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The Effects of Goal Setting on the Academic Achievement, Motivation, and Confidence of Bright Underachievers

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ABSTRACT

The research participants included 16 students in grades five to seven who were enrolled in a program for gifted students. These students were labelled bright underachievers because teachers, parents, and the students, themselves, believed that they could achieve to a higher level in one or more of the academic subjects. The eight students who participated in lessons aimed at increasing achievement motivation formed the treatment group; the remaining students were assigned to the control condition. First, this experiment investigated the effects of goal setting and monitoring of performance on academic achievement. These strategies were generally associated with an increase in the treatment students' academic achievement levels as indicated by achievement scores and teachers' ratings of their academic performances. In addition, the study investigated whether awareness of the characteristics of achievers would encourage students to behave like achievers. It was discovered that awareness stimulated achievement behaviours. For example, the teachers' posttreatment ratings of the degree to which the treatment students displayed seven out of the nine characteristics of achievers increased significantly. In addition, the treatment students believed that they significantly increased the extent to which they emulated eight of the nine characteristics of achievers as illustrated by their posttreatment self-ratings. However, the control group which did not receive lessons outlining the characteristics of achievers did not significantly increase their achievement behaviours as revealed by the teachers' and the control students' posttreatment ratings. Furthermore, a statistical

comparison of the control and treatment groups' self-ratings during the posttreatment suggested that students who received treatment believed that they displayed eight of the nine characteristics of achievers to a significantly greater extent than the control students. The study also examined the effects of obtaining subgoals and the superordinate goal on the treatment group's motivation to achieve. Due to the ceiling effect created by the treatment group's pretreatment motivation rating, the results did not confirm the benefits of attaining subgoals and the final goal on motivation to achieve. Finally, the benefits of achieving subgoals and the superordinate goal on the treatment group's confidence in ability to achieve was evaluated. An increase, at the .06 level of significance, in the treatment group's posttreatment confidence rating generally supported the claim that confidence would increase as the student achieved his subgoals and the final goal.

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Chapter 1

Introduction

Statement of the Problem

It is most frustrating to observe students who have tremendous academic potential behave as if they are unmotivated to learn and achieve in school. Such students are labelled, bright underachievers. Underachievement is defined as the discrepancy between a child's school performance and some ability index such as an IQ score (Davis & Rimm, 1989; Raph, Goldberg, & Passow, 1966). Statistics indicate that as many as one half of our gifted students underachieve in the school setting (Davis & Rimm, 1989). Purkey (1969) believes that bright underachievers who function below their ability levels year after year become relatively non-productive members of adult society. In addition, "they waste educational resources, try the patience of even the best teachers, manipulate their families toward chaos and destroy their own confidence and sense of control" (Rimm, 1986, p. 2). Since our culture values the maximum development of its individuals as well as their contributions to society, it is vital that attempts be made to reverse the underachievement syndrome. Gardner (1961) states,

> Our society cannot achieve greatness unless individuals at many levels of ability accept the need for high standards of performance and strive to achieve those standards within the limits possible for them....the fact that large numbers of American boys and girls fail to attain their full development must weigh heavily on our national conscience. (p. 131)

According to Delisle & Berger (1990) underachievement is a behaviour and, therefore, can change over time. When the underachieving behaviour pattern is reversed, "...the child frequently makes unusual progress in skill acquisition and in positive, productive work" (Davis & Rimm, 1989, p. 303). Thus, it is apparent that research must continue to be conducted in order to discover additional strategies that will enable the teacher to reduce the occurrence of underachievement in gifted students. Afterall, these students are society's greatest potential resources.

Purpose of the Study

"The vast majority of studies investigating goal setting have been short-term laboratory studies using simple and, often, artificial tasks which may bear little relationship to the type of learning problems encountered in schools" (Gaa, 1973, p. 23). Research has only, recently, begun to focus on the effects that goal setting and goal setting conferences have on the student's performance in ongoing classroom situations (Gaa, 1979).

In this present study, gifted underachievers strove to obtain language arts or math goals. Subgoals were also established to help these students understand the steps required in order to achieve their final goals. The purpose of this study was fourfold. First, the effects that goal setting and monitoring of performance would have on the student's academic achievement in the classroom setting was examined. Second, the study investigated whether the student, if aware of the characteristics of an achiever, could learn to behave like an achiever. A third purpose of the study was to determine if the student's motivation to achieve would increase as he attained the subgoals and the

superordinate goal. Finally, the effects of obtaining the subgoals and the superordinate goal on the student's confidence in his ability to achieve was studied.

There were some limitations in the study's design that will be discussed in Chapter 3.

Chapter 2

Review of the Literature

Although much research has been conducted in the area of goal setting, very few studies are concerned with the effects of academic goal setting on the performance and behaviour of elementary and junior high school students. The purpose of this chapter is to review the research on academic goal setting that is pertinent to students at the elementary and junior high school levels. First, there is a discussion of the effects that setting academic goals have on student achievement and perceived self-efficacy. In addition, achievement motivation strategies for students are highlighted, and, finally, the relationship between goals and motivation is summarized.

The Relationship Between Goals and Academic Achievement

Kennedy (1968) studied the effects that different goal conditions had on students' acquisition and retention of mathematical concepts. The 48 subjects were third- and fourth-grade students chosen from three arithmetic classes that represented high, medium, and low arithmetic achievement levels. Within each achievement-level class, the students were randomly assigned to one of four goal treatment conditions--do best, self-set, teacher-set and control.

During the six week treatment phase, students in the do best group were told to do their best, students in the self-set group were asked to set a specific math goal, and students in the teacher-set group had specific goals established for them. The students in all three of the goal conditions received weekly conferences to discuss their progress. The control students did not set math goals or participate in weekly conferences.

Acquisition was measured by performance during the six week experiment. A two-way analysis of variance was used to compare the acquisition means between the treatment groups that received conferences and the control groups which did not participate in any conferences. Although the comparison did not reach statistical significance, the acquisition mean was higher for the groups that received conferences. In addition, students who strove for specific goals had a higher acquisition mean than students who set general goals.

Retention was measured by students' scores on an arithmetic achievement test administered at the conclusion of the experiment. A two-way analysis of variance indicated that the groups participating in conferences outperformed those students who did not have conferences. A further comparison revealed that students in the specific goals conditions had a significantly higher mean retention score than students in the do best conditions.

Fletcher (cited in Kennedy, 1968) states, "the results of Mrs. Kennedy's study clearly indicate the beneficial effects of weekly pupil-teacher conferences and the advantages of setting specific weekly achievement goals..." (p. iii).

Sagotsky, Patterson, & Lepper (1978) examined the individual and joint effects of self-monitoring and goal setting on the math achievement of 67 students in the fifth and sixth grade. At the time of the experiment, these students were participating in an individualized mathematics program. During each math period, the students worked at their own speeds and were responsible for reaching an acceptable level of mastery before they could advance to the next math unit. The experiment allowed the students to continue with the individualized math program, but randomly assigned them into four

different groups (goal setting, self-monitoring, goal setting and self-monitoring, and control). Each group's math achievement was monitored prior to the experimental phase.

During the treatment phase, the four groups received different instructions. Each student in the goal setting condition was asked to preview his math unit and, then, to set a goal relating to the number of problems he believed he could complete within the period. At the end of the math period, the student evaluated whether he had achieved his goal. Each self-monitoring student was told to periodically monitor his own behaviour during the math period. If the student believed he was on task, he would notate a "+" on the math monitoring sheet; if he was off task, a "-" would be recorded. The goal-setting-and-self-monitoring group received both sets of instructions, and, finally, the control subjects received no instructions for self-monitoring or goal setting.

In this study, experimental effects were analyzed in terms of difference scores assessing changes in subjects' behavior from the baseline to the treatment phases of the experiment. Analysis of variance revealed that the self-monitoring technique produced significant increases in math achievement. Exposure to goal setting, however, had no significant effect on achievement. Finally, contrary to the hypothesis, the goal setting instructions did not significantly enhance the effectiveness of the self-monitoring strategy. However, Sagotsky et al. (l978) suggest that "...the complex and heterogeneous mathematics materials involved in the study may have been ill-suited for successful application of goal-setting techniques, as the difficulty level of the problems contained in the curriculum varied widely from unit to unit and sometimes from page to page, making reasonable estimates of daily achievement a complicated task" (p. 251).

Piirto (1987) studied the effects that goal setting had on the math achievement of grade four students. A goal setting unit was introduced to an entire class of thirty students; however, five boys were chosen as the target group. These five boys had scored poorly on the Racine Unified District Math Diagnostic test. In addition, they exhibited a lack of concentration and poor organizational skills.

The intervention exercises were based on the workbook, Learning to Achieve, by Johnson & McClelland (1984). Each student engaged in the following six steps to achievement:

1. Studying Himself
2. Getting Goal Ideas
3. Setting a Goal
4. Planning to Achieve the Goal
5. Striving to Achieve the Goal
6. Evaluating His Achievement

Also, the teacher discussed the definition of achievement and introduced the class to the characteristics of achievers described in Johnson & McClelland's (1984) book.

The treatment phase continued for eighteen weeks. Each student was responsible for establishing his own math goal, adopting a suitable plan, and evaluating his success at meeting the goal. Daily grades and unit test scores provided the students with information from which to evaluate their progress.

The scores on the math diagnostic test given before the intervention formed the baseline data. Posttreatment data were collected from the midyear diagnostic test. Piirto (1987) reported that the results of the study did not indicate that goal setting was

an effective strategy to help low-achieving math students improve their math scores. Only one of the five targeted students improved his score on the midyear math diagnostic test. However, engaging in the goal setting process did appear to motivate the students to accept more responsibility for their education and behaviour (Pirrto, 1987).

Gaa (1979) conducted a study using two tenth-grade English classes to determine the effects of individual goal setting conferences on academic achievement. He employed a 3 X 2 X 2 randomized block design using the variables of treatment group (goal setting, conference, and control), level of previous achievement, and sex.

Students in the goal setting group received weekly individual goal setting conferences. During these conferences, the students were given feedback regarding their classroom reading performances and their progress in meeting the goals they had set the previous week. In addition, the students discussed goals for the coming week and the appropriate strategies for accomplishing those goals. The conference group participated in weekly individual conferences, but no goals were set during the conferences. This would ensure that any effects found for the goal setting group could not be attributed to personal interaction during the conferences. The control group did not participate in any conferences.

