement motivation out of context. That is, the individual is removed from the context in which achievement motivation is usually relevant. Consequently, achievement motivation comes to be studied in isolation, devoid of any contextual reference.

In addition to all these invalidating reasons, it would have been virtually impossible to remove students from their classroom activities and instruction without greatly inconveniencing our subjects and the teachers, and jeopardizing our relationship with the school.

As the one promising instrument available proved to be unsuitable and inapplicable, the decision was taken to design one specifically for the present study.

The instrument was named the Behavioral Index of Achievement Motivation (BIAM) (Appendix A). It was used to assess achievement motivation, and was based, in part, on some work of Rosenberg (1977). In a study which attempted to examine the role of the early childhood teacher in enhancing or weakening motivational factors in children, Rosenberg had found that the following behaviors were significantly related to achievement motivation:

1) completes activity;
2) repeats activity;
3) tries new response;
4) changes activity before completing; and
5) persists with unsuccessful response.

Of these the last two mentioned are inversely related to achievement orientation, and all the others directly. Judging from text of his publication, Rosenberg does not appear to have examined the validity of his data using any of the usual methods, and correspondence with him revealed, unfortunately, that instrument validation was not his prime concern at the time.

To increase the reliability of scores six additional items were

collected from two sources (Adkins & Ballif, 1975; Rosenberg, 1977). The items included:

1) persistence with task;
2) eagerness to learn new material;
3) checking for mistakes;
4) helping others;
5) attempting difficult tasks; and
6) persisting after failure

The items were measured as follows:

1) Persistence - working diligently and reflecting on a task. It is a relation between the time spent on a task relative to the time spent off task. A general form of persistence;
2) Tries new response - faced with an inappropriate solution, the subject attempts to solve the problem using a more expedient solution - strategy;
3) Completes-finishes with the task at hand but does not necessarily entail persistence;
4) Repeats same activity (Maehr, 1976 termed this "continuing motivation"), the tendency to return to work on tasks away from the context in which they were initially confronted. The resumption of these activities is presumed not to be instigated by external pressure of some sort. Thus the child spends the free period redoing or repeating some of the day's events.
5) Eagerness to learn new material - a preferential difference is shown for a novel, but not necessarily difficult task;
6) Checks for mistakes - work is examined for errors before submission;

7) Helps others - comes to the assistance of fellow students (in academic difficulty) and assumes a teacher-role;

8) Attempts difficult tasks - the individual undertakes challenging tasks. The tasks here are both novel and difficult; and

9) Persistence after failure - the subject resumes a previously failed task.

Rosenberg's list was qualified in other ways. Not only were children observed in terms of whether or not they possessed the designated characteristics, but how they went about attaining them. The following options were noted:

a) teacher - prodding;

b) asking a friend for assistance;

c) seeking indirect assistance (i.e., "cheating"); or

d) giving up entirely.

For example, participants might demonstrate persistence but only after the teacher has prodded them, or after having "cheated", or asked a friend for help, or perhaps not persisted at all.

If a particular behavior was not observed a 'B' for the word "blank" was recorded.

Procedure. All of the observations were made by the author. The first phase of the data - gathering involved five weeks of observations. During that time the teachers involved were told that the study was concerned with patterns of interactions in the classroom and their influence on students' achievement motivation. The aim was not explained in detail to the teachers because the author was concerned that this knowledge might influence the teachers to interact with their students in

particular ways. The author's main focus at this time, however, was on students' achievement motivation.

Another aim of the first week was to familiarize the observer with the instruments and observations techniques to be used in the study. This required learning the children's names. In addition, it was hoped that the observer's presence would become part of the usual situation, thus minimizing the effects of her presence during the actual data - collecting phase. The observation process was refined during the first week as it became apparent that some of the items and methods of observation were inappropriate to the current study.

Using the Behavioral Index of Achievement Motivation (BIAM), the observer recorded the behavior of the kindergarten children while they engaged in class assignments. Approximately one hour was spent in the morning class and each of the afternoon classes. An example might best illustrate the procedure.

Let us suppose that for a set five minute interval (each child was allotted the same span of time) the observer decided to watch the behavior of Tommy at the center table. First she would record her perceptions of his behavior by checking off the appropriate column on the Behavioral Index. When a particular behavior was self-motivated, that is, without any intervention from his classmates, or the teacher, a check mark (✓) was issued. If, on the other hand, the teacher prodded the child to engage in achievement-related behavior a "P" was recorded. There were cases where even after being prodded the child did not respond. In such instances a minus sign (-) was assigned. Some children sought alternative modes of assistance with their work by asking a friend

to help them and in such cases an "F" was recorded. When pupils attempted to look over at the work of their peers without their permission, "I.A." (indirect assistance) was reported. Thus on any given day, the record for one child for a particular activity might resemble the following (See also Appendix A).

FIGURE I

Name: Tommy Teacher: Mrs. A
Subject: Arithmetic

Persists	Tries New Response	Completes	Repeats Activity Until Mastered	Eager to Learn New Material	Checks for Mistakes	Helps Others	Attempts Difficult Tasks	Persists After Failure
✓	I.A.	✓	B	B	F	P	I.A.	—

At the end of each day the various behavior frequencies were accumulated for each child, and at the end of each week, the behaviors were summarized on weekly records.

By means of a simple arithmetic procedure each child was assigned an initial achievement motivation score. The formula include the total number of prods (p) or teacher activity subtracted from the total number of checks (c) or child activity divided by the total number of days (d) observed which yields a total achievement motivation (AM) score. The mathematical expression is:

$$A.M. = \frac{C-P}{D}$$

If the number of checks exceed the number of prods, the child obtains a positive achievement motivation score. If, on the other hand, the number of prods exceed the number of checks, the child's score

indicates a negative achievement orientation. Dividing by the total number of days observed makes scores comparable for children who attended different number of days.

The first two weeks of observation were filled by recording pupils' achievement behavior, becoming acquainted with the classroom routines, and forming general impressions about the physical and social construction of this setting.

During the third and fourth weeks of observations, it became obvious that the teaching style changed markedly as the teachers began a systematic program designed to prepare their pupils for formal examinations. Rather than presenting new material as before, the teachers began administering a series of work sheets to provide drill and practice in the areas of numbers, letters and phonics which had been taught. At this time, although the experimenter's method of data collection remained unaltered, the changes in teacher A's behavior in particular were producing differences in results that were very noticeable on the records of pupil behavior.

