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Contingency Managers to Develop Reading Skills
College Students as Contingency Managers
for Adolescents in a Program to Develop
Reading Skills

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College Students as Contingency Managers
for Adolescents in a Program to Develop
Reading Skills

Abstract

The effects of using behavior modification procedures and an individualized
tutorial program to remediate skill deficits in reading in adolescent
subjects were investigated by this study. Forty-two college students were
trained as reading tutors and contingency managers for grade seven students.
Significantly greater increases in reading scores of experimental groups,
compared to control groups, substantial improvement in target behaviors,
and significant changes in expressed verbal responses toward the reading
process were observed after 10 weeks of treatment. The results suggest
that the subjects were motivated by these procedures to pursue academic
objectives, and that early adolescence, a period of high drive and change,
may be a particularly appropriate period for compensative activities.
Etudiants du Collégial comme Moniteurs de Contingences
du Comportement dans un
Programme de Rattrapage de Lecture
pour Jeunes Adolescents

Résumé

Les effets de l'emploi des procédés de modification du comportement, ainsi
qu'un programme de tutorat individuel, destiné à corriger les déficiences de
lecture chez des adolescents ont fait l'objet de cette étude. Quarante-deux
étudiants de niveau collégial ont été formés comme tuteurs en lecture et
comme moniteurs de contingence du comportement pour des élèves de septième
année.

Après 10 semaines de traitements, il est apparu une nette amélioration dans
les comportement-cibles, des progrès significatifs dans les résultats en
lecture des groupes expérimentaux comparés aux groupes contrôles, et des
changements significatifs dans les réponses verbales consécutives au processus
de lecture.

Les résultats suggèrent que les sujets ont été motivés, grâce à ces procédés,
à poursuivre des objectifs académiques, et que les débuts de l'adolescence
pourraient être une période particulièrement propice à des activités de
récupération.
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CHAPTER ONE

Overview

Description of the Problem

Despite the fact that the ability to read efficiently and with understanding is a central and critical skill in all academic areas, many adolescents reach grade seven without the skills necessary to deal independently and effectively with tasks demanded by the high school curriculum. It is not that they cannot read, but that their strategies and skills are below the level required for successful performance of reading tasks in their grade.

The reasons for the failure of these students to develop at the same rate as their classmates are not always clear. In some cases it may be due to limited intellectual ability, but in most instances students whose reading scores are low have IQ scores well within the normal range. It may be that at six years old these children were not ready to learn to read. Neurological immaturity, minimal cerebral dysfunction, hyperactivity, poor emotional control, low frustration tolerance, short attention span, or cultural or language deficiencies in the home are some of the factors that might be responsible.

Whatever the cause, it may not be reasonable to assume that all children would be equally ready to learn the complex skills involved in reading at six years of age. In the early grades, those who are not ready are not able to take as much advantage as their classmates of group
instruction. As time and practice provide their peers with more skills, theirs become less adequate and they soon fall well behind the others.

Since these children as adolescents are unable to perform competently at the high school level, the academic classroom provides minimal new opportunities for successful responses (that is, they rarely get the right answers), and they are deprived of regular reinforcement for learning as well as meaningful feedback about their performance.

Consistent failure may lead to aversive responses from their teachers and their peers. School, and particularly the academic classroom, becomes an unpleasant place to be. They escape their environment physically whenever possible, and through daydreaming or fantasy when it is not. Thus, withdrawal from active participation in learning, observed so often in the high school classroom may be due to causes other than shyness or boredom.

These students develop many avoidance strategies to school, and to the learning situation in general, which serve them poorly in the acquisition of new skills. Since they avoid both reading and the practicing of reading skills, either inside the classroom or outside it, the gap between their skills and those of their peers continues to grow, probably at an accelerated rate. The social and academic consequences of this poor performance often result in secondary emotional problems, which affect their motivation to participate in further learning, their attitude towards school, their teachers, and most importantly, towards themselves.
These students commonly consider themselves failures. This attitude permeates many aspects of their lives. As they continue their education they realize that vocational choices which require academic skills are not open to them, and they are confused and often dejected about their opportunities for the future. Added to the burden and disorientation of the onset of puberty, these children have more problems than most in their adolescent years.

Analysis of the Problem

While it is interesting to consider the etiology of the problem, it would be more pragmatic to attempt to analyze its present form, to break it down into its various components, and to experiment with a possible solution.

A careful analysis of the performance of underachievers (Cohen, 1970) indicates that there are large gaps in their repertoire of skills in the most critical areas for successful performance of reading tasks at grade level. These gaps appear to be different for each student.

Since the learning of reading skills is hierarchical in nature (Gagné, 1970) and successful performance at higher levels is based on the acquisition of the relevant prerequisite skills at lower levels, prior mastery of these skills is the most important factor in the solution of problems at the next level of difficulty.

An effective method of teaching when these prerequisite skills are not present could be a tutorial system in which the tutor could assess
which skills were absent from each learner's repertoire. By filling in these gaps, every student could be brought to the point where he possessed the necessary prerequisites for mastery of what was being taught (Bloom, 1970).

Motivation to participate productively in the learning situation in the classroom is critical to the continued development of skills. Unfortunately, students whose academic performance has been poor tend to develop avoidance strategies to reading and the learning process in general. Behavior modification procedures combined with skills-oriented therapy may provide an effective treatment strategy to break down these maladaptive behaviors. These procedures may also motivate the learner to develop their skills in reading and to practice these skills.

Researchers and educators have considered that the earlier the remedial activities began, the more effective they would be. As a result, they have concentrated on the elementary school to investigate these activities (de Hirch, Jansky, & Langford, 1966; Glavin, 1972; McClurg, 1970).

McCandless (1970) postulated that adolescence with its surge of new drives and motives, and with its predisposition to change and independence, is a period of life which has particular potential for compensative activities. Many of the dysfunctions that caused earlier disabilities have been outgrown by this time. Children may be particularly ready and highly motivated to learn and to pursue academic goals during the early adolescent
period. Emotionally and socially they may be more in control of their behavior, and their preoccupation with their new emerging self image could provide strong motivation to succeed academically. Their growing independence at this stage becomes an additional advantage, in that it allows the program to be learner-centered. This should enable skill development to continue after the treatment is complete.

Description of This Study

The program designed for this study attempted to deal with each aspect of the problem. A reading course to teach the critical prerequisite skills for successful performance of tasks at the junior high school level was designed by the writer. This program breaks down each skill into a series of graded exercises which can be entered at any point in the hierarchy from grades three to seven.

College students, studying adolescent psychology, were trained as reading tutors and contingency managers to act as tutors to grade seven students who were poor readers.

The adolescent subjects were motivated to participate in the program through the use of behavior modification procedures. Reading behavior and the practice of reading skills were reinforced through the use of a reading contract. In order to complete this contract, each team, which consisted of tutor and learner, met one hour per week, during school hours, for 10 weeks, in a highly structured skill-building session, and the student contracted to work on his own for at least three hours each week on the
program tasks set by the team during the session. These tasks were designed to develop those skills and strategies that were not at grade level in the subject's individual repertoire. It should be noted that the emphasis was on the unstructured time for which the student carried the sole responsibility. This was done so that he would develop the habit of reading at home, and outside the classroom, on his own initiative.

The program was learner centered and a primary aim was to help the student learn how to continue to develop his skills in reading after the treatment was completed. Concentrated and intensive training during the structured session, as well as a substantial amount of reading practice, was meant to act as a catalyst to accelerate the development of these skills.

Active modification of expressed responses to the reading process was intended to help the student internalize a new reinforcement system for reading. One of the major problems for these students is that they do not read. An important part of the program therefore was to get the students to read as many books as possible while the program was in progress so that the tutor could reinforce reading behavior and support a positive attitude towards the reading process. This was done by providing books which were of interest to the adolescent, but graded in reading difficulty. The student was encouraged to read material that was interesting and easy to understand. The pleasure of reading this material and all reading behavior were reinforced through praise for completing and understanding the material, and through the use of a point system in which the student earned points for this reading towards successful completion of his reading contract. Therefore, at the end of the program, each student had at least 40 hours of intensive reading training individually designed.
to fill the gaps in his hierarchy of skills.

Usefulness of This Program

A primary objective of this research was to develop a method in which the combination of the independent variables of a reading program, a tutoring system, and motivation procedures would act together to remediate reading disabilities in adolescents. A secondary aim was to develop a program which could provide a possible solution to the public school system.

Student-teacher ratios in the public high schools make individualized compensative programs for large numbers of poor readers very difficult in the regular classroom. Individual professional help is practically impossible to obtain for the substantial number of students who need it. As a result, the classroom teacher usually relies on techniques of general instruction to all students, which are both ineffective and very inefficient for those who do not have the relevant prerequisite skills.

If college students can be effectively trained to fill this need while fulfilling some of their own learning needs at the same time, an important contribution to the solution of this problem may be found.

Hypothesis

It was hypothesized that adolescent disabled readers, whose reading scores on a standardized test were 1.5 to 4.5 years below grade level, would significantly \( (p < .05) \) improve their reading scores at least one full grade beyond the expected rate of growth when they participated in a
reading program individually monitored and designed to fill in the gaps in their hierarchy of reading skills. Their performance would be significantly better than control subjects who were given only partial treatment.

The experimental subjects would be motivated by the contingency management and behavior modification procedures employed by college students, trained as reading tutors and contingency managers, to pursue academic objectives and to complete their reading contract.
CHAPTER TWO

Review of the Literature

The Importance of Prerequisite Structures

It has been suggested that reading skills are hierarchical in nature, and that the learner must possess the relevant prerequisite skills and strategies in order to perform successfully higher order reading tasks based on these skills.

Gagné (1970) has proposed a theory of learning based on a hierarchical model. He hypothesized that all learning is not the same. He differentiated between the simplest signal learning and stimulus-response learning, of which both animals and humans are capable, and the complex learning processes involved in conceptualizing, principle learning, problem solving, invention and creativity, of which only man is capable. He set up a learning hierarchy of eight different levels of learning in which each step in the ladder is based on a combination of skills used in the previous step. Each step is a prerequisite for the next one on the ladder. A human learner begins the acquisition of the capability of performing a particular class of tasks with an individual array of relevant learning sets previously acquired. He then acquires new learning sets at progressively higher levels of the hierarchy until the final class of tasks is achieved. Attaining a new set depends on the process of positive transfer, which is dependent on the recall of relevant subordinate learning sets.

Gagné suggested that the prior mastery of prerequisite structures is
the most significant factor in the solution of problems at the next level of difficulty. He presented a nine-level learning hierarchy of initial reading skills in which the final task is decoding (the oral pronunciation of the printed word). The most basic skills, such as the ability to reproduce single letter sounds and to blend two and three letter vowel-consonant combinations combine to form the prerequisite skills required to read. He suggested that the process of decoding is only one of the capabilities involved in reading. At the later stages, skills in reading comprehension form similar but much more complex hierarchies. Such intellectual tasks as predicting sequence of thought, detecting irrelevant details, and formulating main ideas are based on many prerequisite hierarchies of reading skills. Typically, the principles involved are complex and are not learned as formally stated rules but as the process of discovery from the act of reading. The learner must develop strategies which include learning the relevant subordinate intellectual skills. These strategies are combined and transferred to the learning of higher order skills.

Gagné has demonstrated this phenomenon in many experiments, only one of which will be described here as an example. Typically, he structured his experiments by analyzing the content of the final task and by asking what prerequisite structures must be part of the learner's repertoire in order to perform this task successfully. He then set up a series of tasks whose successive mastery is a prerequisite to successful performance of the final task. In an experiment in Non-metric Geometry (Gagné & Bassler, 1963), the content was carefully organized in a sequence such that the final task, which demanded the understanding of a specific principle to solve the problem was given as a terminal exercise. The
students studied the elements of the principle in a series which was prepared as a self-instructional program. Following the completion of this program, a test was constructed which measured understanding of the principle at three levels. The results demonstrated that learning of higher level principles was dependent on the mastery of lower level principles in a highly predictable manner. Of the 72 students who performed correctly at the second level of difficulty, only one did not perform at the third level. Of the 18 students who could not perform at level two, not one could perform at level three. The frequency of correspondence between the prediction that students needed prerequisite subordinate structures to perform at higher levels in the hierarchy and the empirical findings was borne out in 95 to 100% of the cases.

Gagné called his model cumulative learning.

The child progresses from one point to the next in his development, because he learns an ordered set of capabilities which build upon each other in progressive fashion through the processes of differentiation, recall and transfer of learning. (Gagné, 1965. p. 181)

Other authors agree on the importance of learning prerequisite skills and strategies. In an exploratory study concerning the prerequisites for learning in literature, Schwartz (1969) found that in a two-level task of literary analysis, subjects who did not have the prerequisite structures to perform at the first level were unable to perform at the second level, whereas students who performed successfully at level one showed vertical transfer in a high percentage of cases.

Bruner (1962) in discussing the effect of previous experience within
a subject area said that it is only through practice in problem solving and experience with the heuristics of discovery, that one learns how to solve problems and how to discover. The more practice one has, the more likely one is to generalize what one has learned into a style of problem solving that serves for any kind of task encountered.

In his article, The Growth of the Mind, Bruner (1965) stated that a child or adolescent is ready to move on to a new skill only when he has mastered all the tasks that are necessary for learning the new skill.

Cronbach (1967) reported that a person who has mastered one mathematical fact in the process has an advantage in learning the next process in the hierarchy, and Anderson (1967), when working on a problem-solving task (anagrams), found that the initial performance of the subject, which has demonstrated his previous learning, was the most significant factor in determining how an individual would perform on a final task. Amster (1965), who investigated concept development, suggested that concepts are learned by children who have built a hierarchy which begins with rote learning. Carroll (1967), in discussing the same topic, found that one cannot learn the concept derivative until one has mastered a rather elaborate structure of prerequisite concepts.

Bloom (1956) organized knowledge into a hierarchical taxonomy and divided it into low, intermediate and high levels of abstraction and complexity. This implies different levels of learning techniques to deal with different levels of knowledge. He attempted to analyze units of knowledge into elements which begin with specific terms and facts that are combined to form more complex and abstract ideas such as concepts and
principles. The complex processes of application of these principles and theories to solve new problems is the final step in the pyramid. Bloom thought that these elements form a hierarchy of learning tasks.

Piaget (1970), in discussing the acquisition of formal thought, said that the formal operations of the adolescent build upon those of the child in the concrete period. The existence of any stage of cognitive development necessarily depends on the acquisition of the previous one. Cognitive structures are not isolated: the adolescent actively integrates new information to older information and grafts new strategies onto old strategies.

Lovell (1961), in a replication study on Piaget's stage of formal operations, gave subjects four problems whose solution required the logical abstract thinking characteristic of formal thought. He found that if structures necessary for understanding instructions were unavailable to the subject, he could not synthesize the information to solve the problem.

The Importance of Teaching Basic Skills in Reading

It also appears that the prerequisite structures within a subject area are of critical importance. Ausubel and Ausubel (1966) suggested that transition from concrete to abstract cognitive functioning takes place specifically in each separate subject matter area and presupposes a certain necessary amount of sophistication in each of the areas involved -- even after one reaches the abstract stage of development on an overall basis. However, once the learner attains the abstract stage
in some areas, the transition to abstract functioning in unfamiliar new subject areas takes place much more readily.