Teacher-developed classroom tests were administered weekly so that each student in the goal setting group could be given feedback pertaining to his academic achievement. Performances on the test administered after the six-week treatment period provided the data for the analysis of the effect of goal setting on achievement. An examination using analysis of covariance, with the score on the initial teacher-made test as the covariate, illustrated that the treatment of goal setting had a significant effect on reading

performance across treatment groups.

Rosswork (l977) examined the effects of goals and incentives on the academic performances of 80 grade six students. The aim of her study was to determine if Locke's (l968) finding that specific difficult goals lead to greater performance than goals of "do your best" would apply to elementary school students. Rosswork used a 2 X 2 X 4 experimental design with two types of goals (specific difficult goals and do-your-best goals), two levels of ability (low and high), and four levels of monetary incentives (zero, low, medium and high). A pretest (Trial 1) was administered to the students asking them to create a sentence of at least four words for each word on a spelling list. At the end of the five-minute testing period, the experimenter counted the number of sentences with four or more words that each child had written. The 80 subjects were randomly assigned to eight treatment groups, each consisting of ten students.

Students in four of the groups committed to a specific difficult goal. Each group received one of the four variations of incentives. The remaining four groups were given a nonspecific goal of "do your best" and each group received one of four levels of incentives. Trial 2 was administered which consisted of the identical task given in Trial 1. On Trial 3, the incentives were removed for all groups.

By using the multivariate analysis of covariance with the Trial 1 performance as the covariate, it was discovered that specific difficult goals created significantly higher levels of performance than nonspecific goals across the various incentive conditions (Rosswork, l977). In addition, the results of the univariate analysis of covariance indicated that, in Trial 2, groups assigned the specific difficult goal maintained significantly higher performances than the nonspecific goal groups. In Trial 3, when the

incentives were withdrawn, the univariate analysis of covariance revealed that the specific difficult goal caused performance to remain at a significantly higher level. "Thus Locke's (1968) findings concerning the efficacy of specific difficult goals would seem to be applicable to elementary school children on academic kinds of tasks" (Rosswork, 1977, p. 714).

Punnet (1986) hypothesized that students assigned specific difficult goals would outperform those students asked to do their best. Analysis of each group's performance on a spelling exercise was used to test this hypothesis. The subjects included 30 grade six students who were randomly assigned to two groups. Both groups were given a passage to read that contained 90 misspelled words. The members in group one were asked to do their best by trying to find as many spelling mistakes as possible. Group two members were given a specific difficult goal of finding 84 spelling errors.

The experiment revealed that students in the do best group found an average of 57.0 spelling errors; whereas, the subjects in the specific goals group were able to find an average of 64.9 mistakes. The results, although they were in the expected direction, were not significant at the .05 level.

The Effects of Goals on Academic Achievement and Self-Efficacy

Gaa's (1973) experiment studied the effects of individual goal setting conferences on reading achievement and confidence in reading ability. Fifty-four students in grades one and two were involved in the study. Gaa used a 3 X 3 X 2 randomized block design with three treatment groups (goal setting, conference, and control), three levels of previous reading achievement and two sexes.

Each student in the goal setting group received a weekly individual conference to determine which goal(s) outlined on the goal setting checklist he would strive for during the coming week. In addition, the student was asked to rate the confidence he had in his ability to reach the goal(s) he had set. At the end of each week, the teacher rated each student's performance on the goal(s) he had committed to on the goal setting checklist. This enabled each student in the goal setting group to receive feedback on how well the teacher thought he had achieved his goal(s) during the week.

Students in the conference group received weekly individual conferences but did not set specific goals. In addition, these students did not receive feedback concerning their reading performances. The conference group was established to ensure that any effects found for the goal setting group could not be attributed to social interaction during the conferences. The final group, the control group, did not receive any individual conferences.

In the fourth week of the treatment phase, all students in the conference and control groups received the same goal setting conference as the students in the goal setting group to allow the experimenter to examine the effects that goal setting conferences had on confidence in achieving reading goals. In addition, during the posttreatment assessment, students were re-administered the appropriate subtests of the Wisconsin Test of Reading Skill Development in order to determine if reading achievement gains had occurred.

Examination of the confidence ratings revealed that students in the goal setting group had less confidence in their abilities to meet their desired goals. Gaa (1973) suggested that the lower confidence scores may have indicated that the goal setting

students had more realistic perceptions of their chances for success as a greater number of students in the goal setting group realized that they required help in learning the skills and reaching their goals.

The multivariate analysis of variance of reading scores on the chosen subtests revealed significant differences in achievement related to treatment. The achievement score comparison between the goal setting group and the non-goal-setting groups (conference and control) indicated that the goal setting students scored significantly higher.

Bandura & Schunk (1981) led an experiment using 40 students, ranging in age from 7.3 to 10.1, who displayed gross deficits in arithmetic skills. It was hypothesized that self-motivation through proximal subgoals would enhance mathematical competencies and self-percepts of efficacy. Bandura (1977b) defined self-efficacy as a personal judgement relating to how well one believes he will be able to organize and implement actions in situations that may consist of new, unpredictable and stressful elements. During the pretreatment phase, the students were given a subtraction test to confirm that there were substantial deficiencies in their mathematical skills. Also, each student used a one-hundred-point rating scale to judge his perceived self-efficacy at solving subtraction questions.

The children were assigned to one of four groups: proximal goals, distal goals, no goals, and no treatment. Each student was given a package containing directions on how to subtract and several pages of subtraction questions. The experimenter suggested to the students in the proximal goals group to set the goal of completing at least six pages during each session. Students in the distal goals group were told to set the goal of

completing the 42 pages of the package by the end of the seventh session. The no goals group was not told to set a goal but, instead, was asked to try to complete as many pages as possible during each session, and, lastly, for those students in the no treatment group, the experimenter did not make any suggestions for performance.

Intergroup comparisons between the first posttreatment means for the different treatment conditions revealed that students in the proximal subgoals group had significantly greater levels of perceived self-efficacy than the students in the distal, no goals, or control conditions. Intragroup comparisons of the changes in the strength of self-efficacy suggested that students in the proximal subgoals group substantially increased their perceived self-efficacy levels; whereas, there were no significant differences for students in the control group. Children oriented towards distal goals yielded a moderate increase and, finally, the no goals condition produced a modest increase in perceived self-efficacy at a borderline level of significance.

Furthermore, the intergroup comparisons of arithmetic performance during the posttreatment phase indicated that the students in the proximal subgoals group produced scores significantly greater than the students in the other groups. In addition, the t-test between the pre and posttreatment performances of students in the proximal goal condition revealed a significant increase.

Schunk (l983) studied the effects that goal difficulty and attainment information had on children's achievement and percepts of self-efficacy. The subjects included 40 elementary school students ranging in age from nine to eleven. These students were chosen because they had failed to master division skills in their regular classrooms.

All subjects were administered the pretest which consisted of two parts:

self-efficacy judgements and a division skill test. First, the students were shown 14 sample pairs of division problems and were asked to judge their levels of self-efficacy for correctly solving each pair. Each student's final self-efficacy score was the average of the 14 judgements. Next, the division skill test was administered which included 14 division problems. The measure of skill was determined by the correct number of problems the child solved.

Following the pretest, the students received two 45-minute training sessions. During these sessions, they worked on two training packages. The 40 students were divided into four treatment conditions: (l) high goal difficulty with comparative attainment information (high-comparative), (2) high goal difficulty with direct attainment information (high-direct), (3) low goal difficulty with comparative attainment information (low-comparative), and (4) low goal difficulty with direct attainment information (low-direct). Students in the comparative groups were told that other similar children completed the number of problems that constituted the goal they were being asked to strive for. Students in the direct goal attainment groups were, simply, asked to strive for a certain goal.

The comparison among the different treatment groups revealed that self-efficacy scores of students in the high-direct condition were significantly higher than the self-efficacy judgements made by students in the high-comparative and the low-comparative groups. In the area of division skill acquistion, analysis of covariance suggested that groups given difficult goals significantly increased their skills. Schunk (I983) stated that "combining difficult goals with direct attainment information led to the highest levels of self-efficacy and skill" (p. I07).

Achievement Motivation Strategies

Kolb (1965) studied the effects that an achievement motivation training program had on a group of underachieving boys who were an average age of 14. Achievement motivation is a process of planning and striving for excellence and progress (Alschuler, 1973). The training program was based on McClelland's (cited in Kolb, 1965) research on achievement motivation. The 57 high school boys participating in the experiment had a mean IQ score of 126 and a mean school grade average of a D to D+. Twenty of the 57 students received the program; the remaining 37 students formed the control group.

The program consisted of the following activities: (a) learning how an individual with a high need for achievement assumes personal responsibility, engages in moderate risk-taking, and uses knowledge of results, (b) playing games while keeping in mind the characteristics of an achiever, (c) discussing the relationship between achievement thinking and achievement behaviour, (d) analyzing and scoring stories based on the need for achievement scoring manual, and, finally, (e) engaging in individual counselling sessions to learn how to apply the achievement characteristics.

A comparison of the experimental and control groups' changes indicated a significantly greater need for achievement in students who participated in the training program. In addition, the experimental group achieved a significantly higher total grade average than the control group. Thus, "the experimental group's improvement over controls in school grades lends encouraging support to the hypothesis that teaching under-achieving boys the characteristics of the person with high achievement motivation can lead to better academic performance" (Kolb, 1965, p. 792).

McClelland and Winter (1969) suggest that an individual with a high need for

achievement behaves like a successful, rationalizing business entrepreneur. He sets moderately difficult goals that maximize the likelihood of achievement satisfaction. In addition, the individual is interested in concrete feedback in order to determine how well he is progressing. Finally, a person with a high need for achievement assumes personal responsibility for problems so that he is able to feel a sense of achievement satisfaction when the task has been completed.

McClelland established classes in the United States in an attempt to strengthen adults' achievement motivation. The trainees wrote achievement-oriented stories that allowed them to recognize achievement-oriented thoughts. In addition, they were asked to apply this new knowledge and understanding of achievement-oriented thinking to their own behaviours. Each trainee was encouraged to set specific goals for the future and to establish plans to meet those goals. These classes were successful at stimulating more energetic, innovative and entrepreneurial behaviour among adults (McClelland & Winter, 1969).