This led to the decision to compare the first, two weeks of observation with the latter two weeks. The purpose for this comparison was to obtain an indicator of observer reliability.

The standard methods of obtaining reliability (i.e., inter-rater reliability) were not employed here because the methodology and purpose of this study did not lend itself to such methods. To obtain inter-rater reliability was virtually impossible since there was only one observer. Hence, taking advantage of what was happening in the classroom during the third and fourth weeks, the author reasoned that if she was indeed

reliable, the changes being observed in the teachers would show a marked effect on pupils' achievement orientation. If, on the other hand, the teachers were not actually changing, but the methods of recording data were, no noticeable change should appear in the pupils' records. Although somewhat unorthodox, this method of obtaining reliability permitted the observer to assess her own consistency. Of course, had there been no marked change in teacher behavior during the latter weeks, a consistency in the scores would have been predicted.

A brief talk with the teachers during these two latter weeks revealed that they were deliberately, consciously stressing excellence in academic performance to their students more than they had been previously.

In addition, on one occasion both teachers were asked to assess student's achievement motivation using a ten-item Likert-type scale. These responses were then used to develop a second standard of comparison against which to measure the observer's reliability.

An example of one of the statements the teachers replied to was the following (See Appendix B):

This student tries new responses to solve any task when old responses do not seem to work.

a. almost always
b. usually
c. occasionally
d. usually not
e. almost never
f. can't say

The teachers were instructed to mark off the option which they thought best reflected their students' achievement motivation.

Scoring of these statements was done by assigning a numerical value to each option ranging from 5 (almost always) to 1 (almost never). The teacher's replies were then compared to the observer's observation. The data concerning this agreement are presented in the next chapter which presents the analysis.

At the end of the five weeks the field work ceased, and the teachers and students were thanked for the time and effort they had devoted to the study.

Phase II: The Post-test

Method

Subjects. The second phase of the study was conducted from the second week in September to the second week of October of the subsequent school year. The children had been placed into either of two grade one classes. Of the original fifty-seven subjects who participated in the pre-test phase, seven of them were attending another school. In all fifty children remained in our study.

Our first grade children were under the direction of two teachers. One of our teachers, Mrs. C., had been teaching the first grade level for several years. Mrs. D., on the other hand, had previously been teaching the fourth grade. This was her first year as a first grade teacher. Both teachers appeared to be very enthusiastic about participating in the study.

The purpose of this phase of the study was to test the hypotheses concerning changes in the achievement motivation scores of particular children between kindergarten and grade one as a function of teacher - pupil interactions - specifically, that pupils receiving positive feedback would tend to increase in their achievement motivation from kindergarten to grade one. Pupils receiving negative feedback or were being ignored would tend to decrease in their achievement motivation scores between kindergarten and grade one.

Test Construction. Teacher-pupil interactions were measured by a coding scheme somewhat similar to the one used by Brophy and Good (1969, 1970) which was labelled Teacher-Student Interaction Coding Scheme (See

Appendix C). Of particular interest to this study was the type of feedback given by the teacher. There were several types of feedback recorded:

a. praise;

b. criticism;

c. no feedback at all;

d. repeating the answer; and

e. commands.

In terms of the present study the latter two categories did not seem directly relevant but were noted because of their potential value.

The terms "praise" and "criticism" referred to teacher reactions which went beyond the level of simple affirmation or negation or other kinds of feedback. Simple affirmation (i.e., yes, okay, that's right, fine, good) was not considered "praise" unless accompanied by some obvious expression or gesture connoting excitement or warmth. The latter reactions were considered "praise", as were the words "excellent", "very good", and "fantastic", as well as other, more obvious forms of verbal praise.

Similarly, simple negation (i.e., "no", "that's not it") was not considered "criticism" unless accompanied by expressions or gestures communicating anger or disgust. In addition to the latter responses, verbal statements such as "that's a stupid answer", or "what's the matter with you?" were coded as "criticism".

The third category, "no feedback", was coded if the teacher did not react in any way to the child's response and simply moved on to something else or did not call upon the child.

The fourth category involved simple affirmation and/or repeating the child's answers. For example, a student is asked "what comes after the number five" to which the child replies "six". The teacher acknowledges this reply by either repeating the child's reply or uses a combination of repetition and simple affirmation.

Commands and direct requests were coded as either academic (i.e., "pay attention", "go finish your work", etc.), procedural (i.e., "take this to the office", "fix your desk", etc.), or disciplinary (i.e., "stay in line", "sit still", etc.).

In addition to coding the evaluative nature of the teacher's feedback, the author also kept track of the following:

a. the initiator of the interation (teacher or child);
b. whether or not the child sought response opportunities which was measured by hand raising behavior;
c. the type of task (i.e., academic or other); and
d. whether or not the student's comments were relevant to the task at hand.

Although the author's main interest was with teacher-pupil interactions, she felt that recording these other pieces of information might yield some valuable insights.

Procedure. After a few pilot trials in which this system was modified, observations were made two days a week for a period of one month in each classroom. Data were recorded for each child on data sheets (which were later accumulated and sorted under the headings mentioned above) for most periods of academic activity during the observation period. No data were recorded when the class was out of the room for French instruction.

recess, lunch and washroom breaks.

Again the data were recorded by the author seated at the rear of the classroom. The observer was thus facing the teacher but behind or to the side of the majority of the students. Each child was recorded for an equal number of times. In addition to coding the interactions, the observer took a second measure of the participants' achievement motivation using the same instrument and procedure as during the previous year.

Moreover, on two occasions (once after the second week of observation and another towards the end of the observation period) the first grade teachers were asked to fill out a reliability measure using the identical form as the one issued in the previous year. The results obtained were not of direct interest; however findings are reported in Appendix D.

At the end of the study all participants were thanked for their time and cooperation.

CHAPTER 4

RESULTS

This chapter deals with the statistical analyses of the data. It is divided into the following headings: Reliability; Validity and Other Correlations; Direct Tests of Hypotheses.