Thus, the acquisition of the relevant prerequisite skills in reading is of critical importance when the learner attempts to handle the higher order tasks in that subject required by the high school curriculum in literature, history, geography, science, and even mathematics.

Elkind (1968) went even further in stressing the importance of prerequisite skills in reading for academic achievement at the high school. He proposed that proficiency in dealing with symbols is a necessary condition for effective utilization of formal thought. Junior high school students, average in academic achievement, were matched in age, sex and IQ with students who were below grade level in reading. This latter group shared an apparent "symbolic deficiency" manifested in their poor reading ability. In a problem requiring the combination of four poker chips in as many ways as possible, the adolescents with reading difficulty made fewer combinations and used less systematic strategies than adolescents with comparable IQs in the regular classroom. In another experiment using Piaget's balance problem, poor readers used concrete level strategies. It is possible that these problems require second order operations, and understanding of relations between relations. A similar requirement exists in higher order reading tasks, and is dependent on the ability to combine and synthesize the relevant information into a new more abstract form.
The importance of teaching basic reading skills to these students should not be underestimated. Simpson (1970) found that reading tests surpassed individual intelligence tests in ability to predict successful high school graduation of low achieving students. Cohen (1970), in his analysis of underachievers, found that they had not learned certain behaviors. He concluded that remedial intervention would be most rapid and effective if intensive instruction beginning with the subjects' presenting behaviors were used. He suggested that when reading skills are the problem they should be tackled directly. The attempt to remediate existing problems in reading by indirect means had little pay-off. He found that for most children the further the treatment moved operationally from reading skills, the less the increment in reading scores could be observed. Silberberg and Silberberg (1969) reported that when experimenters attempted to improve reading level by training in visual perceptive abilities, scores increased on tests of visual perception, but there was little carryover to reading.

It should be clear at this point that those students who have not learned the basic prerequisite skills in reading are seriously disadvantaged in the performance of reading tasks as well as all kinds of other related tasks in the high school curriculum. This disadvantage is apparent in their poor performance on reading tests, as well as in their poor grades in other subjects. It contributed to their failure in all kinds of tasks and thus strengthens their poor self-image. They see themselves as incompetent generally when compared to their peers. This leads to a whole series of maladaptive behaviors which will be discussed...
It is generally accepted that if a student is still a poor reader when he reaches high school, he will never become a good reader unless he has help. An additional disadvantage is that a poor reader is virtually a non-reader (Ash, 1967). Reading is noticeably improved by wide and varied reading -- those students who do not read probably have never acquired the habit because of inadequate relevant skills. Therefore, skills chosen as the target behaviors for this study were those that were considered basic and critical for performance of reading tasks at the junior high school level (see Table 12, page 103, for a list of target behaviors). It is important to note here that reading is a complex skill (Gagné, 1970), and successful remedial procedures must include training in many skills simultaneously in order to accelerate the overall development of skills.

The Need to Individualize the Reeducation Process

It has been previously stated that an analysis of the performance of poor readers indicated that there were large gaps in their repertoire of skills, and that these gaps appeared to be different for each student.

The importance of individualization in the reeducation process is critical, and particularly where a limited treatment time is available. In the regular classroom, whatever the amount of time allowed by the curriculum for learning particular tasks, it is likely to be too much for some students and not enough for others. When the teacher's lessons
address all the students, even classes of remedial reading will only fit
the needs of a particular student some of the time. If the lesson deals
with something he already knows, or if he needs more prerequisite skills
to handle the task, the student will tune out and employ some avoidance
strategy he has already mastered to perfection. He will probably con-
tinue to tune out even when the teacher returns with a lesson that is
appropriate for him.

The advantage of a tutorial system which directs each minute of
remedial time to skills needed by the subject is evident. Bloom (1970)
went so far as to say that were it not so costly in human resources the
 provision of a good tutor for each student would be an ideal strategy.
At least, in the case of the poor reader it is particularly appropriate.
He also suggested that the tutor should be someone other than the teacher,
since he should bring a fresh way of viewing the idea or the process.
He should also be skillful in detecting the points of difficulty in the
student's learning and should help him in such a way as to free the
student from continued dependence on him.

College Students as Tutors

The need for a substantial number of tutors is evident. At the same
time there is a large population of potential therapeutic agents in
colleges and universities who feel they are not playing a meaningful life
role. Increasingly, they have been speaking out about the lack of relevance
and value in their education. A university degree, recently held in such
high esteem, is no longer the goal of many very capable people. The
opportunity to do a real and useful job in their community and to observe the theories and principles learned in classes of psychology and education, has been rated most highly by participating students (Schwartz, 1975).

In addition, these students because of their youth, energy, enthusiasm and even their naiveté and lack of professional training make excellent tutors and paraprofessional helpers in the schools as well as in the closely related mental health fields.

Perhaps because of their age, and their role as learners, or the fact that they too are struggling with problems like identity and security, they appear to have a warmth and empathy for their clients that is unparalleled by volunteers of other ages and stations. It has been suggested by some authors (Rogers, 1957; Truax & Wargo, 1966) that accurate empathy is the single most important therapist characteristic in determining the outcome of therapy. In addition, the personal characteristics of their age and group are of the utmost value in the helping relationship. Goodman (1972) found them bright, idealistic and flexible as companions to troubled school children. Greenblatt and Kantor (1962) found them less resistant and more motivated for face to face contact with patients. They also noted their sense of personal conviction to their work that the staff or other volunteer workers cannot duplicate. Reiff and Reisman (1965) have postulated that their greater flexibility in terms of appropriate and accepted behaviors may be a special asset.

The fact that they are non-professionals may be a particular advantage. Reiff (1967) has suggested that they can perform a bridging function, that is, a link between professionals and the target population, particularly when they speak the vernacular of both the target population and the profes-
Some researchers have found evidence that in certain cases non-professionals can be more effective than their professional counterparts. Zunker and Brown (1966) found that student counselors were more effective in counseling college students than were professional counselors. Gruver (1971) suggested that an additional advantage of using college students rather than professionals is that there may be less stigma involved for the client in being helped by an older student, rather than a professional psychologist or a teacher. In fact, college students have special status value to the younger adolescent who generally does not have the exclusive companionship of an older student.

College students appear to be especially effective with children. Mitchell (1966) said that "in working with children college students seem to have a particular talent for finding the child in his own world" (p. 311). Kreitzer (1969) used psychology majors who received course credit for their work with emotionally disturbed children. Training consisted of completion of course work in psychopathology as well as two-hour group supervision sessions. Measures included staff member ratings and teacher rated changes in inappropriate behavior. Many of the target behaviors were reduced or eliminated and some of the student therapists involved called this the highlight of their college experience.

There also appear to be many advantages to the college student himself which help to make him a dedicated and responsible worker. The use of a community institution as a laboratory resource for teaching and a field-work assignment as part of college credit was a particularly effective
pedagogical technique (Schwartz, 1975). Goodman (1972) reported that students working in structured companionships acquire competencies and knowledge that cannot be taught in the classroom.

Mixing such work with academic studies in the social science classroom could enhance the generalizability of classroom learning. The instant relevancy gained from commerce with immediate and real human problems can provide the first hand experiences needed to make conceptual learning easier and more pertinent. This blending of experiential and conceptual learning is not necessarily expensive or cumbersome. (p. 255)

In addition to enhancing the classroom learning experience, participation in a structured fieldwork assignment can contribute to the college student's personal growth. Madison (1969) reported that personality theorists who are particularly interested in college students' development suggest they have an important potential for change. College students who work in mental hospitals, psychological clinics, or other mental health settings manifest more positive changes in self-acceptance and moral judgments in sexual and aggressive acts than do control groups (Holzberg, Gewirtz & Eßner, 1964). Increased self-confidence and enhanced identity formation are other advantages (Scheibe, 1965).

In recent years, the use of college students as paraprofessional workers, and more particularly as tutors, has become a widely advocated procedure. Available data suggested it is both personally and academically beneficial to the tutor as well as the learner (Goodman, 1972; Greenwood, Sloane, & Baskin, 1974; Landrum & Martin, 1970; Page, 1968).
The Adolescent Period — A Particularly Appropriate Time for Intervention

Researchers and educators have considered that the earlier remedial activities began, the more effective they would be. As a result, they have concentrated on the elementary school to investigate these activities (Ausubel & Ausubel, 1966; Bower, 1960; de Hirch, Jansky, & Langford, 1966; Lambert, 1963; McClurg, 1970).

Glavin (1972) investigated the persistence of behavior disorders in children. He found that 70% of his subjects improved spontaneously by adolescence in spite of the fact that there was no treatment provided. There appears to be a great deal of evidence to support the view that many of the physiological, social and emotional factors that cause reading retardation and learning disabilities in childhood are outgrown by adolescence without any particular treatment. What remains for many children is a gap in learned skills which results from the child's inability to take as much advantage as his peers from the elementary classroom instruction, and a series of maladaptive behaviors, particularly avoidance strategies to the learning process, which were learned as a result of the constant failure experience in the elementary school. For example, Eaves and Crichton (1975) followed a group of children diagnosed as having minimal brain dysfunction for five years. At the end of that time they observed that the mean age of subjects who still showed symptoms of M.B.D. was 11 years 4 months, presumably still not pubescent, while the mean age of the "no-symptom" subjects was 12 years 5 months. They found that despite the fact that many children outgrow their symptoms, 60% were not up to their grade level in academic subjects in spite of the
fact that 79% had received some kind of special help in the elementary school.

McCandless (1970) postulated that the high drive state characteristic of the adolescent period makes it a particularly appropriate time for compensative activities. He suggested that the appearance of the new sex drive, the first drive that needs to be socialized since early childhood, demands many behavior changes, some of them sexual, but many non-sexual. This drive provides energy that motivates the adolescent to respond, intensifies all behavior potentials, and introduces new capacities for behavior change. Sharp changes in social expectations in addition to biological change make urgent and dramatic changes in the self concept a necessity. The modified crisis situation in which many adolescents find themselves calls for new responses. The strong motivational state caused by the high drive, and the resulting energy, put the adolescent in a good position for rapid learning. New good responses can be quickly established since the drive is high and the reward is consequently great. Useless or harmful responses can be unlearned for the same reason. Thus, McCandless' drive-change theory predicts that adolescence is a period in which great personal change can occur.

Three early studies (Bijou, Ainsworth, & Stockey, 1943; Curran, 1955; Kephart & Ainsworth, 1938) demonstrated that rehabilitation of young people who are retarded intellectually, emotionally or behaviorally could be accomplished for between 70 to 85% of the cases when they received intensive training between 13 and 16 years of age. Curran (1955) reported
that the predicted rehabilitation rate for those without special treatment was 20 to 30%. For example, in the Kephart-Ainsworth study, boys whose average age was 13 were committed by the courts to Wayne County Training School for combined reasons of mental retardation and delinquency. They had an average IQ of 65, and their educational age was generally less than the second grade level. They were, however, physiologically and neurologically normal. The researchers reported that after three years of compensative training, 75% of these students returned to their communities and were successfully integrated. Without such intervention, the norms suggest that in these cases no more than 10% could have done so.

For the adolescent, who spends a major part of his day in school and in school-related activities and whose specific task is to succeed in school, the acquisition of academic skills is the most essential and critical job. McCandless (1970) suggested that competence in their need areas is the highest goal for all normal adolescents, and Adams (1964) reported that when high school students are asked to write down personal problems, difficulties in academic work head the list. White (1959), who described the concept of competence, suggested that competence motivation may have a broadly based biological origin.

In addition to the advantage produced by the high drive state, the potential for cognitive change is beginning to appear. Inhelder and Piaget (1958) presented considerable evidence indicating that formal (abstract) operations appear slightly before the onset of adolescence. This form of thinking produces an enormous new flexibility of thought for the learner.
It allows him to grasp and manipulate relations between ideas and to go beyond his concrete experience. In spite of the fact that entry into the stage is dependent on experiences within the subject area (Ausubel & Ausubel, 1966; Bruner, 1962; 1965) and the poor reader is unlikely to be operating at an abstract level in reading tasks, he is probably doing so in tasks dependent on other kinds of input. Once the learner attains this general stage, the transition to abstract cognitive functioning in new subject matter areas takes place much more readily. It is often observed in adolescent subjects who are poor readers that their oral skills are well developed and that they abstract in a competent fashion in discussion and conversation. In many cases, they are more competent in those areas than their peers as they have been forced to compensate orally for their lack of reading ability, for many years. Thus, with the help of formal thought in other areas and the large number of relevant experiences within the subject matter area which are prerequisite to the transition from one cognitive stage to another, many subjects can be moved into the new stage. If that occurs, the development of skills like "finding the main idea" and "generalizing" should be rapidly accelerated as the adolescent brings to bear both experience in the subject area and formal thought formerly available only in oral thinking to his new tasks in reading.

Thus, the young adolescent, who is highly motivated to learn, to change and to be independent, who directs his energy and his new cognitive flexibility to learning new strategies and competencies in so basic an academic skill as reading is in a good position to be successful in a relatively short period of time. In addition, this new success is likely to motivate
him further to continue to develop those skills independently, particularly if he now knows how to do so, in that the reinforcement for his new behaviors and for his successful performance will be strongly drive-reducing and therefore very reinforcing. This will help to maintain these new behaviors.

If the treatment period must be relatively short due to constraints of manpower and economics, and if 10 weeks are chosen sometime in the school career of the child, it would appear that the adolescent period may be a particularly appropriate time, and one which provides good potential for rapid immediate success, as well as continued development of skills.

The Use of Contingency Management and Behavior Modification Procedures

1. To modify attitudes toward the reading process.

2. To motivate the subjects to participate in skill building exercises, and to practice reading.

Adolescents who are poor readers have certain characteristics in common, and consequently adopt certain common behavior patterns which have been identified by many writers (Sarason, 1972; Meichenbaum, 1973). Between 1960 and 1971 the writer spent hundreds of hours teaching, counseling and observing these students. It appeared clear at that time that their poor performance was due not only to the fact that they did not have the basic skills required, but also that they lacked a sense of confidence that they could acquire them. Years of failure had convinced them that they could never succeed at academic tasks. As a result, they developed
many behaviors that were maladaptive and self defeating. This lack of confidence in their potential competence as well as the development of avoidance strategies to academic tasks combined to mitigate against future success and became a self-fulfilling prophecy. That is, they said they couldn't do "that kind of stuff", they didn't do it, and when pushed to try they didn't have the required skills to succeed. Their indignant "see -- I told you I couldn't do it" served to confirm both to themselves and to the teacher that they were incompetent and should not be expected to perform in the future. This painful reminder of what they already knew about themselves strengthened avoidance strategies to the teacher, the school and the learning process, and perpetuated the vicious circle of failure these students had experienced since they began school. The fact that a large number of these students dropped out of school before completion is not surprising.