The success of these training programs led to the following question: Can achievement motivation in adolescents be increased? Most of the studies on the effects of achievement motivation courses on student performance have been conducted by the Harvard group under the general direction of McClelland, or by the St. Louis team led by deCharms (Alschuler, 1973). McClelland's group gave students brief intensive courses which were separate and distinct from what was occurring in the classroom. The achievement motivation courses for students involved teaching them how to think, talk, and act like a person with a high need for achievement. The St. Louis team, on the other hand, trained teachers and showed them ways to integrate the motivation course into the

classroom. In this way, the students received motivation training as part of their regular instruction throughout the entire year.

McClelland & Alschuler (cited in Alschuler, 1973) report that the approach used by the Harvard group has produced inconsistent and unimpressive results. However, dramatically different results have been reported by deCharms' group. For example, Ryals (cited in Alschuler, 1973) found that students who received training in achievement motivation from their teachers achieved significantly higher scores on the vocabulary, reading, language and arithmetic subtests of the Iowa Test of Basic Skills. In addition, the study revealed that achievement motivation training administered by classroom teachers became even more effective when conducted throughout the school year. The deCharms projects "...leave little doubt that achievement motivation training can have fairly dramatic effects on school performance if it is properly understood by teachers and integrated throughout the year with their regular classroom work" (Alschuler, 1973, p. 249).

Alderman (1990) states that in order for a student to acquire a high level of motivation, he must be aware of how he contributed to his success; there must be a link between what the student did and the outcome. Alderman developed the Links-To-Success model to help the student become successful at school and to increase his motivation and sense of self worth.

There are four links in the model. The first link to success is the setting of a proximal goal. Goals enhance self-motivation by providing a target by which an individual can evaluate or monitor his performance (Bandura, 1986). However, Locke (1968) cautioned that some goals are more effective at providing standards for the

self-evaluative process. He suggested that effective goals are specific, hard but attainable, and proximal. Before the setting of a goal, the teacher needs to use informal and formal tests as well as observations to determine at what level the student is working; then, the student and teacher can jointly decide on an appropriate proximal goal.

In link two, the student identifies and utilizes learning strategies that will aid him in accomplishing his goal. Examples of learning strategies include rehearsal techniques, comprehension-monitoring, summarizing, etc. Link two is of great importance as Pressley and Levin (cited in Alderman, 1990) suggest that the low-achieving student often fails to use a beneficial learning strategy.

Link three involves the student in deciding how much progress he has made. Progress is measured using the proximal goal criterion.

Finally, in link four, the student is encouraged to link his success to personal effort, the use of effective learning strategies and/or to increased ability. The teacher can help the student make the correct attribution by providing feedback that describes why the student succeeded or failed; this feedback should include information about effort, learning strategies and ability.

"The Links-To-Success model is not an algorithm but rather a guide for fostering students' motivation for success and self worth. It is flexible: any link of the chain can be the starting point" (Alderman, 1990, p. 30).

The Relationship Between Goals and Motivation

Albert Bandura has done extensive research on the relationship between goals and

motivation. His findings are highlighted in this section.

Social cognitive theory maintains that goals enhance motivation through self-reactive influences; an individual responds evaluatively to his performance while striving for the goal (Bandura, 1986). A perceived negative discrepancy between the person's achievement and his established goal creates dissatisfaction which provides the motivation to increase effort. The more dissatisfied the individual is with his achievement level in relation to his goal, the more he will heighten his effort. Self-evaluation is most effective when there are personal standards established and feedback pertaining to the level of performance attained. The absence of one of these factors will result in lowered self-motivation (Bandura, 1986).

In addition, Bandura (1986) suggests that "...the relationship between degree of perceived discrepancy and performance motivation is not linear" (p. 469). If an individual's performance falls substantially below the set standard, he may doubt his ability and abandon the goal. However, moderately discrepant performances which do not jeopardize the individual's perceived efficacy for attaining the established standard results in self-dissatisfaction and increased effort as the individual strives to obtain the standard. Finally, achievement levels slightly below a challenging standard can result in a high level of motivation when the individual believes he can meet or surpass the standard. When the goal has been obtained, Bandura and Cervone (cited in Bandura, 1986) suggest that the individual generally continues to motivate himself by setting more challenging goals that create new discrepancies to be mastered.

There are three properties of goal structures that will enhance the self-reactive process, thereby increasing self-motivation. These properties include goal specificity,

goal challenge, and goal proximity.

First, "the extent to which goals create personal incentives and guides for action is partly determined by their specificity" (Bandura, 1989, p. 42). Bandura (1986) believes that specific goals enhance motivation and provide guides for appropriate performance. Furthermore, specific goals help to foster self-satisfaction by furnishing the individual with unambiguous signs of personal accomplishment. On the other hand, "general intentions, which do not designate a performance level, provide little basis for regulating one's effort or for evaluating how well one is doing" (Bandura, 1986, p. 472).

Secondly, the challenge of the goal affects the level of performance motivation. Effort is enhanced when self-satisfaction is contingent upon achieving challenging goals as opposed to easy goals. However, when goals are set unrealistically high, and strong effort produces failure, motivation to achieve the goal will be sufficiently reduced (Bandura, 1986).

Thirdly, goal proximity can determine the amount of motivation the individual brings to the task. "A proximate standard serves to mobilize self-influences and direct what one does in the here and now. Distal goals alone are too far removed in time to provide effective incentives and guides for present action" (Bandura, 1989, p. 45). Bandura (1989) comments that proximal subgoals which are attainable and arranged hierarchially may enhance motivation because the individual is able to evaluate his performance as he strives for the superordinate goal. In Bandura's (1986) words, "...subgoal attainments produce the efficacy information and self-satisfactions that sustain one's efforts along the way" (p. 475).

Summary

Two studies--Sagotsky et al. (1978) and Piirto (1987)--that examined the relationship between goal setting and academic achievement did not produce results to support the opinion that goal setting increases students' academic achievement levels. However, the remaining studies discussed in this literature review indicated that goal setting was an effective strategy to increase academic achievement when the goals were specific, difficult or proximal. Also, goal setting conferences employed to discuss and evaluate the student's goals appeared to positively influence the effectiveness of those goals.

In addition, two studies that examined the effect of academic goal setting on perceived self-efficacy revealed that proximal goals and the combination of direct attainment information with difficult goals enhanced self-efficacy levels. Gaa's (1973) study, however, found that the students assigned to the goal setting group had less confidence in their abilities to succeed than the students in the control condition.

The research pertaining to achievement motivation training suggested that significant gains in achievement motiviation resulted if the teacher incorporated the training into the regular classroom activities throughout the school year. In contrast, McClelland and Alschuler (cited in Alschuler, 1973) concluded that achievement motivation courses conducted by experimenters, for a short time period, outside of the regular classroom, have not produced as impressive results.

Finally, the research on the relationship between goals and motivation indicated that obtainable academic goals serve to enhance motivation because the student attempts to match his performance level to the set expectation. Also, goal specificity, goal

challenge and goal proximity were three goal properties that Bandura (l986) suggested would increase self-motivation.

Few research studies have been concerned with the effects of academic goal setting on the performances and behaviours of elementary and junior high school students. The purpose of the present study was to continue this research direction and to incorporate a new dimension by focusing on the gifted underachiever. First, the experimenter investigated the effects of goal setting and the monitoring of performance on academic achievement. In addition, the achievement motivation program presented the characteristics of an achiever in an attempt to help the student learn to behave like an achiever. Finally, the effects of obtaining subgoals and the superordinate goal on the student's motivation to achieve and his confidence in ability to achieve were examined.

Chapter 3

Method

Participants

Sixteen students in grades five to seven who were enrolled in the Sooke School District's program for gifted students were selected for this study. The gifted program services students who demonstrate the capacity for highly intelligent behaviour. IQ scores based on the Wechsler Intelligence Scale for Children-Revised and scores on standardized achievement tests are used to identify gifted students. Most students serviced by this program have IQ scores of 123 or above. The thirteen boys and three girls in this study had IQ scores that ranged from 123 to 142. Eight of the students, after consultation with their parents and regular classroom teachers, decided that they were not performing to their academic potential and, therefore, wished to participate in the program to increase achievement motivation. These students formed the treatment group. The remaining eight students did not enroll in the achievement motivation unit but were chosen to represent the control group; the teachers believed that these students possessed the ability to obtain higher grades.

Pretreatment Measures

Achievement Marks and Achievement Rating.

Achievement scores were collected for all subjects in the academic areas in which their goals had been set. When possible, the student's four most recent scores were provided by the classroom teacher. In addition, each teacher was asked to mark, on

a continuum ranging from poor to excellent, his judgement of the student's current achievement level in the established goal area (see Appendix A).

Characteristics of Achievers Rating.

Each of the 16 students was asked to determine, on a continuum ranging from poor to excellent, the degree to which he believed that he portrayed the characteristics of an achiever in his goal area (see Appendix B). In addition, each subject's teacher completed a similar Characteristics of Achievers sheet (see Appendix C); the teacher was asked to judge how well the student displayed the characteristics of an achiever in the academic area in which his goal was established.

Motivation Judgement.

Before each student began striving for his goal, he was asked to judge the level of motivation he felt towards achieving his goal. The motivation scale ranged from 0 to 100. The number 0 was designated no motivation; whereas, the rating of 100 signified extreme motivation. The student chose a number on the scale that best represented his degree of motivation.

Self-Confidence Judgement.

Each student, prior to working towards his goal, was asked to judge how confident he was in his ability to achieve his goal. The self-confidence scale ranged from 0 (no confidence) to 100 (extremely confident).

Reliability of Student Rating

To test the reliability of the confidence scale, motivation scale and

characteristics of achievers continuum, the author asked 25 grade five and six students who were not participating in the study to complete the Reliability Form (see Appendix D). Although the students responded to all the questions, the author was only interested in the answers to question two (confidence judgement), question four (motivation judgement), and question six (self-rating of a characteristic of an achiever). The same form was re-administered to the 25 students, three weeks later, to determine the extent to which questions two, four, and six were reliable over time. The reliability coefficient was .88 for the confidence judgement and .75 for the motivation judgement. Lastly, the self-rating to denote the degree to which one displayed a characteristic of an achiever had a reliability coefficient of .72.