Reliability. Two things were necessary before the author could test the hypotheses: (1) to get a base-measure of achievement motivation for each of the children who were to be observed later on in grade one, and (2) to get some indication of the reliability of those measures before using them in grade one. The question of reliability was dealt with first, to set the stage for the examination of the hypotheses. This was done in two ways -- comparing means of achievement motivation scores (first two weeks to second two weeks) in kindergarten and (based on the kind of teachers' knowledge which arises from a year's experience working with the children) by comparing the ranks assigned by the kindergarten teachers with those arising from the author's use of the Behavioral Index of Achievement Motivation (BIAM).

In order to get a measure of reliability from the grade one teachers they were asked to fill a Likert-type scale comparable to the one given to the kindergarten teachers. Although the ranks were similar to those resulting from BIAM, they were not significant except in one case, nor could they have been expected to be, since the grade one teachers did not have a long enough experience with their new children in the first month of the school year to estimate as well as the BIAM could measure. These results are presented in Appendix D, Table 2.

Two sets of calculations were made in order to gain some impression of the reliability of the BIAM.

The first set of calculations was based on an approach which assumed that achievement motivation being relatively stable over the four weeks of pre-testing, the results of the use of the instrument in the first two weeks should be comparable to those for the last two.

Even though retesting seldom results in identical scores, the fact that all three classes showed some change in the data from the second two-week period of observations as compared to that of the first was not expected. It may seem surprising that the differences in Teacher A's classes reached statistical significance at the .05 level ($t=-2.40$, $p=.029$, $t=-2.64$, $p=.016$), and perhaps even more surprising that this was taken as support for the reliability of the instrument BIAM. However, the changes noted in the BIAM scores for teacher A's classes coincided with the fact that, in the third and fourth weeks this teacher began getting her students ready for the upcoming formal exams. This resulted in a very noticeable alteration in Miss A's teaching style. She kept her pupils constantly aware that final exams were coming up as she and the pupils engaged in serious preparation for them.The resulting strain and stress of working towards these exams, which was very apparent, seems to have had some temporary influence on the pupils' BIAM scores. In fact, given the abrupt change in teacher's style, it would have been disturbing had the BIAM not been sensitive to such differences. In teacher B's case, although she also was preparing to some limited extent for the upcoming exams, there was no apparent change in her interaction style in view of the upcoming exams, and hence, there was no reason to expect

significant changes in the BIAM scores — and none were recorded.

These findings, as shown in Table 1, are presented in partial support of the reliability of the BIAM.

Table 1

Reliability of the BIAM. Dependent t-tests for kindergarten classes: A comparison of the scores of the first two weeks with the latter two weeks.

Weeks(w)	Means	Standard Deviations	T-Value	Probability
Teacher A's (AM) class w1+w2;(n=17)	0.56	1.91		
			-2.40	0.029*
Teacher A's (AM) class w3+w4	1.52	0.71		
Teacher A's (PM) class w1+w2;(n=21)	1.27	1.46		
			-2.64	0.016*
Teacher A's (PM) class w3+w4	1.93	0.82		
Teacher B's (PM) class w1+w2;(n=19)	1.28	1.73		
			-0.19	0.375
Teacher B's (PM) class w3+w4	1.58	0.51		

*P<.05

A number of statistical tests can be applied to the examination of the question of reliability. In the case of these data, the interest was in changes, which can be examined from at least two perspectives: one is

the change in mean scores of groups of individuals, which has been dealt with above; another is changes in the ranks of individual subjects. The Kendall correlation provides a sensitive test (Kendall's tau) for examining changes in ranks and is particularly useful in data - sets containing several paired ranks (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1970, 1975; Glass & Stanley, 1970). The research design included the completion of a pencil-and-paper instrument on the part of the teacher to obtain her estimate of achievement motivation for each of her pupils, thus providing a basis for comparing the kindergarten teacher's score for each child to that of the researcher's. However, the teachers' scores, arising as they did from a different type of instrument (i.e., Likert - type scale) than the researcher's (BIAM), could not be compared directly to the results of the researcher, but students could be ranked in each case, and the ranks could be compared: hence, the use of Kendall's tau. All this was, of course, based on the belief that the teacher would be able to rank the children on achievement motivation on the basis of a year's experience in teaching them.

The coefficients result from calculations which compare the kindergarten teachers observations with those resulting from the observer's use of the BIAM. The results are in Table 2.

Table 2

Kendall Rank Correlations for Observer's and Kindergarten Teacher's Reliability

Comparisons	Kendall's Tau	Significance
Kindergarten teacher A's morning class with observer's observation; (N=17)	0.465	0.007*
Kindergarten teacher A's afternoon class with observer's observations; (N=21)	0.274	0.048*
Kindergarten teacher B's afternoon class with observer's observations; (N=19)	0.821	0.001*

*P<.05

The significant taus presented in Table 2 suggest that an observer who does not know the children in a given classroom can, by the use of the BIAM, rank them in essentially the same order as a teacher who has worked with them all year. This fact increases our hopes in the reliability of the BIAM, at least as applied by the present researcher. Similar comparisons were made with the grade one teachers and results are presented in Tabel 2 of Appendix D.

The reason for performing these tests of reliability, as mentioned previously, was to see if there was enough credibility in the data resulting from the researcher's use of the BIAM to justify using them to examine the hypotheses concerning achievement motivation. The author was encouraged by these results.

Sources of unreliability might have in the BIAM itself, or in the observer's ability to use the originated instrument. Before it can be adopted for widespread use, much work remains to be done on the test.

The production and validation of a new tool were not, however, the major goal of this study, and rigorous measures of reliability are clearly beyond the scope of this dissertation. All the same, the degree of reliability that has been demonstrated gives the BIAM ample credibility to allow us to proceed with the hypotheses with some confidence. It is also hoped that further development of the BIAM can be undertaken in the future.

Validity and Other Correlations

In addition to examining the reliability of the data, indirect attempts to demonstrate the validity were made. One of them was to look at the way in which the "independent" variables (i.e., teacher-pupil interactions) clustered in factor analysis.