There is evidence to suggest that poor performers have different thinking styles than good performers when attempting to solve problems of all kinds. These thoughts are task irrelevant and self defeating. Meichenbaum (1974) called these thoughts self statements -- things the "clients say to themselves". He reported negative self statements in college students who performed poorly on creativity tests (Meichenbaum, 1973) as well as in speech-anxious subjects (Meichenbaum, 1974), and Sarason (1972) described the high test anxiety individual as self-deprecating and ruminative in evaluative situations. These thoughts intensify the learner's feelings of inadequacy and their fear of loss of status or esteem and therefore their anxiety.
The learner's feelings about his competence and his ability to cope with the task at hand affect his emotional response to that task. Beck (1970) reported that systematic study of self-reports suggest that an individual's belief systems, expectancies, and assumptions exert a strong influence on his state of well-being, as well as on his directly observable behavior. Velten (1968) has provided evidence to support the idea that what the subject says to himself can influence both mood and performance. He had subjects read statements that reflected elation ("This is great -- I really do feel good"). Others were depressive ("I have too many bad things in my life"), and still others neutral ("Utah is the 'Beehive State'"). Using verbal report as well as various indirect indicators (e.g., writing speed, reaction time, etc.), Velten found that mood varied as a function of the type of statements read.

Meichenbaum (1974) reported in his research on the role of cognitive variables in stress that performance is very much influenced by how the subject assesses his ability to cope. Albert Ellis (1962) reviewed the thinking of several Greek and Roman philosophers, as well as ancient Buddhist thinkers, who perceived a close connection between reason, emotion and behavior and offered advice for changing behavior by altering thinking patterns. Lazarus (1971) emphasized the role of cognitive factors in mental illness and focused on altering the client's maladaptive self-verbalizations.

If what one is thinking does influence behavior and performance, the question at hand must be: Can behavior modifiers deal with private events like what the client thinks about himself and his ability, and if they can
be dealt with, to what extent will they lead to control of other behaviors. Skinner (1957) said that we should not suppose that events that take place within an organism's skin have special properties for that reason, and Homme (1965) said that private behavioral events obey the same laws as non-private ones. Ullmann (1970) as the main thesis of his article on Cognitions and Behavior Therapy said, "Activities called cognitions should be formulated and dealt with in the same manner as all other human behaviors." (p. 201).

Homme, L., C'deBaca, P., Cottingham, L., and Homme, A. (1968) described the self-concept as the aggregate of sentences the subject says to himself about himself. In their terms it becomes a simple matter, therefore, to install a favorable self concept by strengthening the positive self statements. They suggested telling the student about his good performance as often as possible. They felt that thoughts like "I learned that quickly" would successfully compete with the learner's "I am dumb" concept.

Homme (1965) called these self statements "coverants" (a contraction of covert operant). He said that if the contingencies are properly managed coverants have environmental consequences and that since they have the properties of responses, they are responses. If we can detect the occurrence of these responses (self statements) and if we have control of reinforcers contingent on the response, then the whole body of operant conditioning techniques can be brought to bear.
It appears that the process of Semantic Therapy which attempts to modify the faulty pattern of the patient's thinking and the premises and attitudes that underlie these cognitions is based on the same assumptions. The behavior therapist in particular views the client's cognitions as behaviors to be modified in their own right -- thus as behaviors they are subject to the same laws of learning as overt or non-private behaviors. In fact, a major assumption of both cognitive and behavior therapy is that the patient has acquired maladaptive reaction patterns that can be unlearned, and replaced by new more productive ones (Beck, 1970).

If that is true, we may look at these negative self statements as behaviors that are learned responses, which in the case of poor readers have been reinforced as previously described. Therefore, they can be extinguished and replaced by competing self statements which are more positive and consequently more productive.

It has been observed by the writer that in the one-to-one teaching situation these self statements are frequently verbalized spontaneously by the learner and this provides the opportunity to control the consequences of the response. Thus, by ignoring his negative self statements ("I'm dumb at this kind of work") and by providing him with evidence of his competence ("Look -- you were 100% correct on this exercise") that will compete with these negative thoughts, we may be able to reduce these maladaptive responses and increase thoughts which reflect potential competence and which are, therefore, more productive. Once these thoughts are verbalized, they can be strengthened by praise and points.
There is also evidence to suggest that when one speaks more positively about something, one's emotional response to the event or person also changes. Early (1968) reported that when positive emotional words were paired with names of social isolates, the attitudes of their classmates towards them were significantly altered, and Staats (1972) in reviewing language behavior therapy studies found a number that illustrate that one can indeed change emotional meaning of a given stimulus word or image by pairing it with a positive set of words.

In addition, there is evidence to suggest that behavioral changes lead to cognitive changes (Bergin, 1970). For example, the enuretic child who is cured by a conditioning apparatus begins to elicit more positive social responses from his family and peers and also senses a new mastery over his bodily processes, both of which yield new cognitions about the self. Therefore, as new productive behaviors related to reading begin to occur, they should elicit positive social responses from the environment. Thus, the positive statements and productive behaviors should act together to give the learner new feedback from the environment about himself and the reading process.

While it is important to think more positively about one's self as a performer, no amount of statements of worth or competence will fool the adolescent for long unless he also has good solid evidence that he is at least becoming more competent. For this reason, the basic treatment strategy of what Meichenbaum (1974) called Skills-oriented Therapy should be brought to bear. In this approach the client is taught cognitive, behavior or interpersonal skills and then provided with the opportunity for application of training, either within the therapy setting or in real life.
situations. The focus of therapy is to have the client become a better problem solver so that when he is confronted with these tasks in the future he will be able to handle them without help.

There is a great deal of research in the literature which demonstrates that these procedures have been successful in helping the client help himself. Since the number of studies in which teaching skills to clients have resulted in reducing maladaptive behaviors, improving self image, increasing competence and improving general overall emotional tone are numerous, only those studies considered particularly relevant will be reported here as examples.

The ineffectiveness of coping with problematic situations along with the personal and social consequences is often a sufficient condition to produce an emotional or behavior disorder requiring psychological treatment. D'Zurilla and Goldfried (1971) demonstrated that explicitly teaching clients problem solving skills results not only in a reduction of the presenting problem, but in creative application of those newly learned cognitive skills to other life problems.

The procedures have been effectively used with individual autistic children (Ferster & De Meyer, 1961), emotionally disturbed students in a residential treatment center (Zimmerman & Zimmerman, 1962) and with groups of retarded students (Birnbrauer, Bijou, Wolf & Kidder, 1965).

They have been increasingly used in educational settings in recent years, and in fact, skills training and programmed instructional materials have long been advocated by Skinner (1958) and his followers. Several programs are worthy of more detailed report because of their applicability to this study.
In 1965 Cohen, Filipczak and Bis designed an educational environment which was effective in developing and maintaining educational behaviors in each of a group of 16 student-inmates at a national training school for boys. The project, called CASE (Contingencies Applicable to Special Education), found that subjects were lacking in two types of behavioral patterns: (1) acquisitional and attitudinal patterns, (2) specific background skills and information. The researchers observed that the subjects did not have proper study habits, that they lacked behaviors necessary to acquire skills and information, and that they were not motivated to pursue academic objectives. The project was therefore designed (1) to shape both general and specific attitudinal behaviors, (2) to raise a specified list of subject matter performances (English language skills and mathematics) to a level which more nearly approximated that of their age mates. Initial testing served as baseline data and revealed average academic performance of these adolescents at the grade two level. Continual measurement of educational behaviors was built into the project in order to provide a measure of the efficiency of educational procedures and to demonstrate his own progress to the student. Reinforcement for the required performance was points which could be converted to material or social reinforcers.

The program was carried on Monday to Friday for 195 minutes per day for eight months. Instruction was individualized. When the subjects entered the program, the average number of years completed in school was 7.4 grades with a range of six to nine years of schooling. On a battery of Standard Achievement Tests the average grade score at entrance was 2.5 grades and
5.2 at parole for an increase of 2.7 grades. In addition, the amount of time the students spent at educational activities when other leisure activities were available was considerable. The increase in educational behaviors both in time and grade level (as evaluated by objective testing) and the change in attitudinal behaviors with direct modeling after the staff (measured subjectively) was an important demonstration that even so difficult a population as academically disabled juvenile delinquents could be motivated by skill-oriented contingency management procedures to pursue academic objectives and to increase their competence. In addition, the importance of their attitude change to learning and to participating in educational behaviors should not be underestimated.

A project with a similar subject population called "Operation Step Up" was undertaken by Csapo and Agg between 1971 and 1973 in Vancouver, British Columbia. The subjects were hardcore delinquents referred to the project by the provincial court. Each of the 10 had a long history of delinquency and academic failure. The tutors were education students at the University of British Columbia. Classes took place first in a rented warehouse, later in an apartment outside the normal school environment and ran 12 months for the school day (5 hours). A school situation was created in which a highly structured environment reinforced social and academic achievement and inappropriate academic and social behaviors received no reinforcement. Performance and success were emphasized. A token economy system provided the incentive for shaping and maintaining attendance and completion of academic tasks. Objectives included the increase of academic learning in basic areas like reading and mathematics and the increase of social and recreational skills. Precision teaching methods were used as tools of
continuous evaluation of student progress. Each pupil had continuous feedback as he charted his own daily progress. The authors found significant positive changes in all academic areas. Important changes in attitude and reduction of maladaptive behaviors (like glue sniffing) were also recorded. Most important, the number of offenses for that year recorded per child were significantly reduced, which was not the case with control subjects.

Other kinds of tutoring programs have also more recently recorded substantial academic benefits when applying laboratory derived operant techniques to educational settings outside the laboratory. Harris and Sherman (1973) investigated the use of contingency management procedures and peer tutoring on math performance of fourth and fifth grade students. They found that the use of consequences for accurate performance enhanced the effects of tutoring on accuracy. When peers tutored each other over different but related problems, accuracy was also higher. This suggests the development of generalized skills in solving particular types of math problems. Greenwood, Sloane and Baskin (1974) explored the effectiveness of four peer behavior managers in supervising small groups of subjects (four to six per group) working on programmed mathematics materials. They found that the managers could be effectively trained and were most useful in the management of academic responding during daily mathematics sessions. They were particularly helpful with previously unmanageable students, and their work left the teacher intermittently free to help other students individually.

As well, operant procedures have been used to improve reading skills with a variety of populations of disabled readers. Staats and Butterfield (1965) demonstrated that these procedures could be successfully applied in teaching an individual subject reading skills. In their experiment they taught a 14-year-old Mexican-American delinquent boy, who had a long
history of school failure and misbehavior, and second grade reading achievement to improve his reading skills to a 4.3 grade level over a 44-month period, using 40 hours of reading training. In this study, Science Research Associates reading materials were adapted for use in conjunction with a token system of reinforcement.

Staats, Minke, Goodwin and Landeen (1967) used adult volunteers and high school seniors to train 18 adolescent subjects, some retarded, some emotionally disturbed, some culturally deprived. The study was concerned with demonstrating how a cognitive deficit, which they suggest frequently arises from motivational deficits, may be treated by introducing a functional reinforcing system. Subjects were given 38.2 hours of training in vocabulary, and oral and silent reading, in daily half-hour sessions, on stories taken from Science Research Associates Reading-kit Materials. Subjects earned an average of $22.29 through a token reinforcement system. They learned an average of 593.5 new words and retained 70.9% of them in a long term test. An oral reading measure of 100 S.R.A. words showed a significant effect of the experimental treatment at the .01 level.

Staats, Minke, and Butts (1970) used similar procedures to train 32 black ghetto children who were considered problem learners. This study showed that operant procedures, and an efficient reinforcement system, were significantly effective in producing improved attention and work behaviors in usually intractable children. However, 40.2 hours of training was not deemed sufficient to remediate long standing cases of educational failure.
Camp and van Doornick (1971) used nonprofessional neighborhood aids to administer a behavior modification program in remedial reading. Reading materials and training procedures were a simplified version of the ones used in the studies just described. Seven pairs of reading and control children, matched for grade and reading level, were compared for changes on four sight vocabularies and the Wide Range Achievement Test. After 14 hours, experimental subjects surpassed controls on sight vocabularies, but no significant differences were registered on the Wide Range Achievement Test.

Willis, Morris, and Crowder (1972) used eighth grade students as behavioral engineers to monitor a remedial reading program for 10 fourth grade students. In this program interesting "high-interest, low-vocabulary material", individually prescribed for each student, was available. The Readers Digest reading series, and the Sullivan programmed reading series were used. Operant procedures and toys ranging in value from 5¢ to $2.00 as reinforcers were used. Subjects gained 1.2 grades on the Slossen word recognition test after 75 days of half-hour treatment sessions. The subjects significantly exceeded their predicted rate of progress.

Busse and Henderson (1972) trained one teacher to use contingency management techniques to increase the reading achievement of 13 adolescent educable retarded subjects. After 85 days of 50-minute reading sessions, significant progress of 1.3 grades on the Iowa Silent Reading Test - Elementary Edition was achieved.

Haring and Hauck (1969) arranged learning conditions for four elementary school boys to provide individually programmed, sequentially arranged reading material and a systematic presentation of reinforcing events to accelerate and maintain a high performance rate in reading. After five months of
daily instruction, the children averaged between 100 and 200 more correct responses every day and spent very few minutes avoiding reading. Overall changes in the instructional reading levels of the four boys ranged from one and one-half to four grades.

The experiments described, and others with similar objectives of increasing academic efficiency, have certain features in common. Haring and Lovitt (1967) suggested three principles which are essential for the remediation of academic skills which are effectively used by the projects described: (a) the analysis of baseline behavior, (b) the arrangement of environmental events on a contingency system, and (c) the definition of achievement objectives by appropriate grade level performance.

These researchers recognize the need to structure the learning environment by providing: a systematic arrangement of reinforcement contingencies, so that the consequences of behavior are clear; a continuous response measurement during treatment so that the student knows he is progressing towards his goal; and a system of rewards that is meaningful and relevant to the subject.

In addition, some of the projects (like CASE and Operation Step Up) recognize the need for the systematic modification of attitudes to the learning process.

The Contribution of This Study

This research will attempt to enlarge the scope of the studies described by incorporating and combining the features which have been
demonstrated to be effective, as well as by developing some new procedures. While these studies demonstrate the effectiveness of operant procedures to remediate skill deficits in reading on difficult populations, for the most part they use discrete response training of overt measures like oral reading or sight word recognition. Even in very recent studies, Meichenbaum (1975) proposed a program to teach reading comprehension through a self-instructional training procedure in cognitive modeling and covert rehearsal. For skill training he has chosen to use mainly Cloze exercises (reading passages with words deleted). They generally failed to achieve significant carryover results on standardized and comprehensive reading tests, probably because reading is a complex skill, and training in fluency of oral reading, or vocabulary enrichment as such does not directly affect reading comprehension. However, since skills such as finding the main idea, inferring from context, sequencing, etc., are most closely related to real reading tasks in school, developing procedures to teach these skills and measuring their acquisition with standardized comprehensive tests should be most useful.

In all the studies described, skill training was monitored by a teacher or paraprofessional who retained control of the reinforcement. Continued skill development is not built into these models in spite of the fact that the subjects remained substantially below level after the treatment was complete. The present study was learner-centered and a large practise component was incorporated so that the subjects would develop the habit of reading and practicing reading skills on their own. This had the additional advantage of reducing contact time for the tutor to about 25% of the amount needed in teacher-centered programs.
The reinforcements used in the programs described were extrinsic. Money and toys as a reward for good performance are not normally available in the student's natural environment. It is possible, therefore, that once the rewards they have come to expect were no longer available they would revert to their previous performance strategies. In this study, praise, points and good grades as reward for good performance were used. This kind of reinforcement is readily available in every classroom. In addition, the intrinsic rewards that come from success, and the pleasure of reading, should maintain reading behavior and continued skill development after the program is complete. To ensure that this would occur, an intermediate stage in which reinforcement for performance would come from the student's pleasure in his own achievement was built in through the use of a summer contract, in which the student recorded his own reading activities. These contracts were collected early in the fall. Follow-up testing, with comprehensive standardized reading tests were used six months after treatment to determine whether achievement levels and rates of progress were maintained.