Controlling Rater Bias

Teachers.

Teachers of the treatment and control students were given the same information. They were told that these students would be striving to achieve goals. In addition, all teachers were asked to evaluate their students' performances in their goal areas at specific times.

Students.

The author explained to the students in the treatment and control conditions that she was conducting an experiment to determine the effects of goal-setting. These students, however, were not aware that a treatment and control group had been established.

Procedure

Treatment Group.

The achievement motivation unit was based on Johnson & McClelland's (1984) following six steps to achievement:

1. Study Yourself
2. Get Goal Ideas
3. Set a Goal
4. Plan to Achieve Your Goal
5. Strive to Achieve Your Goal
6. Evaluate How You Achieve

The eight treatment students were divided into two groups of four students. Each group attended three 75-minute sessions with the author. Two sessions were completed in the first week of treatment and the third session was offered in the second week. During these sessions, the student learned about the characteristics of an achiever and tried to remember instances when he had behaved like an achiever. In addition, the student contemplated appropriate academic goal ideas for himself. It was hoped that each treatment student would be able to formulate a goal that he wished to strive for and develop suitable subgoals to achieve that goal; however, all students had difficulties determining in which academic areas they needed to improve and were unable to visualize the steps that were required in order to accomplish their academic goals. Thus, the author visited each student's teacher to discuss a proximal, specific goal that would be suitable for the student and appropriate subgoals that would enable the student to attain the superordinate goal.

For the next five weeks, each individual student met weekly with the author to participate in a one-hour conference. During the first hour conference, the goal and subgoals that the author and the classroom teacher had developed for the student were discussed. After committing to the established subgoals and superordinate goal, the student was told that his teacher would determine, each week, on the Subgoal Monitoring Sheet (see Appendix E), the extent to which he had accomplished the subgoals. Next, using the 0 to 100 scale, the student rated his level of motivation towards achieving the superordinate goal and also decided on the degree of confidence he had in his ability to attain that goal. After having chosen numbers to represent his motivation and confidence levels, the student discussed, with the author, reasons as to why he had chosen those numerical designations. The student was, then, given the Characteristics of Achievers sheet (see Appendix B) to complete. During the week, each student was asked to strive for the subgoals and to record his feelings about the goal and/or subgoals in a journal. The author suggested the following three journal starters:

1. I am feeling happy about my goals/subgoals because...

2. I am frustrated about my goal/subgoals because...

3. I still need to work on...

At the beginning of the second individual conference in the fourth week, the student shared his journal entries with the author and was encouraged to elaborate on his written responses. The author, then, reviewed with the student, the characteristics of an achiever and asked the student to describe how he had displayed those characteristics while striving to achieve his goal and subgoals. In addition, the student completed the Subgoal Monitoring Sheet (see Appendix E) by deciding the extent to which

he had strived for each subgoal during the week. A comparison was made between the student's and the teacher's responses on the Subgoal Monitoring Sheet. The similarities and possible reasons for any discrepancies were discussed. Finally, the author suggested that the student continue recording his thoughts and feelings in his journal. The following two conferences were identical to this conference.

During the last conference in the seventh week, the student discussed his journal entries, completed the Subgoal Monitoring Sheet, and compared his self-monitoring to his teacher's monitoring. Furthermore, the student engaged in the final step to achievement by evaluating if he had achieved the subgoals and the goal. The student answered "yes" or "no" to the question: Did you achieve your subgoals? The student's scores that had been achieved in his goal area during the third to the seventh week of the treatment were forwarded to the author by the student's teacher. These marks were shown to the student, and, based on the scores, the student answered "yes" or "no" to the question: Did you achieve your goal? Using the 0 to 100 rating scale, the student decided how motivated he was to strive for the same goal during the next four-week period and how confident he was in his ability to achieve that goal within the next four weeks. After the student stated his numerical designations, he considered reasons for those ratings. Lastly, the student completed the Characteristics of Achievers sheet (see Appendix B) indicating the degree to which he now displayed the characteristics of an achiever in his goal area. For the next four weeks, each student in the treatment condition continued to strive for his goal and subgoals, however, during this follow-up phase, the author did not conduct any conferences with the student.

Control Group.

The author met with each control student's teacher to determine a specific, proximal goal that would be appropriate for each student; subgoals were not established for the control group. The author, then, scheduled a 15-minute session with each individual student. During this session, the goal was discussed and the student was asked to commit to the goal. Also, the student, using the 0 to 100 rating scale was asked to state the number that best described his motivation to achieve the goal and the number that signified the level of confidence he had in his ability to attain the goal. The student discussed reasons for the ratings. Lastly, the Characteristics of Achievers sheet (see Appendix B) was completed by the student.

Each week, for the next three weeks, the author, simply, reminded the student of his goal. During the fifth week, the author met with the student for another 15-minute session. The scores the student had obtained in his goal area during the four-week period were given to the author by the student's teacher. These marks were shown to the student, and he was asked to answer "yes" or "no" to the question: Did you achieve your goal? The student, then, on a scale ranging form 0 to 100 chose the number that signified his motivation to achieve the same goal within the next four weeks and rated the confidence he had in his ability to achieve the goal during the same period. Finally, the student completed the Characteristics of Achievers sheet (see Appendix B) based on his perception of the degree to which he, now, emulated the characteristics of an achiever in his goal area. Each student in the control condition continued, for the next four weeks, to strive for his goal. During this follow-up phase, the author did not remind the student of his goal.

Posttreatment and Follow-Up Measures

Posttreatment measures were conducted during the last week of the treatment phase. Each teacher provided the author with an achievement rating, and a completed Characteristics of Achievers sheet (see Appendix C). It should be noted that the student's achievement marks in his goal area were also collected at this time; however, the achievement scores represented the student's performance during the treatment phase.

As stated in the procedure section, each student, during the last treatment session, completed a Characteristics of Achievers sheet (see Appendix B) and made a motivation and confidence judgement. Follow-up data were collected four weeks later. The measures used during the follow-up were identical to the pretreatment and posttreatment measures.

It should be noted that specific pilot testing of all the rating scales used in this study was not conducted.

Limitations of the Study

Some caution must be exercised when interpreting the results of the study because there were some limitations in the study's design. First, only a small number of students participated in the study, thus reducing the power of the t-test and analysis of covariance calculations. Significant results, even if they had existed, may not have been found because of the small sample size. In addition, the students were not randomly assigned to the treatment and control conditions. The gifted underachievers received the treatment if they decided to try the achievement motivation unit, and the remaining underachievers were assigned to the control condition. The lack of random sampling

reduces the generalizability of the findings.

Furthermore, a statistical comparison of the treatment and control group's achievement scores was not made because students, within each of the groups, were not all striving to attain the same subject-area goal. Also, this comparison was hindered because the students, who were all taught by different classroom teachers, received different tests and assignments to measure their achievement. The final limitation in the study's design was the use of the 0 to 100 motivation and confidence rating scales. A motivation rating and a confidence rating reached the ceiling height, therefore making it impossible to detect further significant increases.

Hypotheses

The following four hypotheses were tested in this study:

1. Goal setting and the monitoring of performance are effective strategies to increase academic achievement.
2. The student who is aware of the characteristics of an achiever can learn to behave like an achiever.
3. The student's motivation to achieve will increase as he obtains the subgoals and the superordinate goal.
4. The student's confidence in his ability to achieve will increase as he obtains the subgoals and the superordinate goal.

Chapter 4

Results

Results for Hypothesis 1

It was hypothesized that goal setting and the monitoring of performance would be effective strategies to increase academic achievement. Student achievement scores and teacher ratings of the student's academic performance were the dependent variables.

Student Mean Achievement Scores.

In the treatment group, three students had math goals, and the remaining five students focused on obtaining language arts related goals. The mean math percentages attained by each student in the treatment condition are presented in Table 1. All three subjects increased their mean math percentages from the pretreatment to the treatment phase. In addition, two students (S1 and S3) continued to achieve a higher percentage during the follow-up. However, the other student experienced a loss of 10% in his mean percentage between the treatment and follow-up assessments. In spite of this decrease, the follow-up mean for this student remained above the score that he achieved before the treatment.

The language arts scores obtained by the treatment students are also presented in Table 1. The treatment score for each of these students was greater than the pretreatment score. Three students (S5, S6 and S8) further increased their percentages as indicated by the follow-up scores. The follow-up mean for S7, although lower than his treatment mean, did exceed his pretreatment score. Finally, S4 was the

Table 1

Mean Math Percentages and Mean Language Arts Percentages Achieved by Treatment Students

Area	Subject	Phase		
		Pretreatment	Treatment	Follow-up
Math				
	1	89	92	96
	2	78	92	82
	3	72	75	84
Language Arts				
	4	61	82	50
	5	73	77	86
	6	74	84	92
	7	61	80	68
	8	73	77	85

only subject in the treatment group who achieved a follow-up mean that was lower than the percentage he acquired prior to treatment.

Thus, comparison of achievement scores indicated that the treatment of goal setting and weekly monitoring of performance were generally associated with an increase in the treatment group's academic achievement. As revealed in Table 1, all eight students achieved treatment means that were greater than their pretreatment means. Furthermore, when the treatment was removed, five students had follow-up scores that exceeded their treatment means. Lastly, only one student during the follow-up phase obtained a mean lower than his pretreatment mean.

In the control condition, four students committed to math goals and the other four students strove to attain language arts goals. The mean math percentages achieved by the students in the control group are presented in Table 2. Two students (S10 and S12) experienced an increase in their percentages when treatment and pretreatment means were compared; one student (S9) showed a decrease in his treatment score, and the remaining student (S11) achieved the same mean during the pretreatment and treatment phases. Although S9 had a treatment mean lower than his pretreatment mean, the follow-up measure was 1% higher than his pretreatment score. S10 obtained the same treatment and follow-up percentage. Finally, S11 and S12 achieved follow-up means that were greater than their treatment scores.