There are many approaches to factor analysis. An Oblique Factor Analysis (Nie, et al., 1970, 1975; & Horst, 1965) was chosen in this case since after running other types of factor analyses there seemed to be firm evidence to assume that these variables would cluster into orthogonal factors. Table 3 lists the three factors that emerged from the analysis. The first factor designated pupil conformity, seems to suggest that when interactions are teacher - initiated, students are also more likely to be engaged in academic subjects, to demonstrate task appropriate behavior, and receive positive interactions from their teachers;

Table 3

Oblique Factor Analysis underlying the "Independent Variables" denoted as Teacher-Pupil Interactions.

Factor 1 Pupil Conformity		Factor 2 Pupil Passivity		Factor 3 Teacher Neglect	
Variables	Weightings	Variables	Weightings	Variables	Weightings
Disciplinary Command	-0.996	Child Raises Hand	-0.847	Ignoring	1.01
Teacher-Initiated Interactions	0.960	Child Waits To Be Called	0.792	Praise	-0.595
Task Irrelevant Behavior	-0.835	Criticism	0.434	Child Raises Hand	-0.323
Academic Subject	0.832	Simple Affirmation	-0.430		
Child-Initiated Interactions	-0.753	Negation	0.413		
Task Relevant Behavior	0.628	Academic Command	0.332		
Simple Affirmation With Parroting	0.440				

Factor 1 with Factor 2 correlates at -0.288
Factor 1 with Factor 3 correlates at -0.236
Factor 2 with Factor 3 correlates at -0.070

children thus engaged with their teachers are less likely than others to receive disciplinary commands, to engage in task inappropriate behavior, and to initiate interactions themselves. This cluster of variables "makes sense" intuitively and supports the face validity of these items in BIAS.

The second factor, labelled pupil passivity, also includes items that seem to belong together. Children who waited to be called upon were of course less likely to raise their hands in response to the teacher's

imitations than others, and they were also less likely to receive simple affirmation but more frequently criticised, told what to do, and in receipt of negative feedback. This seems to describe a relatively passive attitude on the part of the children towards learning and school work.

Finally, the third factor, which the author called teacher neglect, suggests that children who were ignored were less likely to be praised, as well as less likely to raise their hands. Obviously if students were being ignored little else could possibly be happening.

In sum, we note from these factors that variables that intuitively seem to go together clustered into factors. This lends encouragement to our use of BIAM by suggesting that it has considerable face validity.

Relationships Among "Independent Variables" or Teacher-Student Interactions

Factor analysis is one approach to the examination of the face validity of variables; another is simply to inspect correlations among them to see if they interrelated as expected. To pursue this an intercorrelation matrix of Pearson Correlation Coefficients was calculated (Nie et al., 1970, 1975). One incidental benefit arising from use of this procedure is enhanced familiarity with, and thus a clearer picture of, the data. To simplify the presentation in view of large number of variables, they are presented in two "slices" as follows: 1) the intercorrelations among positive teacher-pupil interactions; and 2) the intercorrelations among negative teacher-pupil interactions.

Tables 4 and 5 presents the intercorrelation matrix of all those variables which reach statistical significance at the .05 level or

better.

The correlations presented in both tables show, once more, obvious sets of relationships among the variables. Again, the fact that so many variables which seem intuitively to belong together are significantly related to one another increases our confidence in the face validity of the items in the BIAM.

One group of variables which unexpectedly did not reach statistical significance was praise, simple affirmation with parroting, and parroting when intercorrelated against each other. Furthermore, simple affirmation never reached statistical significance with any of the variables. A further discussion of these puzzling findings is presented in the next chapter.

Table 4

Intercorrelations Among Positive Teacher-Pupil Interactions

Variables	Praise *r *(p=)	Simple Affirmation With Parroting	Parroting	Information	Teacher-Initiated	Child Raised Hand	Task Relevant	Academic Work
Praise	____							
Simple Affirmation With Parroting	ns	____						
Parroting	ns	ns	____					
Information	25 .04	ns	ns					
Teacher Initiated	35 .006	44 .001	ns	31 .01				
Child Raised Hand	24 .05	33 .009	24 .05	ns	29 .02			
Task Relevant	44 .001	25 .03	ns	26 .04	59 .0005	ns		
Academic Work	39 .003	36 .005	36 .03	ns	74 .0005	38 .003	59 .0005	

*r (Pearson Correlation Coefficients)
*p (probability) .05
ns.- not significant
N-50
The above notations also apply to Table 5

Table 5

Intercorrelations Among Negative Teacher-Pupil Interactions

	Information	Negation	Criticism	Academic Commands	Disciplinary Commands	Procedural Commands	Child Waited To Be Called	Child Initiated Interaction	Task Irrelevant	Non-Academic Work
Information	—									
Negation		—								
Criticism		41 .002	—							
Academic Commands			37 .004	—						
Disciplinary Commands				83 .0005						
Procedural Commands	27 .03					—				
Child Waited To Be Called				27 .03			—			
Child Initiated Interaction				25 .04	68 .0005			—		
Task Irrelevant				34 .008				64 .0005	—	
Non-Academic Work					84 .0005			60 .0005		—

This large set of plausible intercorrelations is taken to lend further support of the face validity of the BIAM since these results are what might have been expected on the basis of daily experience and previous research findings.

A comparison of the variables between kindergarten and grade one.

Achievement motivation has been thought of as a stable trait - one not given to rapid swings from high to low. However, the hypotheses were designed to test the idea that with young school-age children, teacher-student interactions might be associated with changes in achievement motivation. It is therefore appropriate to examine relationships between kindergarten and grade one scores to determine the degree of stability and the degree of change associated with certain kinds of teacher-pupil interaction. The analysis of the data with relation to these concerns is presented in tables which answer the following three questions: What is the degree of stability in achievement motivation between kindergarten and grade one? Are teacher-student interaction patterns correlated with achievement motivation in kindergarten? And are there teacher-pupil relationships associated with achievement motivation in grade one? Table 6 presents information bearing on the first question and Table 7 presents information bearing on the latter two questions.

Table 6

Pearson Correlation Coefficient between Kindergarten and Grade One Achievement Motivation.

Correlation Between Achievement Motivation in Kindergarten and Grade One	
r=58	
P=.0005*	

Decimals have been removed for r-value
*P<.05
N=50

Table 6 shows considerable stability of achievement motivation scores of children in kindergarten and grade one. This was determined by comparing kindergarten and grade one achievement motivation. Children with high achievement motivation in kindergarten tend to have high achievement motivation in grade one ($r=.582$, $p=.0005$, $df=48$).