Programmed materials which teach the same skills to all the subjects have important limitations, in that time may be wasted teaching skills the student already knows, or may not be ready to learn. To achieve rapid development of complex skills, teaching should be directed to the individual gaps in the subject's repertoire of skills. In order to do this, tutors need substantial training, and a flexible array of materials and exercises. Strategies to handle the analysis and organization of reading tasks should be modeled since in the long term they are probably more effective in
maintaining continued skill development than specific skill training. For this reason, tutors in the present study were trained for 15 hours of class time, and had 30 hours of practice time on program materials and contingency management techniques before the treatment began. As well, they had 30 hours of class time and a substantial amount of practice while the treatment was going on. These procedures provided skillful, flexible managers who were able to design the treatment time for maximum effective use by the individual subject. An additional advantage of this method is that a large number of managers may be trained simultaneously, and as a result a large number of subjects may participate.

It has been demonstrated by projects like CASE (Cohen, Filipczak & Bis, 1965) and Operation Step Up (Csapo & Agg, 1974) that overall academic achievement is supported and maintained by a change in attitude toward the learning process, and the self as a learner. In this study systematic and active modification of at least the expressed verbal responses toward the reading process was undertaken.

The subject populations in the projects described have been hardcore delinquents, inmates of training centers, emotionally disturbed adolescents and the educable mentally retarded, while the subjects in this study are all middle class adolescents functioning within the regular public school system, in ordinary class situations. There is a very large number of these students whose poor reading skills are detrimental to their productive, happy, well adjusted functioning in school. While their need is not as
dramatic as those of the delinquents, lack of treatment contributes to substantial personal unhappiness, family tension regarding their achievement and loss of productive, well trained manpower for the future in our society.

Finally, many difficulties occur in field studies of this kind which prevent the use of good experimental design, and the use of proper control groups against which the progress of experimental subjects can be accurately and realistically measured. In this study a serious attempt was made to provide such controls.

The reading program designed for this study, and the instruction manual to tutors, Tricks of the Trade, are original, and are based on materials both written and assembled for the program, and the experience gained by the writer during 10 years of teaching English to all grades and levels of high school students. While it is not possible to determine the specific effect of this program on the results in this study, and the procedures must be considered a package for our purposes, it would be most useful in the future to investigate the effectiveness of this reading program in teaching reading skills to adolescents who are poor readers compared to present methods used in the public schools.

In this chapter an attempt has been made to show how cognitive theory as outlined by Gagné (1965) and others can be combined with the theories and procedures of behavior modification to develop skills in reading and to modify attitudes toward the reading process. Recently, other writers (Mash, 1974; Meichenbaum, 1974) have suggested that the distinction between the two theoretical approaches is getting fuzzy. A new area of investigation, Cognitive Behavior Modification, makes use of both learning theory
on which behavior modification is based and cognitive theoretical assumptions. The result is a type of skills-oriented therapy which teaches skills in graded or hierarchical steps, and uses behavior modification procedures to motivate learning in the clients. In his article, Cognitive Therapy: Nature and Relation to Behavior Therapy, Beck (1970) suggested that these two systems have much in common. The writer agrees on this point and the present study is an attempt to determine what happens in an applied program when these two theoretical systems are combined.
CHAPTER THREE

Pilot Studies

The program described in this study has been developed over a period of three years. Initially there were two major objectives:

1. To develop a pedagogical method particularly appropriate for the collegial level which used a community institution as a laboratory resource for teaching.

2. To develop an economical and efficient method of remediating reading disabilities in adolescents which would be useful to the public school system.

Phase One (October 1972 - November 1973)

In order for the officials of the public high schools to allow college students to be in direct contact with adolescents, they must fill an important need in the schools. Since the writer had substantial experience in teaching reading to poor readers, and was aware of the high school's inability to teach reading skills to all the students who could benefit, a program was designed where her students studying adolescent psychology would become reading tutors and contingency managers to grade seven students in two local high schools. The objective in Phase One was to use every available method and idea to teach the adolescents to read better, and to feel better about themselves as readers and learners. No systematic skill training procedures were used. The idea was to get these students reading
and enjoying books. Tutors were instructed in techniques to help students understand what they read and each subject entered into a contract with his reading buddy to earn the required number of reading points during the 10-week program period in exchange for a grade on his report.

In October 1972, 300 grade seven students in two high schools were tested with the Gates-MacGinitie Reading Test. Eighty students were in the remedial range (below grade level in reading). These students were divided by the teachers into an experimental and a control group in each school.

It is important to note here that the groups were not divided at random. The teachers selected the poorest readers to participate in the program. As a result, both control groups were above the grade six level in reading (see Table 1). They were identified by the test and for the purposes of this study as needing special help, and the teachers who had not chosen them to participate in the experiment felt a special responsibility to help them. In fact, some teachers reported spending time each day, both during and after class, tutoring these students. As such they do not constitute proper controls for this study, but their progress is interesting to observe.

The experimental subjects had an average pretest score of grade 5.3. A substantial number had reading scores in the grades 3.0 to 4.5 range. As well, some had reputations of being difficult behavior problems. Forty college students acted as Reading Buddies to the experimental subjects over a 10-week treatment period. They met with their clients one hour per week during school time. They discussed what the students had read and
encouraged them to read at home and during free periods for the contract. Telephone contact was maintained to answer questions about the reading and to encourage the subjects to read. The subjects were retested in May 1973 and again with a follow-up test in November 1973. No treatment or contact occurred between May and November except that before leaving the tutors encouraged their clients to continue reading.

Results

Thirty-seven out of 40 subjects completed their reading contract and earned an "A" on their report. The results of the testing are presented in Table 1.

The experimental subjects showed significant growth in reading scores at the .05 level. The control groups continued to progress. Since their scores were not substantially below grade level, and since they received additional help from their teachers, they made good gains, perhaps greater than under normal circumstances. In November, at the beginning of grade eight, they are approximately at grade level.

The experimental subjects in school 1 improved 2.2 grades, and in school 2 improved 1.4 grades, between the pretest and the follow-up test a year later. Since their average rate of growth up to that time had been 0.7 of a grade per year, we can see that the treatment procedures accelerated their average rate of growth substantially both immediately following the program and even after the completion of treatment.
### TABLE 1

Composite Mean Grade Scores on
The Gates-MacGinitie Reading Test—
Phase One - Pilot Studies

<table>
<thead>
<tr>
<th>Group</th>
<th>October</th>
<th>May</th>
<th>November</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Gr. 1 School 1</td>
<td>5.3</td>
<td>6.7</td>
<td>7.5</td>
</tr>
<tr>
<td>Experimental Gr. 2 School 2</td>
<td>5.3</td>
<td>6.1</td>
<td>6.7</td>
</tr>
<tr>
<td>Control Gr. 1 School 1</td>
<td>6.1</td>
<td>6.9</td>
<td>7.8</td>
</tr>
<tr>
<td>Control Gr. 2 School 2</td>
<td>6.5</td>
<td>7.3</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Note. The composite score is the average of scores of subtests in Speed and Accuracy, Vocabulary, and Comprehension.
Discussion

A conference was held following Phase One in which teachers, parents, administrators and tutors participated. Participants indicated that the program had engendered good will, both at the high school and at home. Parents were delighted with the students' new interest in reading. Teachers reported skills and confidence carried over to other school subjects. The tutors were enthusiastic about their own learning experience and impressed school officials with their dedication and competence. It appeared that while we had not succeeded in designing an experiment that showed significant gains of experimental group over control group (the need for a more objective and anonymous method of selection of subjects was obvious), it appeared that the procedures had substantial potential in accelerating growth of reading skills and in motivating poor readers to read. It also had potential as a sound and innovative pedagogical technique in teaching psychology. Therefore, the objectives for Phase One had been reached.

Phase Two (October 1973 – November 1974)

In October 1973, 955 grade seven students in four high schools were tested with the Gates-MacGinitie Reading Test. One hundred and ninety students were in the remedial range (grades 3 - 6). The subjects were ranked according to composite score. Subjects in the remedial range were matched on initial scores and then divided at random into experimental and control groups (see Table 2). In two schools where there was a substantial number of subjects there was one experimental and two control groups. In the third school there was one experimental and one control group. In the fourth school there was only a control group. During this phase in
addition to employing more systematic and objective procedures, an attempt was made to tease out the effect of the more important variables. Therefore, in one school there was a control group (C4) in which the students acted as buddies to the adolescents, encouraged reading, and supported positive attitudes toward the reading process. They met with the subjects for the same amount of time as the experimental group tutors to help them with their homework, however, the treatment procedures were not employed. In this case, the effect of attention by an older status person was of interest. In another school, the teachers used parts of the reading program and some treatment procedures with their whole class. Each student had a reading contract whose successful completion earned a grade on the report. Only the subjects who were in the remedial range were of interest. They served as a control group for this experiment (C5). In the fourth school where there was no experimental group, we were interested in seeing what would happen to poor readers in the regular system when the results were not contaminated by the teacher's interest in, and awareness of, program procedures (C6).

In each of the three remaining schools there was an experimental group (E1, E2, E3) where the subjects received the treatment package for 10 weeks, and a control group (C1, C2, C3) that was not identified to the teachers.

During the 10 weeks of treatment, 50 college students studying adolescent psychology acted as tutors and contingency managers to the experimental subjects in three high schools. A preliminary version of Tricks of the Trade (Schwartz, 1973) and the Contingency Management Modules (Homme & Tosti, 1973) were used to train the tutors. They were directed to systematically reinforce and record expressed responses to the reading
process and to the self as a reader, and to record but ignore negative responses.

The objectives for Phase Two were:

1. To develop procedures and materials to teach reading skills to adolescents.

2. To develop procedures to motivate disabled adolescent readers to practice reading.

3. To develop procedures to modify expressed responses to the reading process and to the self as a reader, to produce a more positive attitude to reading.

4. To develop procedures other than standardized testing to measure the gain in reading skills.

5. To continue to explore the effectiveness of a pedagogical technique for college students where a community institution is used as a laboratory resource for teaching.

Results

Forty-nine of the 50 subjects completed their reading contracts. Thirty-nine earned an A and 10 earned a B on their reports. The subjects read an average of eight books over the 10-week period. Each student agreed to complete a self-monitored summer contract where he would read as much as possible over the summer and record what he had read. A postprogram conference indicated that the college students continued to earn good will for the program from clients, school officials, teachers and parents. Teachers reported good generalization of skills in other subject areas. Parents and
guidance counselors reported less behavior difficulties with clients and tutors reported that the learning experience was of substantial value to them (Schwartz, 1975).

The subjects were retested with parallel versions of the Gates-MacGinitie Reading Test immediately following the program and again in November 1974. The results are presented in Table 2.

There was a significant difference at the .05 level between the composite scores of the experimental subjects (E1, E2, E3) when compared to the control subjects (C1, C2, C3, C4, C5, C6) in May and in November. The experimental subjects show a gain in reading scores of 1.5 grades compared to 0.5 of a grade for the control subjects in May. In November, the experimental subjects show an overall gain of 2.4 grades compared to 1.0 grades for the control subjects.

A graph of the mean number of expressed responses to the reading process and the self as a reader is presented in Figure 1. There was a significant difference at the .05 level between the pretreatment responses (weeks 1 and 2) compared to the posttreatment responses (weeks 9 and 10) for both positive and negative responses.

Discussion

This study demonstrates that an individualized tutorial program to remediate skill deficits in reading, and the systematic use of behavior modification procedures by college students trained as contingency managers and reading tutors, can significantly accelerate the growth of reading skills and modify the verbal responses to reading of adolescent
Table 2

Composite Mean Grade Scores on
The Gates-MacGinitie Reading Test -
Phase Two - Pilot Studies

<table>
<thead>
<tr>
<th>Group</th>
<th>October Pretest</th>
<th>May Posttest</th>
<th>November Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 - Experimental School 1</td>
<td>5.3</td>
<td>7.2</td>
<td>7.9</td>
</tr>
<tr>
<td>E2 - Experimental School 2</td>
<td>4.7</td>
<td>5.8</td>
<td>7.1</td>
</tr>
<tr>
<td>E3 - Experimental School 3</td>
<td>5.2</td>
<td>6.9</td>
<td>7.6</td>
</tr>
<tr>
<td>C1 - Control School 1 (no treatment)</td>
<td>5.6</td>
<td>6.4</td>
<td>6.8</td>
</tr>
<tr>
<td>C2 - Control School 2 (no treatment)</td>
<td>5.0</td>
<td>5.8</td>
<td>6.1</td>
</tr>
<tr>
<td>C3 - Control School 3 (no treatment)</td>
<td>5.0</td>
<td>5.4</td>
<td>6.1</td>
</tr>
<tr>
<td>C4 - Control School 1 (buddies only)</td>
<td>5.4</td>
<td>5.8</td>
<td>6.3</td>
</tr>
<tr>
<td>C5 - Control School 3 (teachers only)</td>
<td>5.1</td>
<td>6.0</td>
<td>6.6</td>
</tr>
<tr>
<td>C6 - Control School 4 (no program - no treatment)</td>
<td>5.1</td>
<td>4.9</td>
<td>5.8</td>
</tr>
</tbody>
</table>
Figure 1 - Mean Number of Expressed Responses to the Reading Process.
subjects who are disabled readers.

In their article "Myths in Remedial Education", Silberberg and Silberberg (1969) pointed out that while many remedial programs report success in accelerating growth of skills, gains tend to "wash out" shortly after the remedial treatment is completed. It should be noted that, contrary to evidence in the literature, this growth does not wash out but appears to continue at a more moderate rate after treatment is complete (0.9 of grade increase in November). Experimental subjects are at a substantial advantage when compared to control subjects one year after the initial test. The average score of 7.5 is now only a small amount below the grade they are in, compared to the substantial disadvantage of the control subjects who are still two years below their grade level.

Development of Procedures

During Phase Two, procedures and materials were constantly evaluated and tested as they were developed and written. Sometimes new ideas were introduced part way through the program at weekly seminars when the tutors brought forth both problems and successes. Other ideas were modified through the same process. New ways, other than standardized tests, to count and measure behavior changes were constantly sought. Ideas came from colleagues, tutors and teachers. At the end of Phase Two, Tricks of the Trade (see Appendix B, p. 163), a manual for training reading tutors, was written. This was an attempt to incorporate the methods of teaching reading skills that were developed to date. A new system of measuring target behaviors was also devised and prepared for use in the next phase.
The procedures employed in the buddies only control group (C4) and the teachers only control group (C5) were considered too unsystematic to be effective and these procedures were refined and redesigned for the next phase. The design of the study was considered basically sound but somewhat unwieldy. The use of three schools for experimental procedures was unnecessarily burdensome. The design was modified and simplified somewhat for the next phase.