All four control students who were striving for language arts goals achieved treatment scores that were higher than their pretreatment scores (Table 2). Two students (S13 and S14) had follow-up means identical to their treatment means, and the remaining students (S15 and S16) had follow-up scores lower than their treatment

Table 2

Mean Math Percentages and Mean Language Arts Percentages Achieved by Control Students

Area	Subject	Phase		
		Pretreatment	Treatment	Follow-up
Math				
	9	86	83	87
	10	76	83	83
	11	71	71	73
	12	55	79	88
Language Arts				
	13	76	95	95
	14	62	68	68
	15	73	79	72
	16	79	91	79

scores.

In summary, the control group did not achieve as well as the treatment group. Six students in the control condition, in comparison to all eight students in the treatment group, obtained treatment means that were greater than their pretreatment means. Perhaps, the greatest difference between the treatment and control students was that only one student in the control group continuously increased his mean score from the pretreatment to the treatment and, then, from the treatment to the follow-up phase. In contrast, five students in the treatment condition accomplished that feat. Thus, the hypothesized effect of goal setting and monitoring of performance on the students' academic achievement was found.

Teacher Rating of Student Achievement.

Each teacher rated his student's achievement level on a scale from poor to excellent (see Appendix A). In order to graph the results, the ratings were transformed into numerical designations ranging from 0 (poor) to 40 (excellent). The treatment group's mean ratings are depicted in Figure 1. A comparison of the treatment group's pretreatment and posttreatment ratings by t-test (Table 3) indicated that there was a significant increase in the posttreatment mean. The remaining t-tests shown in Table 3 failed to yield any additional significant differences. Although the t-test between the pre and follow-up ratings did not reach the .05 level of significance, the mean did increase by 7% between these phases as illustrated in Figure 1.

The means of the teachers' achievement ratings for students in the control condition are presented in Figure 2. Although the mean ratings increased throughout all phases of the experiment, differences between those means were not statistically

Figure 1

Means of the Teachers' Achievement

Ratings for the Treatment Group

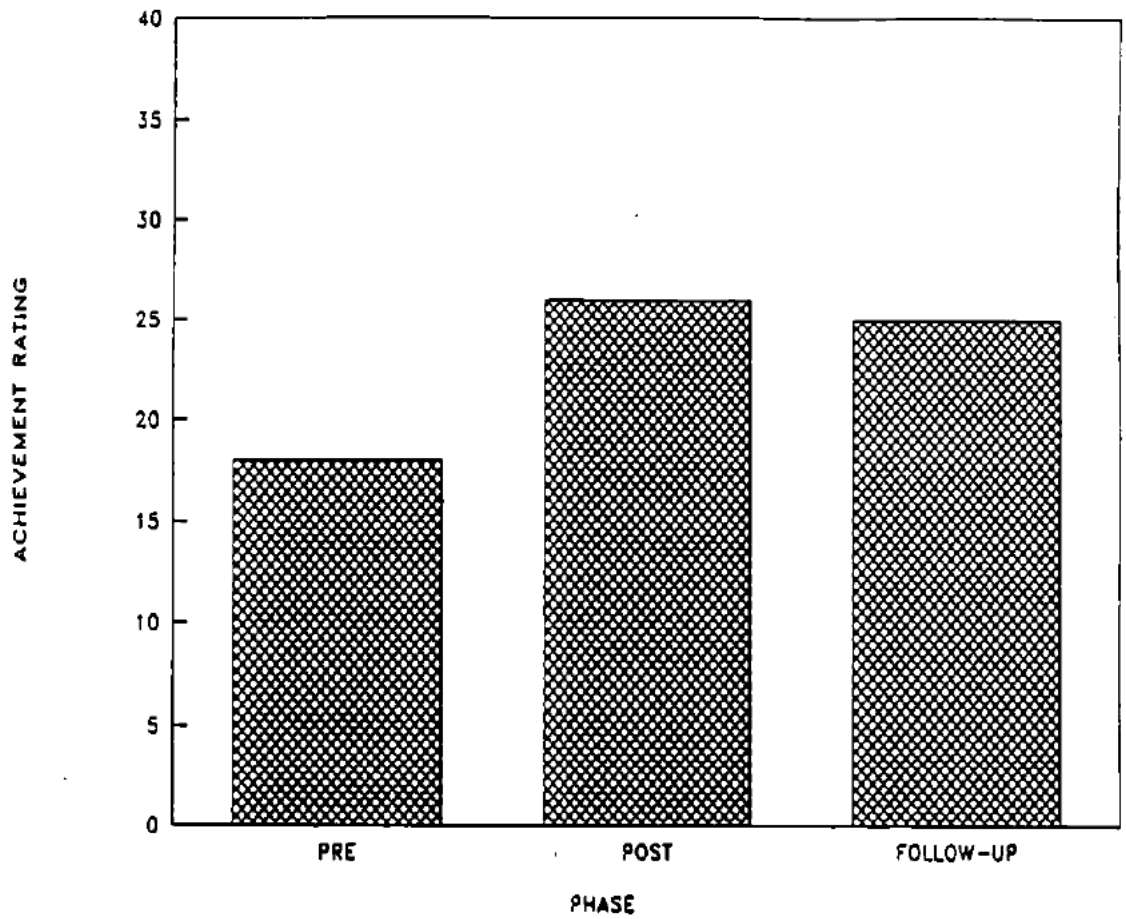


Table 3

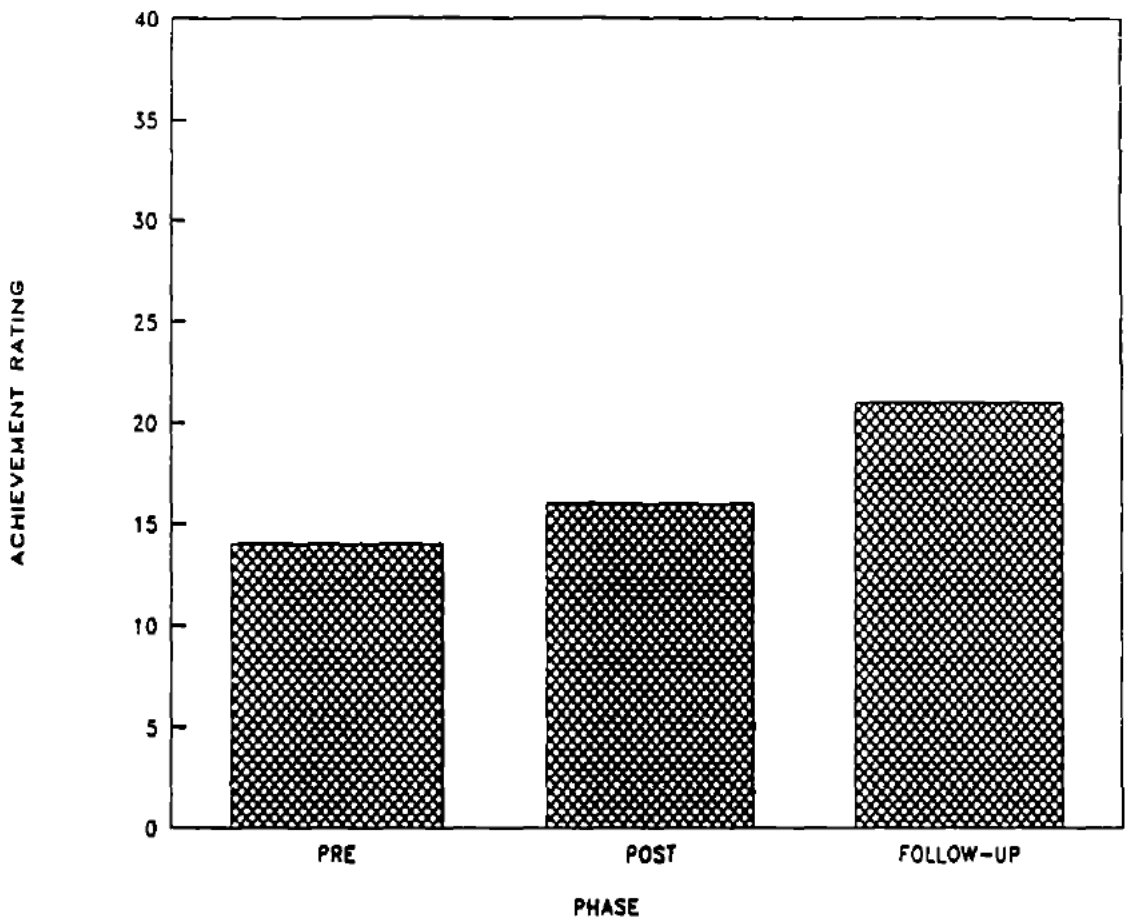
t-Tests on Teachers' Achievement Ratings for Students in the Treatment Group and Students in the Control Group

Group	Teacher Rating	t Value	Degrees of Freedom	2-Tail Probability
Treatment				
	Pre vs. Post	3.30	7	.01
	Post vs. Follow-Up	-.45	7	.67
	Pre vs. Follow-Up	2.03	7	.08
Control				
	Pre vs. Post	.91	7	.39
	Post vs. Follow-Up	1.53	7	.17
	Pre vs. Follow-Up	l.98	7	.09

Figure 2

Means of the Teachers' Achievement

Ratings for the Control Group



significant (Table 3).

Thus, the significant increase in teachers' achievement ratings for the treatment group during the pre and post measures suggested that when the students engaged in the goal setting process and the weekly monitoring of the goals, they achieved to a higher degree. On the other hand, there was not a significant increase in the teachers' achievement ratings for the control group during the pre and post measures which indicated that the process of goal setting without weekly monitoring of those goals was not as effective as the strategy used by the treatment students to increase achievement. These results provided further evidence to accept the first hypothesis.

A further analysis was conducted on the teachers' ratings using analysis of covariance. When groups start at different levels and their results are compared, analysis of covariance can be employed to statistically control these differences. The uncontrolled variable that is adjusted is termed the covariate. This method was used to determine the statistical significance of the difference between the treatment and control groups' posttreatment means after their pretreatment means had been corrected. As illustrated in Figures 1 and 2, the posttreatment mean for the treatment group was 10% higher than the control group's posttreatment mean; however, when these means were compared using analysis of covariance, with the pretreatment score as the covariate, the difference approached, but did not reach, the .05 level of significance ($F = 3.66$, $df = 1$, $p = .08$).