Table 7

Teacher-Pupil Interactions Significantly related to Achievement Motivation of Kindergarten and Grade One.

Teacher-Pupil Interactions	Grade Level			
	Kindergarten		Grade One	
	Correlation	Probability	Correlation	Probability
Task Irrelevance	-54	.0005	-68	.0005
Disciplinary Command	-51	.0005	-68	.0005
Non-Academic Work	-42	.001	-66	.0005
Ignoring	-36	.005	----	----
Child Initiated	----	----	-58	.0005
Child Waited	-36	.005	30	.018
Academic Command	-24	.050	----	----
Simple Affirmation	----	----	29	.022
Task Relevance	32	.011	63	.0005
Simple Affirmation with Parroting	----	----	31	.015
Child Raised Hand	34	.007	48	.0005
Academic Work	41	.002	65	.0005
Praise	----	----	54	.0005
Teacher Initiated	47	.0005	61	.0005

Pearson Correlation Coefficients, decimal omitted
P<.05
N=50

The correlations presented in Table 7 indicate that children who had a high achievement motivation in kindergarten and grade one were less likely to be on task irrelevant matters, receive disciplinary commands,

be on non-academic tasks, wait for the teacher to call upon them or take a passive attitude towards learning. However, these children were more likely to engage in task-relevant matters, raise their hands or take an active attitude towards learning, engage in academic work and participate in teacher initiated interactions.

However, although the pattern of variables associated with achievement motivation in kindergarten and grade one were similar, there were differences. In kindergarten, children with high achievement motivation were less likely to be ignored and to receive academic commands, but this was not so in grade one. Similarly, children in grade one were less likely to have initiated the conversation but more likely to receive simple affirmation, simple affirmation with parroting, and praise. These characteristics were exclusive to grade one children. These differences between kindergarten and grade one may have arisen from differences in the interaction styles of the teachers at these two grade levels. Speculation as to the reasons behind these differences is presented in the upcoming section.

The results reported in this section supported the findings of earlier studies (Minturn & Lambert, 1964; Lambert, Hamers, & Frasure-Smith, 1979) that children who show high achievement motivation are likely to exhibit other positive classroom behaviors.

In summary to this point, the findings generally support the notion that BIAM is a reliable and valid instrument for measuring achievement motivation in young children. Its main advantages are that it is based directly on behavior and does not require the participants to respond in any way. It is therefore is not sensitive to linguistic problems or to

test anxiety or other similar factors that plague many of the existing instruments in this field.

One of the goals of experimental research is to move away from merely demonstrating associations, but rather towards an understanding of cause and effect - for example, how certain kinds of behavior can lead to certain characteristics. In purely experimental research, when groups that receive certain treatments develop certain characteristics not developed by the control groups, we can begin speculating on cause and effect.

Experimentation with young children, however, is often not appropriate, or even permissible; however, through the use of a quasi-experimental design one can establish base-measured of a characteristic (i.e.; achievement motivation) in kindergarten, observe teacher-pupil interactions over time in grade one, and then examine any changes in the characteristics that might follow from applying certain "treatments" (i.e.; praise and negation) or "non-treatments" (i.e.; ignoring). The fact that the design of the research being presented is more quasi-experimental enables one, if not to prove cause-and-effect, at least to speculate on it.

Test of Main Hypotheses:

The main hypotheses in this research were that: 1) positive teacher-student interactions are associated with an increase in achievement motivation; and 2) that negative teacher-pupil interactions and ignoring are associated with a decrease in achievement motivation. Increases or decreases in achievement motivation are measured by comparing the kindergarten achievement motivation for all pupils to their

achievement motivation in grade one as measured by the BIAM in both cases. Changes are then associated with interactions interpretable as praise, negation, or ignoring. Table 8 presents the data bearing on these hypotheses.

Table 8

Pearson-Correlation Coefficients between the change in achievement motivation scores from Grade One and Kindergarten and Teacher-Pupil Interactions.

Variable (Teacher-Pupil Interaction)	r-Value	Significance
Praise Interaction	43	.001*
Negative Interaction	-26	.035*
Ignoring Interaction	-53	.0005*

Pearson Correlation Coefficients, decimals removed
*P<.05
N=50

The values in Table 8 indicate differences in achievement motivation from kindergarten to grade one as associated with grade one teacher-pupil interactions. The results support the hypotheses. Children who received praise from their teachers were likely subsequently to develop higher achievement motivation during the first months of grade one than they had in kindergarten (r=.432, p=.001, df=48). Children who received negative feedback were likely subsequently to develop lower achievement motivation than before (r=-.258, p=.035, df=48). Finally, children who were frequently ignored by their grade one teachers tended to develop lower achievement motivation scores than they had had in kindergarten than previously (r48=-.528, p=.0005, df=48). Taken together the results of Tables 6, 7, and 8 indicate that, despite the considerable stability in

achievement motivation from kindergarten to grade one (Table 6), teacher-pupil interactions (Table 7 and 8) do have a statistically significant correlation with changes in young childrens' achievement motivation scores.

In Chapter 5, these results are further elaborated upon and suggestions for future studies are offered.

CHAPTER 5

DISCUSSION

The aim in this chapter is to give a more detailed discussion of the results presented in the previous section, to suggest what some of the implications of these results might be, to comment on the strengths and weakness of this research, and to offer some suggestions for future research.

Further Discussion of Results.

As noted in the previous section, the three main hypotheses were supported. Positive feedback from the teacher is significantly correlated with increases in the achievement motivation, and negative feedback and ignoring are significantly correlated with decreases in the achievement motivation of the young pupils in our sample.

Among the positive interactions recorded, only praise defined as an obvious expression or gesture connoting warmth or excitement (i.e., excellent, fantastic) reached statistical significance; perhaps the other forms of positive interactions do not have as much impact on children aged five to six years. It was beyond the scope of this study to examine positive feedback items in various combinations, but since most of the positive interactions were directly related and, most negative feedback and ignoring inversely related to changes in achievement motivation, it is likely that such combinations would have been shown to be statistically significant. Also, we kept these categories of interactions separate for our convenience in examining them, but for children in the classrooms they are not separate items, but rather they are parts of interaction patterns. However, these patterns remain to be studied.