The developmental process used in Phase Two can be considered analogous to running the program through a computer to see what would work. For the beginning of the experimental stage, a reasonably tight package, both in reading training procedures and in behavior modification procedures, had been developed. It was evident that the ideas were basically sound and should work even better as more effective use was made of time with the clients. In addition, both procedures and materials could continue to evolve as the tutors in the experimental phase evaluated what they were doing. At the end of three years of research some answers to important questions about the remediation of reading disabilities in adolescents, as well as new questions suggested by the research itself, could be expected.

A Case Study

In addition to the development of procedures described above, an individual case study was conducted in the office of the writer so that the tutoring process could be directly observed. This was most useful and contributed substantially to the development of materials and procedures.

A 16-year-old boy with a long history of academic failure was tutored
by one of the tutors, in addition to her grade seven client. The writer was present at all times, ostensibly busy at her desk, but unobtrusively observing the process. The tutor was in charge of the program. The presence of the writer was acknowledged by both tutor and client. They called her their "private dictionary" and called on her at times for the explanation of difficult words or to arbitrate when there was a difference of opinion about the correct answer. The subject's composite reading score on the Gates-MacGinitie Reading Test in October was 6.0. Since he was repeating grade nine, the deficit was substantial. While the progress of this student was less important than the benefits of direct observation, it should be noted that after 10 weeks of treatment he had read five books, (the first books he ever read) and his composite reading score was 7.3.

Since the subject was still substantially below grade level, it was decided to provide another 10-week program under the same conditions. After the second treatment period, the subject had read eight additional books and his composite reading score was 8.9. It is also interesting that in June the subject passed three out of four exams including English. This was the most successful semester he had in three years of high school. His mother reported that he continued to read the following year and that he would even go into book stores with her and browse, something he had never done before.

While the subject's writing skills still remain substantially below grade level, he reported a year after completion of treatment that he was as good as anyone in his class at reading and that he still liked to read before he went to sleep at night, a habit he had developed during the program.
CHAPTER FOUR

Procedures

The Subjects

During the fall semester, all the grade seven students in four high schools were tested with the Gates-MacGinitie Reading Test, Survey E, (grades 7 - 9), Form 1M. All four high schools had comparable academic standards and were located in bordering communities in the same middle class suburb outside a large urban center. While there is a possibility that the data could be confounded by school, it should be noted that the four communities were unusually similar, in housing accommodation, and religious and ethnic mixture. All four schools were part of the non-Catholic public school system and served the middle class Anglophone population of Quebec. In three years of testing, the percentage of students in the remedial range in each school ranged from 20.0 to 23.8%, while the percentage of students whose scores were above grade 10 ranged from 13.0 to 19.4%.

Of the 1,263 students tested, 260 -- or approximately one in five -- were in the remedial range (1.5 to 4.5 years below grade level). The subjects were between 12 and 14 years old, and the boys outnumbered the girls by a ratio of 3:1. All the subjects were functioning in the regular class despite their reading disability. Remédial programs were minimal in these high schools, and all subjects were expected to perform academically without special assistance. However, their grades were low, particularly in subjects dependent on the language arts.
The Design

The subjects in each school were ranked according to their composite scores on the Gates-MacGinitie Reading Test (a glance at Table 3, Page 80, would serve to clarify the explanation of the design). In two schools, the experiment was carried on as if there were separate replications of the same study. In each school, the subjects in the remedial range were listed by teacher, paired according to rank, and then divided at random into an experimental and a control group. The experimental groups (E1, E2) received the full treatment procedures for 10 weeks. The control groups (C1, C2) were sent a letter which stated they had been selected for special attention because they had the potential to improve, and that their progress in reading would be monitored by a posttest at the end of the semester. In addition, these students were identified for their teachers as needing compensative activities. Thus the teachers were free to provide whatever help was possible within the constraints of the regular school situation.

In the third school, all the grade seven students were taught reading development skills as a regular part of the curriculum by three teachers. In five classes, the teachers used contingency management, and the tutorial program in reading designed for this study, in addition to the reading program (C3). There was no individualized attention and these additional activities were part of the classroom procedure during the 10-week treatment period. The other five classes continued to receive the regular reading development program (C4). For the purposes of this study only the progress of students in the remedial range was of interest.
In the fourth school, tutors were paired for a 10-week treatment period with subjects whose scores were in the remedial range (C5). These tutors met their clients for one hour each week during the school day. They were directed to help the subjects with their homework, to support positive verbal statements toward reading and the learning process, and to spend the treatment time acting as buddies to their clients. There were no systematic skill training or contingency management procedures employed.

The Contingency Management Program

Before treatment began, a reading contract (see Appendix A, p. 125) was designed for each subject by the reading tutor in consultation with the subject's Language Arts teacher (see letter to the teacher, Appendix A, p. 136). The subject contracted to earn 150 reading points for a B on his report and 200 points for an A (see letter to the student, Appendix A, p. 137). The point values of books to a particular subject were dependent on his reading scores, his teacher's judgment of his ability, and the number of pages in the book. The contract was divided into 10 weekly sections and the subject was encouraged to earn a minimum number of points each week (see weekly form, Appendix A, p. 138). Reading points were earned when the subject had filled out a form based on his reading (see reading form, Appendix A, p. 139), and had satisfied his tutor through oral questioning and discussion that he had understood what he had read. As well, points could be earned during the skill building session for arriving on time, for having the necessary equipment and assignments complete, for paying attention and making a good effort, and for a success rate of 80%
on assigned tasks. Target behaviors were listed by the tutor (see tutor's report, Appendix A, pp. 140 - 142) after the second session. Baselines and time spent working on each skill were recorded for final report.

The tutor met the subject once per week during school hours. He was also available for telephone consultation any time during the treatment period. The subject contracted to spend at least three hours per week reading for his contract. In order to build stamina for concentrated reading he began with a minimum of 15 minutes each night, increased the amount to 30 minutes by the third night and to 40 minutes by the fifth night. He continued to increase the time spent per sitting throughout the program.

During the tutoring session, skill building was the main activity. The subject proceeded to more difficult exercises in a particular skill as soon as he answered all questions successfully. The program allowed the subject to retreat when he was not successful, to work at the same level to establish skills when he was having difficulty, and to progress as soon as he demonstrated successful acquisition of the skill. His progress in each skill area was clearly evident at all times, as tutors charted his progress from baseline, and as he saw himself able to perform more difficult tasks successfully.

By the end of the program each subject had a minimum of 40 hours of reading training and practice, 10 hours of tutoring, and 30 hours of independent reading, to fulfill his contract. The emphasis was on the unstructured time so that the habit of reading independently could be developed and the responsibility for progress would be largely dependent on the learner.
During the session, the tutor systematically but covertly recorded all expressed verbal responses toward the reading process, and to the self as a reader and performer. The tutor was directed to use a system of dots and dashes to record each expressed response. As soon as possible after the tutoring session the tutors recorded the actual words of the learner, verified the response with the classmate who was their study partner, and recorded the number of positive and negative responses emitted. A record of each week's positive and negative responses was kept and a graph showing the number of positive and negative responses emitted each week for the duration of the program was prepared for each subject. As well, as soon as possible after each session a report of the previous session (see tutor's weekly report, Appendix A, p. 144) and a plan for the next session was prepared.

The tutor reinforced all positive responses with praise and points. For example, the subject was encouraged for saying that he had enjoyed reading a book, or that he could see he was improving. Statements which suggested that he was disinterested, or that he was unable to perform, or that he was a failure, were ignored.

A research assistant met once with each team to observe and record independently what the client said, and how the tutor responded, in order to determine whether the tutor was identifying the subject's responses correctly and reinforcing them appropriately. A record of the extent of agreement was prepared (see Contingency Management report on Individual Sessions form, Appendix A, p. 143). After the session, the research
assistant went over the report carefully with the tutor and indicated where he was reinforcing appropriately, and where he was not. If reinforcement was not appropriate, the basic principles were reviewed with the tutor and concrete examples from the session were used to show him where he went wrong and how he could improve. For example, if the client stated that he didn't like the book, and then went on to describe what he had read in a detailed and excited fashion, and the tutor ignored the whole event, the research assistant would point out how he could ignore the original statement and still reinforce the excitement and interest that followed. Thus, immediate feedback on their performance was available to all the tutors and retraining could occur when responses were not appropriate. Tutors who were in doubt about their performance could request an early meeting. In two cases early meetings were recommended by the writer. All meetings specially requested occurred by week three.

The Reading Program

The target behaviors selected for this program were those which, in combination, were judged the most critical for effective performance in reading tasks at the junior high school level (for list of target behaviors see Table 12, p.107). Good comprehension and speed appropriate to the grade level were considered the most essential. A series of workbooks assembled by the writer, written by Goldweig (1970a, 1970b, 1973) and the editors of Scholastic Scope (1967, 1969a, 1969b, 1970, 1971), contained articles and diagnostic and training exercises which were designed to develop these skills.
A specialized library which contained novels, biographies, collections of short stories, etc., was placed at each school. The books were also available to the tutors through their own library. They were chosen because they were of interest to adolescents, but ranged from grades four to eight in reading level. These books formed the basis of reading material for the contract. (For a bibliography of books, see Appendix B, p.196 - 201)

The books were placed on special shelves and labeled according to their level of difficulty. The points assigned to each category of book were established by a sliding scale and were different for each subject (see Appendix A, p. 196). A collection of programmed and graded self-instruction workbooks was available in each skill area and could be assigned as bonus exercises for the client to do at home. These workbooks were light and amusing and were often requested by the clients once they had been introduced to them (for examples, see Appendix B, p. 195).

In addition Tricks of the Trade, a manual for reading tutors, provided supplementary ideas and exercises in each skill area (see Appendix B, pp. 163 - 194). As well, the appropriate materials and workbooks to be used to develop each skill were listed.

The rest of Chapter Four contains a detailed description of the procedures used. Since the procedure is original and complex, it was considered essential to provide a detailed description. Readers not interested in such detail could skim the rest of the Chapter.
The Skill Building Session

During the skill building session the tutor used the materials provided by the program, such as diagnostic exercises, graded exercises in specific skill areas, as well as timing and pretest data to establish baselines in each of the target areas, and to identify gaps in his client's hierarchy of reading skills (for examples, see Appendix B, p. 202). He was asked to judge on a scale of 1 to 5 where he assessed his client's baseline performance to be in each skill area (see Progress Report - Target Behaviors, Appendix A, p. 145). In the second week he established a list of target behaviors the team would work on for the next nine weeks. This list could be enlarged as he learned more about his client. Once this was done, the tutor had material available in the form of light and amusing workbooks in each of the skill areas he identified. For example, if speed was a problem, he could use a workbook called Sprint (Goldswig, 1970a) as well as the exercises outlined in Tricks of the Trade (Schwartz, 1974, p. 6) or if "finding the main idea" was a problem he could use Tricks of the Trade, pp. 10 - 14, or The Scope Workbooks One, Two or Three (The Editors of Scholastic Scope, 1967, 1969b, 1970) to build that skill beginning at his client's level of competence. The workbook exercises consisted of prose passages of graded difficulty followed by multiple choice questions (for examples, see Appendix B, p. 204). This allowed the tutor to work on material on which the likelihood of success was great, and thus to reinforce successful performance immediately with praise and points. It also allowed swift progress to more difficult material within the skill area as soon as the subject was successful, and practice on material of easier or equivalent difficulty when he was not.
In addition to skill building, the tutor helped his client to choose books from the library and to analyze the books he read the previous week. The team went over the reading form which the client had filled out. The tutor asked the client for a more detailed oral report and checked for comprehension. In order to do this, the tutors had to parallel read what their clients read. As well, an important aspect of the tutor’s task was to model and expose his own strategies and attitudes to reading tasks.

Thus, the weekly session of the team was a packed, intense period in which all reading behavior had specific environmental consequences, successful performance was reinforced, and reading practice was encouraged with praise and reinforced with points. At the end of the session, the week’s reading plans and the number of points to be earned, as well as bonus exercises, were outlined and recorded on the subject’s weekly form. Informal conversation between tutor and subject, games, choosing books for the following week, all high probability activities, were left to the end of the session (Premack, 1959). In order to carry on this highly structured and intense session the tutors planned and recorded each lesson when writing the report for the previous week. In this way, the materials could be collected, and parallel reading done, in the week preceding the session.

**Program Preparation**

**Meetings.** In order to conduct the program, a team of teachers, guidance counselors and administrators, co-ordinated by a section head in charge of the project, was enlisted in each high school. At least two meetings between September 1974 and January 1975 were held with each team to explain the nature of the program, to clarify program objectives, and to outline
procedures and roles of team members. In addition, an informal meeting was held in the second week of the program so that the high school team could interact with the college students, and so that each teacher could tell his cluster of college students (tutors working with his students) about the subjects.

The materials and procedures were open to evaluation and scrutiny. In this way the program could be most useful to all participants, and the enthusiasm and interest of all the team members, so critical to the success of a program of this type, could be enlisted.

Testing Program. All the grade seven students (a total of 1,265) in each of the four high schools were tested with the Gates-MacGinitie Reading Test, Survey E (grades 7 - 9), Form LM, by the high school team. Testing materials and directions were provided by the project co-ordinator. The tests were then machine scored, and the students were ranked according to composite score by a computer program written for this purpose.

The Gates-MacGinitie reading test provides scores in Speed and Accuracy (number attempted and number correct), Vocabulary and Comprehension. The score for the number attempted was excluded because it was not considered a useful measure, since students could get an inflated score by marking items at random. The other three scores were added to provide a composite reading score for each subject. Raw scores and grade scores, and standard score equivalents, were provided by the computer printout for each student, which also ranked the students in each school according to their composite standard score. It was, therefore, a simple matter to identify those subjects in the remedial range as they were at the bottom of the list for each school.
The Gates-MacGinitie Reading Test was used because it is a commonly used research tool and has many advantages as a research instrument. It has three subtest scores, which are useful for diagnostic purposes. It provides standard scores which are useful for statistical purposes, as well as grade scores which have meaning to the tutors, and other members of the team, as well as readers interested in the research. It has three equivalent parallel versions of the test (Form 1M, 2M, 3M) which are useful for the posttest and the follow-up test.

The norms for Survey E were developed by administering the tests to a nationwide sample (U.S.A.) of 40,000 students in 38 communities. In this case, the average alternate form reliability of .76, and split half reliability of .91 are sufficiently high to warrant confidence in the test results.

The test showed good construct validity, at least in this research, in that tutor's reports on individual subjects showed that students whose scores increased on the posttest read and reported with comprehension on a substantial number of books. As well, these students made good progress in target behaviors on increasingly difficult material. For example, the student who won the prize for reading the most books (18) showed an overall improvement in reading scores of 3.6 grades. The test appeared to measure those skills critical to successful reading of at least books read for pleasure. In addition, during the three years of research the teachers agreed a very high percentage of the time that the students in the remedial range were in fact poor readers. No tutor found a client who could not benefit substantially from the program.
While no reading test currently available gives a perfect measure of students' reading achievement, this one is as reliable an objective measure as any. In addition, since the scores for several students are more reliable than for one student, and since we were most interested in group performances for research outcomes, it was considered most appropriate for our purposes.

Intelligence tests. The IQ scores of all the students in the remedial range were checked by the guidance counselors. WISC, Henmon-Nelson, Lorge-Thorndike, or whatever recognized IQ test was recorded on the student's cumulative record, was accepted. Since two school boards and four high schools were involved, and since many subjects had out-of-province records, this was considered the only practical approach. The few students who had no IQ scores recorded were given WISCs by the guidance counselors. It was assumed that any student who had an IQ of 90 on a verbally-loaded IQ test, in spite of a reading disability, was within the normal range and could learn to read at least up to the grade seven level. This was done to insure that reading scores were not low because the student had reached his intellectual capacity. It is interesting to note that in three years of research no student was eliminated due to low IQ scores.