Results for Hypothesis 2

Hypothesis 2 stated that the student who was aware of the characteristics of an

achiever could learn to behave like an achiever. Both the teacher and the student used rating scales (see Appendix B and Appendix C) to determine the degree to which the student displayed the nine characteristics of achievers. The ratings on the scales ranged from poor to excellent. In order to conduct statistical analyses on the results, the ratings were transformed into numerical scores ranging from 0 (poor) to 40 (excellent).

Teacher Rating.

A comparison of the pretreatment and the postttreatment ratings (Table 4) indicated that the students in the treatment group, when aware of the characteristics of achievers, were able to significantly increase the extent to which they displayed those characteristics. The only behaviours that did not increase significantly were "overcoming obstacles" and "checking one's progress". Furthermore, the t-tests on the pre and follow-up ratings were significant on all characteristics with the exception of "internally oriented"; thus, the students displayed eight characteristics of achievers after treatment was terminated.

The t-tests on the teachers' ratings of the degree to which the control students emulated the characteristics of achievers revealed no significant differences between the pre and post measures or between the pre and follow-up ratings (Table 4). Therefore, the control students who received no formal lessons describing the characteristics of achievers did not significantly increase the degree to which they displayed the behaviours of achievers while striving for their goals. Hypothesis 2 was accepted based on the t-test results of the teachers' ratings for the treatment and control groups.

An analysis of covariance with the pretreatment mean as the covariate was used

Table 4

t-Tests on Teachers' Ratings Indicating Degree That Treatment Students and Control Students Displayed Characteristics of Achievers

Characteristics of Achievers	Group					
	Treatment			Control		
	t Value	Degrees of Freedom	2-Tail Probability	t Value	Degrees of Freedom	2-Tail Probability
Self Reliant						
Pre vs. Post	2.35	7	.05	.03	7	.98
Pre vs. Follow-Up	2.35	7	.04	1.09	7	.31
Realistic						
Pre vs. Post	2.77	6	.03	.09	7	.93
Pre vs. Follow-up	2.65	6	.04	.75	7	.48
Plans Subgoals						
Pre vs. Post	3.55	6	.01	.86	7	.42
Pre vs. Follow-up	2.75	6	.03	1.98	7	.09
Overcomes Obstacles						
Pre vs. Post	2.03	7	.08	1.10	7	.31
Pre vs. Follow-up	2.51	7	.04	.95	7	.37
Knows How to Find Help						
Pre vs. Post	2.94	7	.02	-.59	7	.57
Pre vs. Follow-up	2.47	7	.04	1.51	7	.18
Checks Progress						
Pre vs. Post	1.69	7	.14	.85	7	.42
Pre vs. Follow-up	3.22	7	.02	2.00	7	.09
Enjoys Achieving Goals						
Pre vs. Post	3.87	6	.01	-.10	7	.92
Pre vs. Follow-up	3.83	6	.01	.87	7	.41
Finds Better Ways to Achieve						
Pre vs. Post	2.45	7	.04	1.06	6	.33
Pre vs. Follow-up	3.06	7	.02	1.54	6	.18
Internally-Oriented						
Pre vs. Post	3.46	6	.01	1.74	7	.13
Pre vs. Follow-up	1.85	6	.11	1.83	7	.11

Note. A Degrees of Freedom value of 6 indicates that the teacher did not provide a characteristic rating for one of the students.

to test the difference between the treatment and control groups' posttreatment means for each characteristic of an achiever. The results revealed that the treatment group obtained posttreatment means that were significantly greater on the following characteristics: "self-reliant" ($F = 4.96$, $df = 1$, $p = .04$), "plans subgoals" ($F = 6.2l$, $df = 1$, $p = .03$), "finds help" ($F = 6.58$, $df = 1$, $p = .02$) and "enjoys achieving goals" ($F = 5.52$, $df = 1$, $p = .04$). In addition, the follow-up means for each characteristic were compared using analysis of covariance with the pretreatment score as the covariate. In all cases, the treatment group had the higher mean, but these differences did not reach the .05 level of significance.

Student Rating.

The t-tests conducted on the pre and post student ratings suggested that the students in the treatment condition significantly increased the extent to which they behaved like achievers (Table 5). However, the degree to which these students knew how to find help did not increase significantly during the pre to post ratings. In addition, as shown by t-tests, a significant increase did not occur between the pretreatment and follow-up means for the following achievement characteristics: "self-reliant", "realistic", "knows how to find help", "enjoys achieving goals", "finds better ways to achieve", and "internally-oriented".

The t-tests suggested that when the treatment students were receiving lessons describing the characteristics of achievers, they were able to significantly increase the degree to which they displayed eight of the nine characteristics, thus, lending further support for hypothesis 2. However, during the follow-up phase when these lessons were no longer offered, the students' ratings were not significantly greater than their

Table 5

t-Tests on Treatment Students' and Control Students' Self-Ratings

Indicating Degree to Which They Displayed Characteristics of Achievers

Characteristics of Achievers	Group: Treatment t Value	Treatment Degrees of Freedom	Treatment 2-Tail Probability	Control t Value	Control Degrees of Freedom	Control 2-Tail Probability
Self-Reliant						
Pre vs. Post	3.65	7	.01	.66	7	.53
Pre vs. Follow-up	1.05	7	.33	.36	7	.73
Realistic						
Pre vs. Post	2.95	7	.02	.48	7	.65
Pre vs. Follow-up	2.10	7	.07	1.26	7	.25
Plans Subgoals						
Pre vs. Post	3.29	7	.01	-.70	7	.50
Pre vs. Follow-up	6.20	7	<.001	-.40	7	.70
Overcomes Obstacles						
Pre vs. Post	4.12	7	.004	-.26	7	.80
Pre vs. Follow-up	4.33	7	.003	1.24	7	.25
Knows How to Find Help						
Pre vs. Post	1.80	7	.12	-1.11	7	.31
Pre vs. Follow-up	1.88	7	.10	-.50	7	.63
Checks Progress						
Pre vs. Post	5.07	7	.001	.93	7	.38
Pre vs. Follow-up	6.59	7	<.001	1.25	7	.25
Enjoys Achieving Goals						
Pre vs. Post	2.78	7	.03	-1.16	7	.28
Pre vs. Follow-up	1.73	7	.13	-.94	7	.38
Finds Better Ways to Achieve						
Pre vs. Post	3.13	7	.02	1.31	7	.23
Pre vs. Follow-up	1.31	7	.23	-.06	7	.96
Internally-Oriented						
Pre vs. Post	2.78	7	.03	.72	7	.49
Pre vs. Follow-up	.99	7	.35	.80	7	.45

pretreatment means on six of the characteristics.

As indicated by the t-tests, there were no significant differences between the control group's pre and post ratings or between their pre and follow-up ratings (Table 5). Since these t-tests failed to yield any significant increases in the ratings for the control group, it appeared that students who were not receiving lessons on the characteristics of achievers did not display those characteristics to a greater extent during the posttreatment and follow-up phases.

A comparison of posttreatment means between the treatment and control groups for each characteristic was made using analysis of covariance with the pretreatment mean as the covariate. Results, as displayed in Table 6, illustrated that the treatment group's posttreatment mean was significantly greater than the control group's posttreatment mean on every characteristic with the exception of "internally-oriented". Furthermore, the treatment and control groups' follow-up means for each characteristic were compared using analysis of covariance with the pretreatment score as the covariate. Although all treatment group's follow-up means exceeded the control group's follow-up means for each characteristic, the only significant differences were observed on the following characteristics: "plans subgoals" ($F = 33.35$, $df = 1$, $p < .001$)," overcomes obstacles" ($F = 6.52$, $df = 1$, $p = .02$), and "checks progress" ($F = 5.36$, $df = 1$, $p = .04$).

Results for Hypothesis 3

It was hypothesized that the student's motivation to achieve would increase as he obtained the subgoals and the superordinate goal. Originally, there was to be the

Table 6

Analysis of Covariance Comparing Treatment and Control Groups' Posttreatment Ratings of the Degree to Which They Displayed Characteristics of Achievers

Characteristics of Achievers	F Value	Degrees of Freedom	Significance of F
Self-Reliant	7.71	1	.02
Realistic	7.87	1	.02
Plans Subgoals	15.65	1	.002
Overcomes Obstacles	14.94	1	.002
Knows How to Find Help	5.69	1	.03
Checks Progress	6.80	1	.02
Enjoys Achieving Goals	5.25	1	.04
Finds Better Ways to Achieve	6.31	1	.03
Internally-Oriented	2.72	1	.12

comparison of motivation means between the treatment and control groups; however, this was not warranted as the hypothesis stated the effect of obtaining subgoals and the superordinate goal on motivation levels as opposed to comparing the levels of motivation between the treatment and control students. The t-tests on the treatment group's mean motivation ratings illustrated that there were no significant differences between the motivation ratings during different phases of the experiment (Table 7). Only the motivation ratings provided by the treatment students who believed that they had achieved their goals and subgoals were included in the t-test calculations. As shown in Figure 3, the pretreatment motivation mean began at the ceiling level, thus making it impossible for the treatment students to increase their motivation ratings to reach the .05 level of significance during the posttreatment and follow-up. As a result of the ceiling effect, it was not possible to fully test the third hypothesis.