Negation and ignoring were both, as predicted, significantly

associated with decreases in achievement motivation. Surprisingly, although criticism was negatively correlated, it did not reach statistical significance at the .05 level; one reason for this was almost certainly the fact that teachers used criticism so rarely. Had the observations been pursued for a longer period of time enough indices of this and other forms of feedback might have been observed for statistically signficantly relationships to become apparent. It might also be useful in subsequent investigations to observe teachers who have contrasting styles of interaction with their students. Such studies, comparing teaching styles rather than interactions, might permit us to obtain a more thorough understanding of the impact of criticism on students' achievement motivation.

Another interesting finding is that children who have high achievement motivation scores in kindergarten are also likely to have high scores in grade one. High achievement motivation tends to persist, it seems, at least in the short run. This provides support for the contention of some researchers (McClelland et al., 1953, 1961) that achievement motivation becomes more stable as people grow older. However, the fact that changes in achievement motivation scores between kindergarten and grade one are significantly related to teacher-pupil interactions in this study supports Rosenberg's (1977) conclusions; he found that despite the fact that, by the age of four, achievement motivation has developed quite far, teacher behavior has powerful influence on augementing or diminishing it.

The present study was longitudinal in design, but due to practical limitations, the time span was short, the data being collected between the May to June and September to October in the same year. Longitudinal studies of greater duration might shed more light on the stability of

achievement motivation.

In general, all the intercorrelations among the teacher-pupil interactions and changes in achievement motivation made sense; even those which were not statistically significant at the .05 level were nevertheless correlated in the direction predicted. That positive intercorrelations were not usually significant was typical of simple affirmation, simple affirmation with parroting and parroting . Conceivably the use of one of these interactions might exclude the application of the other positive feedback since there is limited time for interacting with each child. If a teacher praises a child most of the time, the time for other forms of positive feedback will be limited.

Some investigators (Brophy, 1981) are beginning to discover that the type of interactions undertaken by teachers may be influenced by the age and maturity of the children. Praise appears to be more generally directed towards younger children than it is to older children. There seems to be evidence from these investigations that younger children respond better to praise than to other forms of positive feedback. This phenomenon may be behind the fact observed in the present study, namely that although all forms of positive feedback are generally associated with increases in achievement motivation, only praise reaches a statistically significant level.

Moreover, it was noted in the earlier section that grade one children were statistically more likely to receive positive feedback than when they were in kindergarten. This might be taken to imply that as children get older and have more school experience there is more of a chance for them to become acquainted with a broader range of rewards and perhaps to be influenced by them. Research in this area is merited.

Implications. This study points to two main findings: 1) Teacher behavior can enhance or depress the achievement motivation of young children; and 2) although the development of achievement motivation has progressed quite far by age six, it is nevertheless still influenced by experiential factors. Until recently, some of the most influential and frequently cited research in education (Coleman, 1966; Jensen, 1969; and Jencks, 1972) suggested that schooling makes very little difference to pupils, but that, rather, family and other background factors and genetic inheritance are what account for success in our society. This has led many to minimize the importance of school experience, including teacher behavior. However, some analysts of the work done by the above-mentioned researchers, have shown that these findings have very likely resulted from faulty research methods (Luecke & McGinn, 1975), and that the use of ethnographic techniques in natural settings will produce findings of greater ecological validity (Wilson, 1977). That this has been the case is attested to by research such as that done by Rutter et al., (1979). Thoroughly documented presentations of teacher-effectiveness studies have been published by Good, Biddle, and Brophy (1975); Brophy (1979); and Brophy (1982), among others.

The present research is another example of work which supports the contention that teachers can influence certain characteristics of their pupils. If it is true that pupils with high achievement motivation work harder and get better results in their schooling than do pupils of similar ability but with low achievement motivation, then the more we know about the relationship of teacher-pupil interaction patterns to pupil achievement motivation, the better. If we really want schools to help children to achieve the highest possible standards of learning, then

these findings have important implications for educational practice.

Clearly teacher behaviors account for some degree of variance in pupil learning. Equally clearly, it is obvious that much more research needs to be done, not so much to increase our confidence in this fact, which is now accepted by most competent researchers in education, but to learn more about what specific kinds of teacher behavior have what specific effects on children.

Strengths and Weaknesses of this Study.

The data collected in this study resulted from a research design that took advantage of people and settings that were at the time available. This was a practical necessity, as is often the case in school research, since administrators and teachers are more likely to cooperate with research that focuses on whole classes engaged in their normal activities than with studies which disrupt normal school activities. Our research is not based on a random sample. Furthermore, this researcher could not have expected teachers to adopt for the period of observation types of feedback to pupils that went against their common practice, as in the case of the classical study by Lewin, Lippit & White (1939). In opting for the study of ordinary children in their usual classroom activities, this research design lost some of the precision and control possible in classical experimentation. However, the decision to conduct a naturalistic study conferred a number of significant advantages over purely experimental research.

To the present time, achievement motivation has usually been examined in artificially induced settings where subjects have been engaged in contrived behaviors designed for a particular experimental investigation. Such studies are aimed at answering questions such as, "If teacher A used negative feedback while teacher B used positive

feedback, would there be significant changes in the achievement motivation of their pupils?" In the present study, however, the subjects remained in their usual environments, and were confronted with the usual school activities and experiences that occur year round in the real life of the classroom, whether or not research was under way. Findings from such research in naturalistic settings seem more likely to be applicable to the practical, day-to-day work of ordinary teachers in ordinary schools, and hence may be very well more useful than the results of contrived experimental research.

However, naturalistic research has shortcomings, too; one of the inconveniences of observation in natural settings is its increased supceptibility to sources of variance beyond the control of the researcher. This in turn can increase the error variance and contaminate the phenomenon under examination.