Provision of materials. The books listed in the bibliography were shelved in an area reserved for experimental subjects. They were designated easy, medium and hard by colored tapes placed on the books' binders and shelved as a group for easy selection of books at the client's current level of competence. Reading forms and weekly planning forms were available to the subjects through the section head's office.
Workbooks, project materials and books for parallel reading were readily available to the tutors through the Psychology Department's lab assistant's office on a sign out basis.

The Course in Adolescent Psychology

The students who selected the course in Adolescent Psychology were aware of the research and fieldwork requirements. Since it was not a specifically required course for any university program, all those who chose it did so voluntarily. The course had the reputation of being very heavy, but an exciting learning experience. Some students chose this course out of curiosity rather than because they intended specifically to work with adolescents in the future.

Most of the students had psychology credits in courses whose content included experimental methods, learning theory and child development. This course covered development from adolescence to old age but stressed the adolescent period (for course outline, see Appendix C, p. 221). Development was presented in terms of basic psychological theory.

The text used in this course was Adolescents: Behavior and Development by Boyd C. McCandless (1970). As well, students bought the four module package, Behavior Technology: Motivation and Contingency Management by Homme and Tosti (1973). A list of readings outlined in the "plan d'Etudes" supplemented this material (see Appendix C, p. 224).
Students met for three hours each week and the classes were held in the form of a seminar. The material presented especially stressed the cognitive and affective development of the adolescents. In addition, students were trained in contingency management and reading tutoring, and discussed problems with their fieldwork during the class session. The fieldwork was especially designed to highlight adolescent development and learning theory. The students were encouraged to provide examples from their work with their client to illustrate the theoretical material discussed in class. Each student had a study partner in his class with whom he met at least once a week to practice teaching skills, and to discuss course material. These partners were responsible for recording and evaluating each other's work. A list was circulated each week so that work could be checked off and this also served as an ongoing record of the college student's progress in his course. Compulsory attendance is not a usual practice at the College. In this case, however, the student's responsibility to attend class was stressed so that he could be in constant touch with events. Attendance was maintained at a very good level throughout the course.

Training Procedures

During the first five weeks of the semester, in addition to theoretical material in Developmental Psychology, the principles of learning and contingency management were reviewed in class. At the same time, the text-and-exercises in contingency management modules were required reading. Many examples of the kind they were likely to encounter were presented as problems and the class actively participated in solutions.
The workbooks, manuals and project materials were presented and
analyzed. Here too, the problem solving approach was used. Students,
practiced these techniques on their study partner, their younger
siblings and any other willing person.

Description of the research, its design, its objectives (see
Objectives for the Program, Appendix C, p. 226) and course objec-
tives (see Objectives for the Course, Appendix C, p. 227) were
analyzed and discussed in detail and were open to evaluation, challenge
and scrutiny.

Tutor’s Task

The tutor’s task was clearly defined as follows:

1. To establish baselines in a series of basic skills and
strategies to determine which target behaviors were appropriate, and
to design and carry out a program to meet the client’s individual
needs.

2. To use skills as a contingency manager to supervise a reading
contrast, in which all reading behaviors had specific consequences.

3. To break down avoidance strategies to reading by systematically
reinforcing all expressed positive verbal responses to the reading
process and the self as reader, and by ignoring all negative responses.

Treatment Procedures

Matching sessions. During the course and at the college student’s
semester, matching meetings were held at both experimental schools. The tutors, the high school team and the experimental subjects were present. The subjects were informed of the project through a letter they received the previous week explaining that they had been selected for this program because of their potential to improve their reading skills, and asking for their parents’ permission to participate. (It is interesting to note that during the three years of this research, with 132 subjects, no parent refused permission and no student refused to participate, despite the fact they were offered the opportunity to do so.)

During this meeting the program, the contract, and their responsibilities were explained in detail to the subjects. The fact that reading could be fun and could be improved through practice, and that they had the potential to improve, was stressed. The students were told that at the end of the program prizes would be awarded to those who showed the most improvement in reading scores. The college students put their names on the board along with the times they were available for tutoring. The subjects selected a tutor whose time slot was at a convenient time in their program. The teams were then identified, asked to sit together, and given directions for the drawing up of the contract, the exchange of phone numbers, the time and place of first meeting, etc. The subject’s language arts teacher was available to help with the contract. The students were then asked to show the tutors around the school, the library, the cafeteria, etc. This was done to provide opportunity for personal informal contact and to facilitate the establishment of the new relationships.

While the foregoing procedures are essential in the initiation, it should
be noted that they only took from 45 to 75 minutes at the maximum and that in the three years of research the matching always worked out. The writer also observed that while the subject’s behavior during the meeting was tense, guarded and in some cases even hostile, and the tutors were often apprehensive, this was usually replaced with excitement and good will as the meeting progressed. At the beginning of the meeting, the tutors sat on one side of the room, the subjects on the other. However, after the matching, pairs or teams emerged and the students eagerly showed their tutors around the school, many students took books out of the library at that meeting, even though they had never done so before.

Research procedures - teams three and four. The tutors were given a list of specific directions for carrying on the research for the next 10 weeks (see Research Procedures, Team 3, Team 4, Appendix A, pp. 146 - 148). The students were directed: to exchange phone numbers with their clients; to meet one hour per week; to make up any missed meetings; how to plan and organize each session; how to develop a professional relationship with the client, etc. Each week, if new information was required regarding professional days or new material or procedures, it was given orally in class and the students were asked to note it. During the remainder of the semester, weekly seminars continued with the course in psychology. Time was provided each week for the students to air any problems they couldn’t solve (the class was asked for suggestions) and to report on the progress they were making.

Remarkable: At the end of the research variable period each
experimental subject was given a self-monitored summer contract (see Summer Contract, Appendix A, p. 151) as an intermediate step to complete independence. The contract was drawn up by the tutor and client jointly. The subject was advised to aim for at least the number of points he had earned in his first contract. He was told that the contracts would be collected in September by the project co-ordinator and that he would be retested, but other than that there was no reward for completion. The tutors told the subjects that they would contact them in September to see how they had done. The student was asked to read as many books of his choice as he could and to record what he had read. The contract provided nine shortened reading forms for the recording of what was read. It was stressed by the tutor that there was a direct relationship between the practice of reading and the improvement of skills. As well, the importance of reading well for future academic success, the pleasure of reading, and the subject's current success were also stressed.

It was suggested that the six weeks that remained before the end of term be used to complete half the contract, as the books would be available in the library, and that the subject make a deal with his parents to buy him a new book when he finished reading one after that. In this way it was hoped to introduce behaviors like browsing in bookstores, buying and collecting books as valued personal possessions, etc. The contract was signed by the subject, the tutor, and the parents. It was hoped that in this way the parents would continue to reinforce reading behavior at home.
Survey E, Form 2M, was administered to all the subjects in the week following the completion of the program. Two weeks after the treatment was completed a meeting was held at each high school for all the program participants. At this meeting all the items mentioned by the tutor when the summer contract was made up were restated. The fact that each student had entered into the summer contract, and that the contracts had been signed by the parents, was checked. Two prizes were awarded—a trophy (with an open book, stating the child's name and "Reading Champion 1975") was awarded to the child who showed the largest improvement in reading scores, and a book certificate of $10.00 was awarded to the child who earned the most reading points. This was done to encourage competition toward the end of the program among those students who completed their contracts early, as well as to provide additional recognition for reading behavior by peers and teachers.

The tutors sent two letters, one to the parents and one to the subject's teacher, outlining the child's progress in general terms (e.g., he has improved about 2 grades in reading scores; his reading speed has improved substantially) and indicating the areas of weakness that still needed development. This was done to continue the policy of open communication with all participants and to provide the teacher with information on how to help the students more effectively in the future if they could.

Six months after the treatment was completed, all groups were retested with the Three-Reading Tests: Reading Test, Survey E, Form 2M.
fieldwork assignment as part of the work for the course. They were directed to act as "buddies" to clients in one of the control groups (see Directions to Team One, Appendix A, p. 155). They were aware of the research design and realized they were investigating whether their personal interest and support, as well as help with homework, would help poor readers improve their skills. They were directed specifically to work on the relationships, to act as buddies to their clients and to support positive attitudes toward the self as a learner and toward the reading process, and to ignore negative responses. While they were generally aware of the principles of learning and were told of the contingency management procedures used by the tutors in previous experiments, they were not directed to employ these procedures in any systematic way.

A matching meeting to pair teams was held, and the tutors met with their clients one hour per week during school time to help them with their homework. Telephone contact was maintained throughout the program and the tutors encouraged their clients to read, to make study schedules, to organize their work, etc.

Research procedures - Team two. Members of Team Two were three reading teachers who taught reading to all the grade sevens, the section head for grade seven, and the guidance counselor for grade seven. The teachers were trained to use program materials and contingency management procedures by the writer. A 10-week program in which all the reading skills in the program would be dealt with in three one-week one-hour sessions was initially planned (see Research Procedures - Team Two, Appendix A, p. 184). The teachers taught this program to their clients in clinics (60).
Each of their students was on a reading contract. Its successful completion led to a grade on the report. Other than the contract and the marking of reading forms, no individualization occurred. While all these teachers' students participated, for research purposes only those students whose reading scores were in the remedial range were of interest. In the other five classes (C4), the reading program was carried on as usual.

The control subjects in the experimental schools (C1, C2) were sent a letter telling them the Reading Research Project had selected them for attention because they had the potential to improve (see letter, Appendix A, p. 161), and that their progress would be monitored by posttests later in the semester. Identical letters were also sent to randomly selected high scorers in each of their classes so that they would not think only poor students were selected. In addition, they were identified for their teachers as needing compensative activities. Since the teachers were on the high school teams and were aware of program materials and procedures, and since they were free to help them when they could, it was felt that their progress could realistically be compared to that of the experimental subjects. It was expected that in this way there would be some control for the effect of the attention factor.

Difficulties encountered. Two years of experience in the Pilot Studies for the project coordinator and teachers made all the high schools eliminate most of the cruxes in the program. Careful and detailed planning of the phases of the experimental program and continuous preparation of the teachers and teams for the experimental unit programs. Only minor problems were encountered. The most frequent was the high ratio of the retention of the high school teachers who had administrative duties in the high school.
Criteria for Success of the Experiment

Disabled readers, adolescents in grade seven, whose composite scores on the Gates-MacGinitie Reading Test range between grades three and six, should improve their reading skills at least one full grade beyond the expected rate of growth (0.7 of a grade), after a 10-week remedial program when:

1. They participate in a skill-building program in reading individually designed to begin at their tested level of competence, to develop those prerequisite skills that are absent from their personal hierarchy of reading skills.

2. Their reading behaviors have specific and systematic consequences through the use of behavior modification procedures.

3. They are motivated to practice reading for at least 30 hours through the use of an individually designed reading contract.

4. The treatment is individualized and monitored by a college student trained as a reading tutor and a contingency manager.

5. Expected positive responses toward reading, the school and the subject as a reader, are systematically reinforced, and expected negative responses and avoidance strategies to reading and the practice of reading skills are ignored by the tutor.

6. The program is implemented so that responsibility for
fulfilling of the reading contract and the development of reading skills
lies with the learner.
CHAPTER FIVE

Results

Overview

The mean grade scores on the Gates-MacGinitie Reading Test for each of the subtests and for the composite scores are presented in Table 3.

It should be noted that the average grade increase in composite scores for the experimental group in school one (E1) was 2.2 grades compared to 1.0 grade for the control group (C1) in that school. In school two, the average increase for the experimental group (E2) was 1.9 grades compared to 0.8 of a grade for the control group (C2).

The expected rate of growth between the pre and post test is 0.7 of a grade for students progressing at the average rate of one grade per year. However, the subjects in this study had been progressing at approximately 70% of the normal rate, and their expected rate of increase between the pre and post tests would be 0.5 of a grade. Treatment procedures accelerated the rate of growth of the experimental subjects (E1 and E2) to 2.1 grades, or three times the expected rate for average students, and four times their previous rate. This would amount to the equivalent of 1.8 grade for all the control students (C1 and C2) with a 1.0 rate of the average gains for the control group.
### Table 3

**Mean Grade Scores**

**Gates-MacGinitie Reading Test - Survey E (grades 7 - 9)**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Speed</th>
<th>Vocabulary</th>
<th>Comprehension</th>
<th>Composite*a</th>
<th>Grade Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>pre</td>
<td>pre</td>
<td>pre</td>
<td>post</td>
<td>pre</td>
</tr>
<tr>
<td>E1 - Exp. School 1</td>
<td>20</td>
<td>5.3</td>
<td>7.3</td>
<td>5.7</td>
<td>7.7</td>
<td>4.6</td>
</tr>
<tr>
<td>E2 - Exp. School 2</td>
<td>22</td>
<td>5.2</td>
<td>6.9</td>
<td>5.9</td>
<td>7.8</td>
<td>4.8</td>
</tr>
<tr>
<td>C1 - Cont. Letters School 1</td>
<td>20</td>
<td>4.7</td>
<td>5.8</td>
<td>5.2</td>
<td>6.2</td>
<td>4.3</td>
</tr>
<tr>
<td>C2 - Cont. Letters School 2</td>
<td>22</td>
<td>5.3</td>
<td>5.9</td>
<td>5.3</td>
<td>6.9</td>
<td>5.2</td>
</tr>
<tr>
<td>C3 - Cont. Read. Train. Program School 3</td>
<td>17</td>
<td>4.5</td>
<td>5.6</td>
<td>5.4</td>
<td>6.9</td>
<td>5.7</td>
</tr>
<tr>
<td>C4 - Cont. Read. Train. School 3</td>
<td>17</td>
<td>4.8</td>
<td>6.8</td>
<td>4.4</td>
<td>6.3</td>
<td>5.2</td>
</tr>
<tr>
<td>C5 - Cont. Budding School 4</td>
<td>23</td>
<td>4.7</td>
<td>5.8</td>
<td>5.1</td>
<td>6.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>

*Note: The grade is the actual rate of increase for average students between the pre and post testing.*

*aComposite score is the average of the scores for Speed, Vocabulary, and Comprehension.*
Table 4

Progress in Grade Levels for Experimental Subjects (E1 & E2) compared to Control Subjects (C1 & C2)

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Pretest</th>
<th></th>
<th></th>
<th>Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental</td>
<td>Control</td>
<td>Experimental</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>3.0 - 4.0</td>
<td>1</td>
<td>2.4</td>
<td>6</td>
<td>14.3</td>
<td>0</td>
</tr>
<tr>
<td>4.1 - 5.0</td>
<td>7</td>
<td>16.7</td>
<td>12</td>
<td>28.6</td>
<td>0</td>
</tr>
<tr>
<td>5.1 - 6.0</td>
<td>24</td>
<td>51.0</td>
<td>24</td>
<td>57.1</td>
<td>10</td>
</tr>
<tr>
<td>6.1 - 7.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>11</td>
</tr>
<tr>
<td>7.1 - 8.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>13</td>
</tr>
<tr>
<td>8.1 - 9.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>7</td>
</tr>
<tr>
<td>9.1 - 10.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>10.1 - 11.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. n = 42 in both groups

*1/42 means that one student out of 42 was at the 3.0 - 4.0 grade level in the pretest.
subjects (E1 and E2) and the control subjects (C1 and C2) in the same schools. Since these subjects were originally paired and divided at random, the comparison of their progress should be most interesting.