Results for Hypothesis 4

Hypothesis 4 stated that the student's confidence in his ability to achieve would increase as he obtained the subgoals and the superordinate goal. Each treatment student's confidence ratings on the 0 to 100 scale was included in the t-test calculations unless he stated that his goal and subgoals had not been obtained. Originally, there was to be the comparison of confidence means between the treatment and control groups. This, however, proved to be unnecessary as the hypothesis suggested the outcome of achieving subgoals and the superordinate goal on confidence levels rather than implying a comparison between the treatment and control groups. There were no significant

Table 7

t-Tests on the Mean Motivation Ratings From Students in the Treatment Group

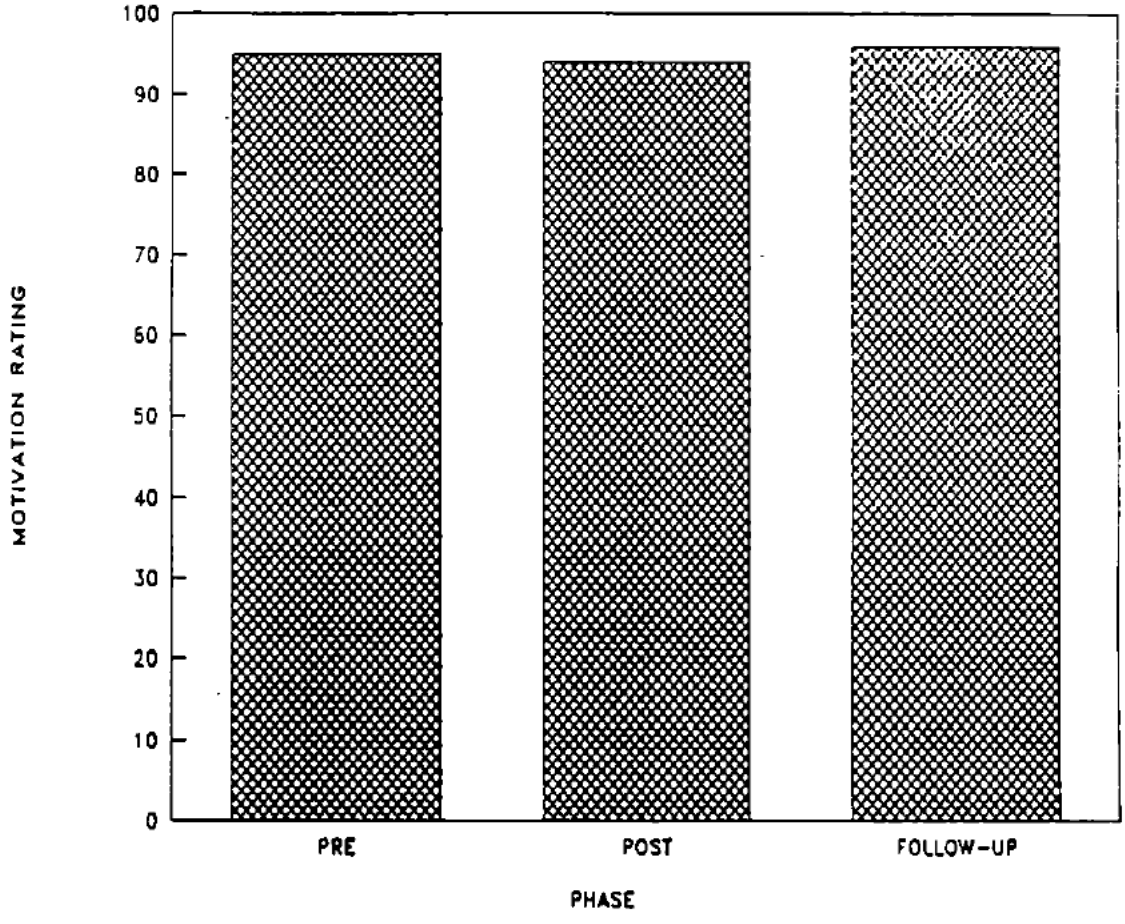
Motivation Rating	t Value	Degrees of Freedom	2-Tail Probability
Pre vs. Post	-.13	6	.90
Post vs. Follow-Up	.53	6	.61
Pre vs. Follow-Up	.31	6	.77

Note. One subject stated that he did not obtain his subgoals and the superordinate goal during the postreatment and follow-up phases.

Figure 3

Mean Motivation Ratings From Students

in the Treatment Group



differences between the mean confidence ratings as indicated by the t-tests (Table 8). However, the increase in means between the pretreatment and posttreatment phases, as revealed in Figure 4, did approach significance at the .06 level. Also, Figure 4 showed that the follow-up mean, although not significantly different than the pretreatment mean, was 12% higher. Thus, the fourth hypothesis was accepted because there was the tendency for the student to be more confident in his ability after he had achieved his subgoals and the superordinate goal.

Table 8

t-Tests on the Mean Confidence Ratings From Students in the Treatment Group

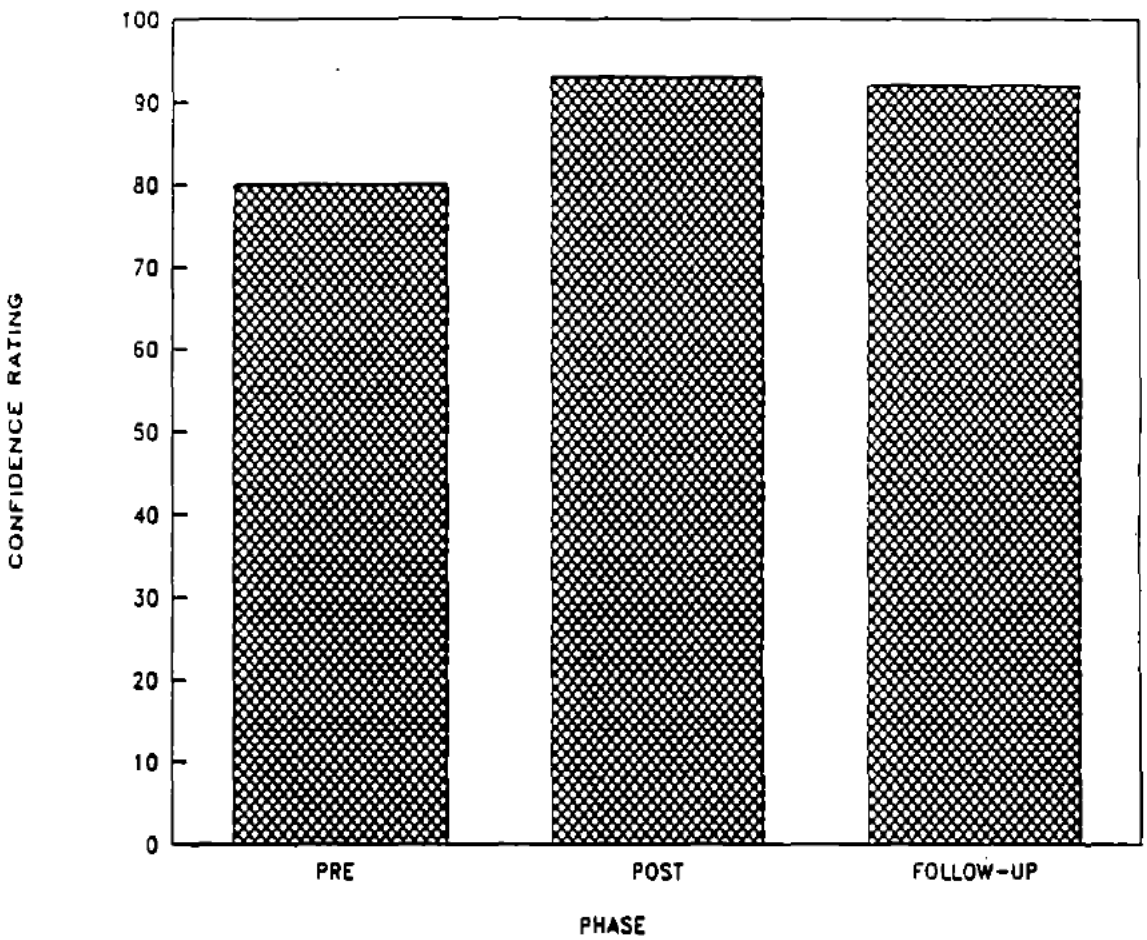
Confidence Rating	t Value	Degrees of Freedom	2-Tail Probability
Pre vs. Post	2.37	6	.06
Post vs. Follow-Up	-.36	6	.73
Pre vs. Follow-Up	1.60	6	.16

Note. One subject stated that he did not obtain his subgoals and the superordinate goal during the postreatment and follow-up phases.

Figure 4

Mean Confidence Ratings From Students

in the Treatment Group



Chapter 5

Discussion

Hypothesis 1

Goal setting and the monitoring of performance generally proved to be effective strategies to increase academic achievement. This hypothesis was supported by the mean achievement gains made by all treatment students as indicated by their treatment means. In addition, there was a significant increase in the teachers' mean achievement ratings for the treatment students when pretreatment and posttreatment means were compared. Previous studies have also acknowledged the benefits of establishing goals and engaging in conferences to monitor and discuss the student's progress at attaining those goals (Gaa, 1973; Gaa, 1979; Kennedy, 1968).

The goals established for the treatment students were specific and proximal. Studies have illustrated that specific goals have helped students achieve to a higher standard (Locke, 1968; Rosswork, 1977). In addition, Bandura & Schunk (1981) discovered that students setting proximal goals produced highly significant gains in arithmetic performance. In these experiments, weekly monitoring conferences were not established, yet the results proved to be positive. Thus, one must wonder if it was the weekly conferences that enhanced the performance of the treatment students in this thesis study or the fact that their goals were specific and proximal.

The control students also strove for specific, proximal goals; however, they did not receive weekly teacher-pupil conferences to monitor and discuss their progress. These students, as indicated by their achievement scores, were not as consistent in

striving for their goals as the treatment students. This suggested that setting specific, proximal goals was less effective than the combination of specific, proximal goals and weekly monitoring conferences.

Further research should attempt to confirm the benefits of teacher-pupil conferences used to enhance the effectiveness of specific, proximal goals. In addition, experiments that vary the number of weekly conferences will help determine the time frame needed to produce improved academic performance.

Hypothesis 2

Teacher Rating.

It was hypothesized that the student who was aware of the characteristics of an achiever could learn to behave like an achiever. The significant increase in the teachers' posttreatment ratings of the treatment group's ability to behave like an achiever on seven of the nine characteristics generally supported this hypothesis. In addition, the significant increase between the pretreatment and follow-up ratings indicated that teachers believed that the treatment group displayed eight of the nine characteristics of achievers after treatment had ended. Researchers such as Kolb (1965) and deCharms (cited in Alschuler, 1973) have reported increases in students' achievement levels when those students were provided with instruction on how to act and think like achievers.

Further support for hypothesis 2 was provided by the nonsignificant t-test calculations on the teachers' ratings of the degree to which the control group displayed the characteristics of achievers. These students did not receive lessons highlighting the characteristics of achievers.

Analysis of covariance between the treatment and control groups' posttreatment means and between their follow-up means did not reveal a majority of significant differences between the two groups. Caution must be exercised when interpreting the results of the analysis of covariance calculations because the small sample size made the test less powerful, thus reducing the likelihood of obtaining significant results.