Another limitation of the present study is that the reliability of the observations reported is less than perfectly demonstrated. Due to the practical limitations of thesis research at the master's level, a single person collected the data bearing on the hypotheses. Nevertheless, there was considerable consensus in the achievement motivation measures arising from teachers ratings of pupils using their Likert-type scale and the author's use of BIAM; this suggests that BIAM has a degree of reliability. However, the fact that the measures of achievement motivation by the teachers and by the researcher came from two different sources may pose some problems. The observer was examining achievement motivation on a daily basis in the context of the usual dynamics of daily life in the classroom. The teachers, however, may have

made their judgements in retrospect rather than making day to day observations. It is conceivable that they were offering a general impression based on their recollections of the past contaminated by their knowledge of their pupils' academic achievement. There is, therefore, reason to suspect that, despite their agreement, teachers and the observer may actually have been evaluating different but related phenomena.

There is another noticeable difference in the patterns of response to the two instruments. The observer was unable to use some of the behaviors listed on the BIAM, as they rarely occurred, but the teachers, by contrast, replied to each and every one of the corresponding statements listed on the Likert-type scale. Perhaps the teachers felt unduly pressured to respond to each item, even if some of the statements may not have been applicable. However, to have asked the teachers to provide the author with the same measure as the one she was using would have been absurd, because that would have made it impossible to observe the teacher's interactions with the pupils; and besides, this would have created an artificial classroom activity that would have invalidated the naturalistic approach opted for in this research design.

Besides the problems associated with not using a random sample, and the question of reliability just discussed, there were some shortcomings in the instrument and in its interpretation that should be mentioned. The first of these is the rather crude approach that was used to quantify the results obtained from the BIAM. Achievement motivation was opertionally defined as being equal to the number of checks minus the number of prods divided by the number of days a particular child was

observed (i.e., A.M. $=\frac{C-P}{D}$). This formula does not take into account the number of minutes a child spends engaging in the behaviors listed on the BIAM (i.e., persistence). Thus, although one child might be involved in a particular behavior for longer than another, they might both receive an identical score. This fact reduces, to some as yet undetermined degree, the sensitivity of BIAM.

Another factor that weakens the power of the analysis used in this study is that it also fails to take into account combinations of all of the particular behaviors patterns engaged in by each individual participant. The analysis presented here did not indicate whether a particular pupil has exhibited all nine behaviors or only one of the nine. In general, the approach employed in this study is not useful for describing and analyzing differences.

As for the instrument itself, BIAM has certain limitations. Being very time consuming, it lends itself to the intensive study of rather small samples. And, as is undoubtedly true for any new instrument, not all parts of it were found equally useful. Some of the behaviors in this instrument were barely in evidence with this age group. For instance, it appeared that pupils in these kindergarten and grade one classes had little opportunity to "help others' simply because the teachers took on this role. Another behavior which was rarely observed was "repeating acitivity until fully mastered". This ability may well be more characteristic of older children. The item "checking work before submitting" and "persistence after failure" were also uncommon among this age group. The item "eagerness to learn new material" was difficult to perceive in terms of behavior. Hence, this instrument may have contained

behaviors which could not have developed until later or behaviors which were not really descriptors of the construct under study.

Despite these and perhaps other drawbacks, there are several advantages that appeared to justify the use of the BIAM.

First, the BIAM avoids the problems of sex, race, and linguistic biases which were typical of earlier instruments used in this field. Because the author observes the behaviors, the subjects need not work directly with the instrument, as was the case with Animal Crackers (1975), with the Self-Concept and Motivation Inventory (Milchus, Farrach, & Reitz, 1967, 1968), or Kanugo and Bhatnagar's achievement scale (1978) for example; also, the BIAM avoids the obvious cultural bias inherent in the well known TAT (1938).

Second, this instrument allows the researcher to study achievement motivation in a natural context - in this case, the classroom. There was no need to remove the subjects from their usual environment. Hence, the disadvantages associated with test anxiety were avoided, as was uncertainty concerning the ecological validity of findings resulting from the use of experimental methods.

It is mainly for these reasons that the decision was made to develop a new instrument, after serious attempts to find existing measuring devices that could be used in the settings available had failed. It seems that, in spite of its acknowledged shortcomings, the BIAM was more useful than any established test available at the time this research was done.

Finally other kinds of statistical analyses might have provided more powerful analyses of the data. Rather than using change scores based on

comparisons of results from pre and post tests, it might have been better to use regressed change scores which allow for the extraction of error variance. However, the present hypotheses were not stated as a problem susceptible to regression analyses. Hence, to have conducted such analyses would possibly have led to findings not directly related to the hypotheses.

In summary, the above limitations in instrumentation, research design, and analyses indicate that the results, as is usual for this kind of research, must be interpreted with caution.

Suggestion for Future Research.

One suggestion for later studies is to conduct a path analysis, rather than a simple intercorrelation matrix of the teacher-pupil interactions. This may allow a future investigator to get a better estimate of the predictibility of achievement motivation from these interactions.

Secondly, if the BIAM is to be considered as a potentially valuable instrument, proper reliability and validity analyses is required. Thirdly, modifications of the formula $A.M.=\frac{C-P}{D}$ are also needed to increase the sensitivity of the BIAM.

Fourthly, a more thorough consideration and examination of the behaviors included on the BIAM is vital. A longitudinal study of some years duration, as well as shorter studies of children of different ages may be appropriate to help decide which behaviors develop as a function of age, maturity and experience. Such investigations might also help to resolve the uncertainties arising from opposing views concerning the

degree of stability or changeability of achievement motivation, and at what ages.

Ideally, then, a longitudinal study observing a group of children throughout their school years should give us a better understanding of the degree of impact teacher behaviors have as a function of pupils' ages.

Summary and Conclusions

This study was an investigation of usual interaction patterns of teachers and pupil in ordinary classrooms, and their influence on pupils' achievement motivation. The purpose was to examine whether levels of achievement motivation change in the presence of certain experiences. The correlations between achievement motivation and teacher-pupil interactions were analyzed. Achievement motivation was measured by an instrument designed for this study, called the Behavioral Index of Achievement Motivation (BIAM). Teacher-pupil interactions were recorded using a teacher-student interaction coding scheme also designed for this study, similar to Brophy and Good's (1969, 1970) Dyadic Interaction Analysis. A post-hoc intercorrelation matrix of teacher pupil interactions aimed at investigating the validity of the BIAM was also examined, as well as an examination of teacher-pupil interactions with kindergarten and grade one children. Reliability data for the BIAM were also compiled and analyzed. Generally, the results indicated a fairly good correlation between the achievement motivation estimates made by kindergarten teachers and those made by the observer's use of the BIAM.