In the pretest, 100% of the subjects were in the remedial range (grades 3.0 - 6.0). In the posttest, 23.8% of the experimental subjects and 45.2% of the control subjects remained in the remedial range. In the experimental group, 50.1% of the subjects were at grade level or above in the posttest compared with 14.3% of the control subjects.

While grade scores have more meaning for the writer and probably for most readers, standard scores are more accurate.

Since standard scores are equal interval scores they can more reliably be used for averaging and for computational purposes. In addition, the expected rate of growth between the pre and posttests is built into the standard score tables. Thus a subject needs to get a higher raw score in the posttest in May than he did in the pretest in October to get the same standard score. That is, the computer was programmed to convert October raw scores to standard scores from the 7.1 column (seven years, one month of schooling), while the May scores were taken from the 7.8 column. For these reasons, the standard scores were used for all statistical analyses. Since both kinds of measurement contribute to understanding the data, they were both used wherever it was considered appropriate.

Table 5 presents the mean standard scores for each of the subtests, speed, vocabulary and comprehension, and for the composite scores (speed +
vocabulary + comprehension divided by three) of the Gates-MacGinitie Reading Test. This table is equivalent to Table 3.

It should be noted that the average gain in composite scores for the experimental group in school one (E1) was 9.00 compared to 3.02 for the control group (C1) in that school. In school two the average gain for the experimental group (E2) was 7.50 compared to 2.19 for the control group (C2). Treatment procedures accelerated the rate of growth for the experimental subjects (E1 & E2) to 8.25 compared to 2.94 for all the control groups (C1, C2, C3, C4, C5).
**Table 5**

Mean Standard Scores

Gates-MacGinitie Reading Test - Survey B (grades 7 - 9)

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Speed pre</th>
<th>Speed post</th>
<th>Vocabulary pre</th>
<th>Vocabulary post</th>
<th>Comprehension pre</th>
<th>Comprehension post</th>
<th>Composite pre</th>
<th>Composite post</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>20</td>
<td>43.40</td>
<td>52.90</td>
<td>43.65</td>
<td>52.00</td>
<td>41.30</td>
<td>50.45</td>
<td>42.78</td>
<td>51.78</td>
<td>9.00</td>
</tr>
<tr>
<td>H2</td>
<td>22</td>
<td>42.95</td>
<td>49.64</td>
<td>42.86</td>
<td>51.91</td>
<td>42.00</td>
<td>48.77</td>
<td>42.61</td>
<td>50.11</td>
<td>7.50</td>
</tr>
<tr>
<td>C1</td>
<td>20</td>
<td>40.50</td>
<td>44.05</td>
<td>41.20</td>
<td>44.15</td>
<td>40.05</td>
<td>42.60</td>
<td>40.58</td>
<td>43.60</td>
<td>3.02</td>
</tr>
<tr>
<td>C2</td>
<td>22</td>
<td>43.23</td>
<td>44.82</td>
<td>42.41</td>
<td>47.27</td>
<td>43.59</td>
<td>43.73</td>
<td>43.08</td>
<td>45.27</td>
<td>2.19</td>
</tr>
<tr>
<td>C3</td>
<td>17</td>
<td>39.76</td>
<td>43.88</td>
<td>42.47</td>
<td>47.65</td>
<td>45.76</td>
<td>44.82</td>
<td>42.67</td>
<td>45.45</td>
<td>2.78</td>
</tr>
<tr>
<td>C4</td>
<td>17</td>
<td>40.65</td>
<td>48.18</td>
<td>38.41</td>
<td>44.59</td>
<td>41.29</td>
<td>42.06</td>
<td>40.78</td>
<td>44.94</td>
<td>4.16</td>
</tr>
<tr>
<td>C5</td>
<td>28</td>
<td>40.11</td>
<td>44.04</td>
<td>40.93</td>
<td>43.82</td>
<td>39.93</td>
<td>40.71</td>
<td>40.32</td>
<td>42.86</td>
<td>2.54</td>
</tr>
</tbody>
</table>

Note: The Composite Score is made up of the subscores in Speed, Vocabulary, and Comprehension, divided by three.
**Statistical Analysis**

The Gates-MacGinitie Reading Test. A one-way analysis of variance was carried out on the composite pretest scores for all groups. (The least squares solution was used to account for unequal sample sizes in all analyses.) The differences between the groups before treatment were significant at the .05 level. The Anova summary is presented in Table A, Appendix D. This difference reflects the fact that there were four groups with high means (K1, K2, C2, C3) and three groups with low means (C1, C4, C5). This occurred because in the latter set there were three or four students with very low scores. This factor is also evident in the standard deviations of the low groups which were greater than those of the high groups. For example, in C1 the standard deviation was 11.96 compared to 6.34 in K1. In Bartlett's test for the homogeneity of variance, chi square = 26.82. This indicates that group variances were different, and the results should be viewed with this factor in mind.

Kerlinger (1973) said that when subjects are matched on variables significantly related to the dependent variable, correlation is introduced into the statistical picture. When subjects are first matched and then assigned to experimental and control groups at random, the repeated measures design is suggested (p. 274). In this case, since the subjects were matched on the reading test used as the dependent variable, ranked by teacher, paired, and then divided at random into experimental and control groups, the repeated measures design was considered appropriate here.

As well, when running an experiment in several schools, the best
procedure is to reproduce the experiment in each of the schools, and when this is not possible, to assign the experimental treatments to the schools at random so as to minimize the confounding of the data with between-school variance (Kerlinger, p. 368). In this case, the experimental procedures were replicated in schools one and two, and the difference between the experimental and the control groups in each of these schools formed the main test for the study. While it is not usually possible in field studies of this type to manipulate the design in ways that would be most desirable, an effort was made here to do so to the extent possible. It was not possible, however, to have the different control situations in each school. To compensate for this at least somewhat, the schools chosen were as similar as possible and were located in adjacent suburbs of a large metropolitan area. Thus, control groups C3 and C4 were in school three and C5 was in school four. While it is recognized by the writer that the data in schools three and four are possibly confounded by between-school variance, the demographic similarity of the schools, the fact that the percentages of subjects in the remedial range were so similar for three years in a row (see Subjects, Chapter Four, p. 56), and the fact that when the differences between schools x trials, or schools x groups x trials (see Table 7, p. 92), were tested, the differences were not significant. This allows us to consider that in this study the between-schools variance was not an important consideration. Nevertheless, the data should be viewed with this factor in mind.

A factorial design with one independent-samples factor (schools) and two correlated-samples factors (groups and trials) was then used to analyze the data. The means for the composite standard scores are presented in
Table 6 (for Tables of Means for each of the subtests, see Appendix D, Tables B, C, D.). A graph of the groups by trials interaction in school one is presented in Figure 2 and a graph of the groups by trials interaction in school two is presented in Figure 3. The analysis of variance summary is presented in Table 7 (for Anova Summaries for each of the subtests, see Appendix D, Tables E, F, G.).

It should be noted that the interaction between groups and trials was significant, as were the main effects for groups and for trials. This suggests that both experimental and control groups improved significantly between the pre and post test but that the improvement of the experimental group was significantly better than that of the control group. This factor is clearly demonstrated by the graphs of the interactions in Figure 2 and Figure 3.

There was as well a significant schools x groups interaction, which probably reflects the initial difference between C1 and the other three groups in schools one and two. However, the schools x trials interaction and the schools x groups x trials interaction were not significant. Therefore, it may be concluded that with respect to treatment, the differences between schools one and two were minimal. Thus, it appears that for the purposes of evaluating the effect of the treatment in this study the difference between schools was not an important factor. Therefore, for the purposes of subsequent analysis, data from the experimental subjects in schools one and two (E1 and E2) were combined, as were the data from control subjects (C1 and C2) and each was considered as one group.
Their scores were then analyzed along with those of the control groups in schools three and four. The means for all groups are presented in Table 8 (for Tables of Means for each of the subtests, see Appendix D, Tables H, I, J.). The graph of the groups by trials interaction is presented in Figure 4. The analysis of variance summary is presented in Table 9 (for anova summaries of each of the subtests, see Appendix D, Tables K, L, M.).

It should be noted that the groups-by-trials interaction was significant. As well, the main effect due to groups, and the main effect due to trials were significant. This suggests that the effects of treatment made a significant difference for all groups. The graph of interaction, Figure 4, shows clearly that the effect on the experimental group was significantly better.

Post hoc tests (Schefé) using change scores were then carried out for the composite scores and for each of the subtests between the experimental group and each of the control groups, and between C4 and C5 because the difference among their means was the greatest of all the control groups. The results are presented in Table 10 (for post hoc comparisons for each of the subtests, see Appendix D, Tables N, O, P.).

It should be noted that the differences between the experimental group and each of the control groups were significant. However, the difference between C4 and C5 was not significant. Since the difference between C4 and C5 represented the largest difference between the control groups, it may be assumed that the differences between the other control groups would not be significant.
### Table 6

**Table of Means**

Composite Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>20</td>
<td>42.78</td>
<td>31.78</td>
</tr>
<tr>
<td>C1</td>
<td>20</td>
<td>40.58</td>
<td>43.60</td>
</tr>
<tr>
<td>School 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>22</td>
<td>42.61</td>
<td>43.27</td>
</tr>
<tr>
<td>C2</td>
<td>22</td>
<td>43.08</td>
<td>43.27</td>
</tr>
</tbody>
</table>
Figure 2. Graph of interaction - school 1.
Mean scores (composite) Gates-MacGinitie Reading Test.
Figure 3. Graph of interaction - school 2.
Mean scores (composite) Gates-MacGinitie Reading Test.
<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Schools</td>
<td>13.98</td>
<td>1</td>
<td>13.98</td>
<td>0.60</td>
</tr>
<tr>
<td>error - schools</td>
<td>932.42</td>
<td>40</td>
<td>23.31</td>
<td></td>
</tr>
<tr>
<td>Main effect Groups</td>
<td>548.89</td>
<td>1</td>
<td>548.89</td>
<td>39.93*</td>
</tr>
<tr>
<td>Interaction schools x groups</td>
<td>94.91</td>
<td>1</td>
<td>94.91</td>
<td>6.90*</td>
</tr>
<tr>
<td>error - groups</td>
<td>549.84</td>
<td>40</td>
<td>13.75</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials</td>
<td>1225.08</td>
<td>1</td>
<td>1225.08</td>
<td>250.84*</td>
</tr>
<tr>
<td>Interaction schools x trials</td>
<td>14.09</td>
<td>1</td>
<td>14.09</td>
<td>2.69</td>
</tr>
<tr>
<td>error - trials</td>
<td>195.32</td>
<td>40</td>
<td>4.88</td>
<td></td>
</tr>
<tr>
<td>Interaction groups x trials</td>
<td>332.46</td>
<td>1</td>
<td>332.46</td>
<td>76.93*</td>
</tr>
<tr>
<td>Interaction sch x gps x trials</td>
<td>1.21</td>
<td>1</td>
<td>1.21</td>
<td>0.28</td>
</tr>
<tr>
<td>error - groups x trials</td>
<td>172.74</td>
<td>40</td>
<td>4.32</td>
<td></td>
</tr>
</tbody>
</table>

Note. F.95 (1, 40) = 4.08

*p < .05
Table 8

Table of Means

Composite Scores - Gates-MacGinitie Reading Test
(E1 & E2) and (C1 & C2) combined

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools 1 and 2</td>
<td>42</td>
<td>42.69</td>
<td>30.90</td>
<td>8.21</td>
</tr>
<tr>
<td>El and E2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools 1 and 2</td>
<td>42</td>
<td>41.89</td>
<td>44.48</td>
<td>2.59</td>
</tr>
<tr>
<td>C1 and C2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>17</td>
<td>42.67</td>
<td>43.45</td>
<td>2.78</td>
</tr>
<tr>
<td>C4</td>
<td>17</td>
<td>40.78</td>
<td>44.94</td>
<td>4.16</td>
</tr>
<tr>
<td>School 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>28</td>
<td>40.32</td>
<td>42.86</td>
<td>2.54</td>
</tr>
</tbody>
</table>
Figure 4. Graph of interaction - all groups
Mean scores (composite) Gates-MacGinitie Reading Test.
### Table 9

Analysis of Variance Summary - Composite Scores - Gates-MacGinitie Reading Test

All groups, (E1 and E2), (C1 and C2), C3, C4, and C5

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Groups</td>
<td>1083.01</td>
<td>4</td>
<td>270.75</td>
<td>11.47*</td>
</tr>
<tr>
<td>error - groups</td>
<td>3327.44</td>
<td>141</td>
<td>23.60</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials</td>
<td>1414.46</td>
<td>1</td>
<td>1414.46</td>
<td>266.79*</td>
</tr>
<tr>
<td>Interaction groups x trials</td>
<td>445.88</td>
<td>4</td>
<td>111.47</td>
<td>21.02*</td>
</tr>
<tr>
<td>error - trials</td>
<td>747.56</td>
<td>141</td>
<td>5.30</td>
<td></td>
</tr>
</tbody>
</table>

Note. F.95 (4, 141) = 2.43

*p < .05
Table 10

Post Hoc Comparisons of Change Scores (Scheffé)

Composite Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(E1 and E2) vs (C1 and C2)</td>
<td>62.62*</td>
</tr>
<tr>
<td>(E1 and E2) vs C3</td>
<td>33.68*</td>
</tr>
<tr>
<td>(E1 and E2) vs C4</td>
<td>18.73*</td>
</tr>
<tr>
<td>(E1 and E2) vs C5</td>
<td>30.97*</td>
</tr>
<tr>
<td>C4 vs C5</td>
<td>2.62</td>
</tr>
</tbody>
</table>

*Note. F.95 (4, 141) = 2.43, F = 9.72

*P < .05
We may conclude, therefore, that the treatment procedures were more effective for the experimental subjects than for the control subjects. A glance at the graph of interaction, Figure 4, makes that conclusion evident. Since the control groups were not significantly different from each other, it appears that the control subjects were not differentially affected by the different aspects of the procedures which were used. However, the control subjects did improve their performance in the posttest; it seems that singling out poor readers for treatment is generally beneficial, and accelerates the development of reading skills, whatever the treatment may be.

Expressed verbal responses to the reading process. The number of expressed verbal responses to the reading process and to the self as a reader was recorded each week by each tutor, and a graph noting the positive and negative responses separately was prepared. A graph representing the average number of responses for all the subjects, for each week, is presented in Figure 5.

The subject's responses in weeks one and two before the systematic reinforcement procedures had the chance to be effective were considered the subject's presenting behaviors, and were used as pretreatment scores for analysis purposes. The responses in weeks nine and ten, after the reinforcement procedures had been in effect for eight sessions, were considered to be posttreatment behavior and were used as posttreatment scores.