Student Rating.

There were significant increases in the treatment groups' posttreatment self-ratings on eight of the nine characteristics of an achiever. In comparison, the control students' self-ratings for each characteristic revealed no significant differences between the pretreatment and posttreatment ratings or between the pretreatment and follow-up ratings. It was interesting to note that for some of the characteristics, the control group had posttreatment and follow-up ratings that were lower than their pretreatment ratings. These findings substantiated the claim that the treatment group's awareness of the characteristics of achievers, during treatment, enabled them to display those characteristics.

The treatment groups' follow-up means for six of the characteristics, although higher than their pretreatment means, did not reach the .05 level of significance. Thus, when students were no longer being reminded of the characteristics of achievers, they believed that they displayed those characteristics to a lesser degree. This may suggest that it takes longer than the six-week treatment phase for students to internalize the achievement behaviours and display the characteristics of achievers without being reminded of those characteristics. Research by McClelland & Alschuler (cited in Alschuler, 1973) substantiates this view as they found that providing students with

brief and intensive courses on how to act and think like achievers, in order to increase their academic achievement motivation, produced inconsistent and unimpressive results. However, deCharms' (cited in Alschuler, 1973) studies were effective in increasing academic performance when teachers taught students achievement behaviours throughout the school year. This enabled the students to be constantly aware of the characteristics of achievers. Indeed, future research should attempt to determine the length of time that is required in order for students to internalize the characteristics of achievers.

Analysis of covariance revealed that the treatment group's posttreatment means on eight of the nine characteristics of achievers exceeded the posttreatment means of the control group. This further indicated that the students who received treatment believed that they displayed the characteristics of achievers to a greater degree after they became aware of those characteristics.

Two main discrepancies were found when results from the teachers' ratings and the students' ratings were compared. First, the teachers' follow-up ratings on the treatment group's ability to display eight of the characteristics of achievers were significantly greater than the pretreatment ratings; whereas, the treatment students believed that they significantly increased the degree to which they displayed only three characteristics when pretreatment and follow-up ratings were compared. Second, analysis of covariance between the teachers' posttreatment ratings for the treatment and control groups indicated that the treatment group obtained posttreatment means that were significantly greater on four of the characteristics. In contrast, when the students rated the degree to which they displayed the characteristics of achievers, the treatment

group's posttreatment means on eight of the characteristics were significantly greater than the control group's posttreatment ratings as indicated by the analysis of covariance calculations. In my opinion, the students' self-ratings were the more accurate reflections of the students' behaviours. Indeed, teachers perceptions were important, but students were in the best position to determine the degree to which they displayed the characteristics of achievers. The reliability coefficient of .72 on students' self-ratings pertaining to the characteristics of achievers indicated that self-rating was a fairly consistent measure.

Hypothesis 3

Hypothesis 3, which stated that the student's motivation to achieve would increase as he obtained the subgoals and the superordinate goal, was not confirmed by the results. As mentioned in the results chapter, the treatment group's mean motivation rating prior to treatment was at the ceiling level; thus, the posttreatment and follow-up mean ratings could not be expected to be significantly greater than the pretreatment mean. In this study, the students were asked to provide pretreatment motivation ratings after they had committed to their goals. A possible explanation for the high pretreatment rating could be that the students realized that discrepancies existed between their present performances and their goals. According to Bandura (l986) a perceived negative discrepancy between an individual's achievement and his established goal provides the motivation to increase effort.

It is also possible that significant differences did not occur between the mean motivation ratings because the 0 to 100 rating scale, although it had a reliability

coefficient of .75, was not sensitive enough to detect the differences in motivation that may have resulted. Therefore, further research needs to experiment with other methods to measure motivation to achieve.

Hypothesis 4

The t-test comparing the pretreatment and posttreatment mean confidence ratings approached significance at the .06 level, thus supporting the hypothesis that the student's confidence in his ability to achieve would increase as he obtained his subgoals and the superordinate goal. A significant increase, however, did not occur between the posttreatment and follow-up means, but the ceiling effect created by the posttreatment mean explains this result.

Past research has focused on comparing the confidence levels of students assigned to different treatment groups with varying goal conditions (Bandura & Schunk, 1981; Gaa, 1973; Schunk, 1983). In my opinion, a further research direction would be to focus on students in the same treatment group and compare the confidence levels that occur between students who have attained their goals and those who have not. In addition, the long-term effects of achieving or not achieving one's goal on self-confidence should be examined. Research of this nature would provide valuable information regarding the relationship among goals, acquisition of goals, and self-confidence.

Practical Implications

The results of this study revealed that teachers who have bright underachievers in their classes should attempt to develop a program which incorporates the strategies of

goal setting and monitoring of performance with information regarding the characteristics of achievers. These strategies were easily understood by the bright underachievers in this study, thus enabling them to successfully use the techniques as they strove to achieve their goals. The treatment students' ability to increase their academic performance and emulate the characteristics of achievers supports Delisle & Berger's (1990) assumption that underachievement is a behaviour that can change over time.

Further Research

Further research needs to be conducted to examine the effects of goal setting and self-monitoring on the student's achievement, motivation, and confidence levels. First, the present study revealed that gifted underachievers who strove for specific, proximal goals and engaged in self-monitoring were able to increase their academic achievement. Future studies should focus on the gifted achievers and regular classroom students to determine the extent to which they set goals and engage in the self-monitoring process. It is possible that learning these strategies may help other students further increase their academic performances, motivation, and confidence levels.

Second, further research is required in order to clearly specify the effects of goal setting and self-monitoring when these strategies are introduced by the classroom teacher rather than an external experimenter. Implementation of these procedures by the classroom teacher will allow for more accurate feedback and greater interaction which may enhance the benefits of goal setting and self-monitoring.

Lastly, in the present study, the goals for the students were established by the

author and the students' classroom teachers. Additional research should compare the academic, motivation, and confidence levels acquired from achieving teacher-set goals versus student-set goals.

Conclusion

In summary, the results of this study suggested that setting goals and engaging in conferences to discuss and monitor those goals helped gifted underachievers increase their academic performance. In addition, instruction focusing on the characteristics of achievers appeared to have fostered achievement behaviours in the students. Due to the ceiling effect of the pretreatment measure, the results for hypothesis 3 did not substantiate the claim that motivation to achieve would increase as the student attained his subgoals and the superordinate goal. Finally, an increase in the student's self-confidence after he achieved his subgoals and the superordinate goal was generally supported by the results.

In the past, very little research has studied the effects of goal setting and monitoring of goals on the gifted underachiever's academic performance, his motivation to achieve, and confidence in his ability. Indeed, this study supported the use of the goal setting and self-monitoring strategies with gifted underachievers; however, future research is needed in order to substantiate these results.

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Appendix A

Achievement Rating

Name of Student:_____ Date:_____

Your student has committed to the following academic goal:

_____

_____

How would you rate this student's present achievement level in the academic area in which the goal is set. Please rate your student by placing an (X) anywhere along the continuum.

poor sat. good vg ex.

|_____|_____|_____|_____|

Appendix B

Characteristics of Achievers

Name:_____ Date:_____

You have committed to the following academic goal:

_____

_____

In THIS ACADEMIC SUBJECT, please rate yourself by placing an (X) anywhere along the continuum.

poor sat. good vg ex.

|_____|_____|_____|_____| You are self-reliant.

|_____|_____|_____|_____| You are realistic and you set academic goals that are medium risk for your ability.

|_____|_____|_____|_____| You plan tasks (subgoals) in order to achieve your academic goals.

|_____|_____|_____|_____| You try hard to overcome personal obstacles that hinder you from achieving your goals.

|_____|_____|_____|_____| You know how to find and use help to achieve your academic goals.

poor sat. good vg ex.

|_____|_____|_____|_____|

You check your progress as you work towards achieving your academic goals.

|_____|_____|_____|_____|

You enjoy working for and achieving academic goals.

|_____|_____|_____|_____|

You keep trying to figure out better ways to succeed.

|_____|_____|_____|_____|

You believe that your success is due to your increased ability and effort rather than to luck or ease of the task.

Appendix C

Characteristics of Achievers

Name of Student:_____ Date:_____

Your student has committed to the following academic goal:

_____

_____

In THIS ACADEMIC SUBJECT, please rate your student by placing an (X) anywhere along the continuum.

poor	sat.	good	vg	ex.	
|_____	|_____	|_____	|_____	|	The student is self-reliant.
|_____	|_____	|_____	|_____	|	The student is realistic and sets academic goals that are medium risk for his ability.
|_____	|_____	|_____	|_____	|	The student plans tasks (subgoals) in order to achieve his academic goals.
|_____	|_____	|_____	|_____	|	The student tries hard to overcome personal obstacles that hinder him from achieving his goals.
|_____	|_____	|_____	|_____	|	The student knows how to find and use help to achieve his academic goals.

poor sat. good vg ex.

|_____|_____|_____|_____|

The student checks his progress as he works towards achieving his academic goals.

|_____|_____|_____|_____|

The student enjoys working for and achieving academic goals.

|_____|_____|_____|_____|

The student keeps trying to figure out better ways to succeed.

|_____|_____|_____|_____|

The student attributes his success to increased ability and effort rather than to luck or ease of the task.

Appendix D

Reliability Form

Name:_____ Date:_____

1. Do you like Math? Yes or No _____

2. How confident are you in your ability to achieve 85% in Math within the next four weeks? Use the rating scale of 0 to 100.

   0 (not confident) 100 (extremely confident) _____

3. How old are you? _____

4. How motivated are you to work to achieve 85% in Math within the next four weeks? Use the rating scale of 0 to 100.

   0 (not motivated) 100 (extremely motivated) _____

5. How long did you study for your last Math test? _____

6. I set medium-risk Math goals rather than Math goals that are too hard for me or too easy for me. Place an (X) anywhere along the continuum that best describes you.

poor sat. good vg ex.

|_____|_____|_____|_____|

Appendix E

Subgoal Monitoring Sheet

Subgoal 1:

never | sometimes | most of the time | always

Subgoal 2:

never | sometimes | most of the time | always

Subgoal 3:

never | sometimes | most of the time | always

Subgoal 4:

never | sometimes | most of the time | always

Subgoal 5:

never | sometimes | most of the time | always

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Title of Thesis

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