The general hypotheses underlying this research received support. We found that despite the relative persistence in achievement motivation scores from kindergarten to grade one, teacher-pupil interaction patterns (i.e., praise, negation and ignoring) seemed to influence achievement orientation of pupils. However, care should be taken in generalizing from these results because of the small size of the sample, the select nature of the population, the complexity and novelty of the BIAM, and the sources of error variance characteristic of studies of this type.

However, even though the BIAM is a new instrument, it does appear to be a promising measurement device. Clearly, it needs refinement, but it nevertheless helps to provide a meaningful, behavioristic approach to the study of achievement motivation, an area which for too long has been studied without reference to natural settings in which the levels of achievement motivation are important elements of success or failure.

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APPENDIX A

BEHAVIORAL INDEX OF ACHIEVEMENT MOTIVATION (BIAM)

Date:_____ Subjects Name:_____

Grade Level:_____ Task Name:_____

Class:_____

Persists	Tries New Response	Completes	Repeat Activity Until Mastered	Eager To Learn New Material	Checks For Mistakes	Helps Others	Attempts Tasks Difficult	Persists After Failure
✓	I.A.	✓	B	B	F	P	I.A.	✓
✓	B	✓	B	✓	P	B	✓	B
P	B	✓	B	P	P	B	F	P
✓	B	✓	B	B	B	B	P	P
✓	I.A.	✓	B	B	F	P	I.A.	✓

Check Mark (✓) - indicates that the behavior was initiated by the child.

Prodding (P) - indicates that the behavior was initiated by the teacher.

Indirect Assistance (IA) - the child attempts to get help without asking the permission of peers (i.e., cheating).

Friend (F) - the child asks friend for assistance.

Gives UP (-) - the child relinquishes the activity.

Blank (B) - behavior was not observed.

A description of these behaviors is given on the next page.

Explanation of Behaviors on the BIAM

Persistence at task: working diligently and reflectively on a task. It is a relation between the time spent on task relative to the time spent off task. A general form of persistence;

Tries new response: faced with an inappropriate solution, the subject attempts to solve the problem using a more expedient solution - strategy;

Completes activity until fully mastered: resumption of an activity occasioned by the child's interest and not because of external pressure of some sort;

Repeats same activity (Maehr, 1976 termed this "continuing motivation"), the tendency to return to work on tasks away from the context in which they were initially confronted. The resumption of these activities is presumed not to be instigated by external pressure of some sort. Thus the child spends the free period redoing or repeating some of the day's events.

Eager to learn new material: a preference is shown for a novel, but not necessarily difficult task;

Checks for mistakes before submitting: work is examined for errors before submission;

Helps others: comes to the assistance of fellow students in academic trouble and assumes a teacher-role;

Attempts difficult tasks: the individual undertakes challenging tasks. The tasks here are both novel and difficult; and

Persistence after failure: the subjects resumes a previously failed task.

APPENDIX B

Likert-Type Scale Used As A Measure Of Reliability By Teachers.

Instructions to Teachers:

The following is a scale-type measure used to assess students' motivation to achieve. The respondent is asked to circle the most appropriate answer for each statement on each student.

1. This student starts a new activity before completing the old activity.

    a. almost always
    b. usually
    c. occasionally
    d. usually not
    e. almost never
    f. can't say

2. This student persists working on the problem in the same way even though the results are not very successful.

    a. almost always
    b. usually
    c. occasionally
    d. usually not
    e. almost never
    f. can't say

3. This student tries new responses to solve any task when old responses do not seem to work.

   a. almost always
   b. usually
   c. occasionally
   d. usually not
   e. almost never
   f. can't say

4. This student completes the task at hand.

   a. almost always
   b. usually
   c. occasionally
   d. usually not
   e. almost never
   f. can't say

5. This student repeats the same activity until fully mastered.

   a. almost always
   b. usually
   c. occasionally
   d. usually not
   e. almost never
   f. can't say

6. This student is eager to learn new material

   a. almost always
   b. usually
   c. occasionally

d. usually not

e. almost never

f. can't say

7. This student will check carefully for mistakes before handing work in.

a. almost always

b. usually

c. occasionally

d. usually not

e. almost never

f. can't say

8. This student takes the initiative to help other.

a. almost always

b. usually

c. occasionally

d. usually not

e. almost never

f. can't say

9. This student makes attempts to do things even when they seem difficult.

a. almost always

b. usually

c. occasionally

d. usually not

e. almost never

f. can't say

10. This student persists with the task at hand even after having failed it initially.

    a. almost always

    b. usually

    c. occasionally

    d. usually not

    e. almost never

    f. can't say

APPENDIX C

Teacher-Student Interaction Coding Scheme

Subject's Name:_____ Date:_____

Achievement Motivation Pre-Score:_____

Achievement Motivation Post-Score:_____

	Praise
	Simple Affirmation
	Simple Affirmation With Parroting
	Parroting
	Information
	Negation
	Criticism
	Ignoring
	Procedural Commands
	Academic Commands
	Disciplinary Commands
	Who Initiated Interaction: Teacher/Child
	Child's Response Waited/Raised Hand
	Task Relevant
	Task Irrelevant
	Academic Work
	Non-Academic Work
	Additional Comments/ Observations

APPENDIX D

Table 2 (Continued)

Kendall's Rank Correlation for Observer and Grade One Teachers' Reliability and Grade One Teacher's Self-Reliability

Comparisons	Kendall's Tau	Significance
Grade One Teacher C's class with observer's observation on first administration of Likert-type scale; (N=25)	.52	.001*
Grade One Teacher C's class with observer's observation on second administration of Likert-type scale; (N=25)	.12	.212
Grade One Teacher C's class self reliability; (N=25)	.16	.144
Grade One Teacher D's class with observer's observations on first administration of Likert-type scale; (N=25)	.11	.233
Grade One Teacher D's class with observer's observations on second administration of Likert-type scale; (N=25)	.24	.052
Grade One Teacher D's class self-reliability; (N=25)	.43	.002*

*P<.05