Analysis of Variance procedures, using a two-factor repeated measures design — repeated on both factors — was then carried out. The Summary of the Analysis of Variance is presented in Table II. Post Hoc Comparisons
(Scheffé) between the pretreatment and posttreatment responses for both positive and negative responses were then carried out to determine whether the increase in positive responses, and the decrease in negative responses were significant. The results are presented in Table 12.
FIG. 5   EXPRESSED VERBAL RESPONSES TO THE READING PROCESS
Table 11

Analysis of Variance Summary - Expressed Verbal Responses to the Reading Process

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect - Subjects</td>
<td>2445.72</td>
<td>1</td>
<td>2445.72</td>
<td>193.76*</td>
</tr>
<tr>
<td>error - subjects</td>
<td>517.53</td>
<td>41</td>
<td>12.62</td>
<td></td>
</tr>
<tr>
<td>Main effect - periods</td>
<td>30.00</td>
<td>1</td>
<td>30.00</td>
<td>3.53</td>
</tr>
<tr>
<td>error - periods x subjects</td>
<td>348.24</td>
<td>41</td>
<td>8.49</td>
<td></td>
</tr>
<tr>
<td>Main effect - response type</td>
<td>275.15</td>
<td>1</td>
<td>275.15</td>
<td>29.68*</td>
</tr>
<tr>
<td>error - response type x subjects</td>
<td>380.10</td>
<td>41</td>
<td>9.27</td>
<td></td>
</tr>
<tr>
<td>Interaction - resp type x periods</td>
<td>290.72</td>
<td>1</td>
<td>290.72</td>
<td>48.94*</td>
</tr>
<tr>
<td>error - resp type x per x subj</td>
<td>243.53</td>
<td>41</td>
<td>5.94</td>
<td></td>
</tr>
</tbody>
</table>

Note. F.95 (1, 41) = 4.08

*p < .05
Table 12

Post Hoc Comparisons (Scheffé)

Expressed Verbal Responses to the Reading Process

<table>
<thead>
<tr>
<th>Responses</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Positive) pre vs post</td>
<td>35.04*</td>
</tr>
<tr>
<td>(Negative) pre vs post</td>
<td>9.32*</td>
</tr>
</tbody>
</table>

Note. F.95 (2, 80) = 3.11, F' = 6.22

*p < .05
It should be noted that the response type x periods interaction was significant. As well, the main effect due to response type was significant, while the main effect of periods was not significant. These results indicate that the systematic modification of responses successfully widened the gap between the positive and negative responses. The Post hoc Comparisons of positive and negative pretreatment and posttreatment responses indicate that the difference was significant in both cases. This suggests that the contingency management procedures used by the tutors effectively increased the number of positive statements expressed about the reading process and decreased the number of negative statements. This is illustrated in Figure 5.

Target behaviors. Tutors were asked to rate their clients' progress on a 5-point scale. Pre-scores represent their assessment of presenting behaviors and the difficulty of task exercises the subjects were able to perform successfully. Post scores indicate both their assessment of the learners' achievements and task performance at the end of the program. The responses which were prepared for each team were then averaged and the results were presented in Table 13. The final column in Table 13 provides an indication of the extent to which each target behavior was stressed in individual programs. It should be noted that there was important progress in all target behaviors over the treatment period.

Contracts. Contracts were completed by 40 out of 42 or 95.2% of the experimental subjects. Of these, 37 or 88.1% earned an A, and 27 or 64.3% of them earned more than 250 points. To do this, the subjects read an average of 8.9 books. One student read 18 books and earned 499 points (his
Table 13
Tutor's Assessment of Progress in Target Behaviors

<table>
<thead>
<tr>
<th>Target Behaviors</th>
<th>Level of Efficiency</th>
<th>% of Teams Working on Target Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (least)</td>
<td>2</td>
</tr>
<tr>
<td>Speed</td>
<td>pre 2.4%</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Stamina</td>
<td>pre 19.0%</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Main Idea</td>
<td>pre 26.1%</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Detailing</td>
<td>pre 21.4%</td>
<td>50.0%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Sequencing</td>
<td>pre 11.9%</td>
<td>38.1%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Generalizing</td>
<td>pre 23.8%</td>
<td>38.1%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Novel Analysis</td>
<td>pre 31.0%</td>
<td>33.3%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Reading Form</td>
<td>pre 23.8%</td>
<td>52.4%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Organization</td>
<td>pre 21.4%</td>
<td>28.5%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Independence</td>
<td>pre 23.8%</td>
<td>21.4%</td>
</tr>
<tr>
<td></td>
<td>post 2.4%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Attitude</td>
<td>pre 14.3%</td>
<td>26.1%</td>
</tr>
<tr>
<td></td>
<td>post 0.0%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

a 2.4% means that 1 of the 42 tutors assessed his client's baseline performance in Speed at the lowest level of efficiency.

b 92.9% means that 39 out of 42 teams worked on Speed.
reading scores improved 2.6 grades. The minimum number of books read by subjects who completed their contract was five.

Follow-up. All the subjects who could be contacted were retested early in November with the third parallel form of the Gates-MacGinitie Reading Test (Survey E - grades 7 - 9, Form 3N). In spite of the fact that the four high schools were located in a highly mobile area, 74% of the sample was retested. Only the pre and posttest results of the students who were available for follow-up study were included in the final analyses. However, the similarity of the means of the original and reduced samples in the pre and posttests (compare Table 3 and Table 14) indicates that the reduced sample is closely representative of the original one.

The results of the Composite Grade Scores are presented in Table 14. (The Mean Grade Scores for the individual subtests in the follow-up test are presented in Table Q, Appendix D.)

It should be noted that six months after the tutoring has been completed, all the subjects have consolidated their gains in grade scores, and continue to progress, but the rate of progress has slowed down. It is important, however, that all the groups maintain their original gain. The expected rate of increase for average students between the pretest and the follow-up test is 1.0 grade. The subjects in this study had been progressing at 70% of this rate, or 0.7 of a grade per year, before the program began. The total grade increase for the experimental subjects (E1 and E2) was 2.6 grades, compared to the average total grade increase of 1.6 grades for the control subjects (C1 and C2, C3, C4, C5).
### Table 14

**Composite Grade Scores - Gates-MacGinitie Reading Test**

**Final Results**

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 and E2</td>
<td>30</td>
</tr>
<tr>
<td>C1 and C2</td>
<td>27</td>
</tr>
<tr>
<td>C3</td>
<td>12</td>
</tr>
<tr>
<td>C4</td>
<td>14</td>
</tr>
<tr>
<td>C5</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow-up</th>
<th>Total Grade Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 and E2</td>
<td>5.2</td>
<td>7.5</td>
<td>7.8</td>
<td>2.6</td>
</tr>
<tr>
<td>C1 and C2</td>
<td>5.0</td>
<td>5.8</td>
<td>6.7</td>
<td>1.7</td>
</tr>
<tr>
<td>C3</td>
<td>5.2</td>
<td>6.1</td>
<td>6.4</td>
<td>1.2</td>
</tr>
<tr>
<td>C4</td>
<td>4.8</td>
<td>6.1</td>
<td>6.4</td>
<td>1.6</td>
</tr>
<tr>
<td>C5</td>
<td>4.9</td>
<td>5.7</td>
<td>6.6</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**Note.** Only subjects present for follow up testing are included in this sample.

**a.** The expected rate of increase for average students between the pre-test and the follow up test is 1.0 grade.
Thus treatment procedures accelerated the rate of growth of the experimental subjects to 3.7 times their previous rate and 2.6 times the expected rate for average students in one year. The rate of growth for control subjects was 2.3 times their previous rate and 1.6 times the expected rate for average students.

Table 15 presents the mean composite standard scores for the Gates-MacGinitie Reading Test for the reduced sample and represents the final results for this study. The experimental group shows a total gain of 5.92 compared to an average of 2.47 for all the control groups. It should be noted that this is less than the gains in the pretest scores. This is because the rate of growth has slowed down, and the standard scores include the average expected rate of growth.

A factorial design with one independent-samples factor (groups) and one correlated-samples factor (trials) was then used to analyze the data. A graph of the groups x trials interaction is presented in Figure 6. The Analysis of Variance Summary is presented in Table 16.

It should be noted that the groups x trials interaction was significant as well as the main effects due to groups and to-trials. This suggests that over time the effects of treatment made a significant difference for all groups. The graph of interaction, Figure 6, shows clearly that the effect on the experimental group was greater.

Planned comparisons between the pretest and follow-up test composite scores were then carried out between the experimental group and each of the control groups. The results are presented in Table 17. It should be noted
Table 15

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
<th>Total Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 and E2</td>
<td>30</td>
<td>42.68</td>
<td>51.20</td>
<td>48.60</td>
<td>5.92</td>
</tr>
<tr>
<td>C1 and C2</td>
<td>27</td>
<td>41.88</td>
<td>44.20</td>
<td>44.68</td>
<td>2.80</td>
</tr>
<tr>
<td>C3</td>
<td>12</td>
<td>42.44</td>
<td>45.11</td>
<td>43.17</td>
<td>1.29</td>
</tr>
<tr>
<td>C4</td>
<td>14</td>
<td>40.55</td>
<td>45.02</td>
<td>43.55</td>
<td>3.00</td>
</tr>
<tr>
<td>C5</td>
<td>25</td>
<td>40.80</td>
<td>43.55</td>
<td>43.60</td>
<td>2.80</td>
</tr>
</tbody>
</table>

Note. Only subjects present for follow up testing are included in this sample.

a. Standard scores include expected rate of growth.
Table 16
Analysis of Variance Summary - Composite Scores - Gates-MacGinitie Reading Test
Comparison of pre, post and follow-up Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Groups</td>
<td>1246.81</td>
<td>4</td>
<td>311.70</td>
<td>12.61*</td>
</tr>
<tr>
<td>error - groups</td>
<td>2545.14</td>
<td>103</td>
<td>24.71</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials</td>
<td>1183.56</td>
<td>2</td>
<td>591.78</td>
<td>42.75*</td>
</tr>
<tr>
<td>interaction - groups x trials</td>
<td>401.86</td>
<td>8</td>
<td>50.23</td>
<td>3.63*</td>
</tr>
<tr>
<td>error - trials</td>
<td>2851.32</td>
<td>206</td>
<td>13.84</td>
<td></td>
</tr>
</tbody>
</table>

Note. $F .95 (4, 103) = 2.46$

*p < .05
Table 17

Planned Comparisons between Pretest and Follow-up Test

Composite Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(E1 and E2) vs (C1 and C2)</td>
<td>5.00*</td>
</tr>
<tr>
<td>(E1 and E2) vs C3</td>
<td>6.64*</td>
</tr>
<tr>
<td>(E1 and E2) vs C4</td>
<td>2.94</td>
</tr>
<tr>
<td>(E1 and E2) vs C5</td>
<td>4.80*</td>
</tr>
</tbody>
</table>

Note. $F_{.95}(1, 103) = 3.94$

*p < .05
Figure 6. Graph of interaction - Final results.
Mean scores (composite) Gates-MacGinitie Reading Test.
that the differences between the experimental group (E1 and E2) and the control groups (C1 and C2), C3 and C5 were significant. The difference between (E1 and E2) and C4 was not significant. It is possible that the procedures used in C4 were particularly effective. However, the lack of significant difference may have resulted from C4's depressed scores in the pretest. A glance at the graph of interaction, Figure 6, shows that the experimental subjects have maintained their lead over all the groups.

Summer Contract

Early in September, the summer contracts were collected from school two. There were 19 of the 22 subjects still attending that school; 13 or 68.4% of these students returned the summer contract booklet. These students read an average of 6.3 books, and covered an average of 1026.6 pages, between May and August. This may be considered a considerable amount of reading during the summer months, even for an adult reader.

In school one, the distribution and collection of summer contracts was disorganized and the booklets could not be collected in September. However, three students voluntarily handed their booklets to their section head. These students read an average of 6.5 books and covered an average of 1611 pages. It seems clear that these students wanted to get credit for what they had done.
CHAPTER SIX

Discussion

Overview

This study has demonstrated that an individually designed tutorial program in reading based on the remediation of skill deficits, combined with contingency management procedures, to motivate sustained reading practice and to modify expressed verbal responses to the reading process, can produce substantial progress in target behaviors and significant gains in reading scores in adolescent subjects. These gains do not wash out. Follow-up studies six months after the completion of the program show that all groups have consolidated their gains, and that their grade scores continue to improve.

The Gates-MacGinitie Reading Test

Control conditions which combined attention, test practice and some help in developing reading skills, produced growth in reading scores on the Gates-MacGinitie Reading Test beyond the expected rate, regardless of which variables were included. It should be noted, however, (Table 14) that the composite scores of the control subjects remain in the grade six range, at least 1.5 grades below the level required for task performance at their grade level. A glance at Table Q, Appendix D, shows that the lowest scores for all groups are in Comprehension, the skill which is the most critical for task performance in other subject areas, as well as for continued skill development in reading. The scores of the experimental subjects, however, are almost at grade level (7.8 at the beginning of grade eight), and most
important, their comprehension scores are substantially improved.

**Target Behaviors**

While standardized testing is an important aspect of evaluating programs of this kind, it is not always clear that for the individual subject improvement on standardized reading tests is equivalent to improved reading performance.

The development of skills in target behaviors reflects an important change in the learners' abilities and corroborates the results achieved in standardized tests. The measurement of improvement in a series of critical subskills like efficiency in finding the main idea, sequencing, detailing and generalizing, provides clear evidence in individual cases, both to the tutor and the learner, of progress in tasks closely related to those required for academic success on a daily basis. Evidence of increased speed in reading, provided by timed and graded exercises, show students that they are reading more difficult material faster. Many subjects indicated they could not concentrate for more than one half to three quarters of an hour at a time. By the end of the program, stamina for reading had increased to an average of an hour and a half, and some reported they were able to read for two to three hours at a stretch. Behaviors which reflect the subjects' ability to organize and carry on their work independently are particularly important for continued skill development. By week seven tutors reported students choosing books on their own, browsing in book stores and libraries, and taking the initiative for choosing extra books when they completed their work early. They reported that the subjects chose books from the more
difficult categories as they proceeded. In fact, the carrying of a book with a colored tape indicating they were reading a difficult book became a status symbol for the subjects.

Three weeks after the treatment was completed, a conference was held for all interested participants. Preliminary results of the posttesting were reported. The subjective observation of the writer and her colleagues was that the tone of the meeting indicated that the program engendered substantial good will among all participants. All the schools indicated eagerness to continue with the program. Administrators of the control schools asked that the full treatment be used for the next phase.

Other participants noted positive spin-off effects. Guidance counselors reported fewer visits, and more positive encounters with subjects. Teachers and administrators noted that the subjects demonstrated greater self-confidence in other academic areas, and that there were fewer discipline problems. Parents reported discussions about the books they were sharing with the subjects, and a lessening of tension regarding homework and school achievement. Some noted that the students were carrying books around the house, and that they were reading under the covers after "lights out." Librarians reported seeing the subjects around the library, a place they avoided before the program. These activities suggest that a new series of behaviors common to good readers was beginning to appear.

The substantial number of books read, in spite of the fact that many students reported they had never completed a full-length book before, and the large percentage of completed contracts, are important evidence of mature and responsible behavior.
The amount of reading for the summer contract, without extrinsic rewards, by students who were formerly virtually non-readers, is encouraging and suggests that some students have developed the habit of reading for pleasure, which should be most useful for continued development of skills. Considering that the only rewards were the pleasure of reading, the improvement of their own skills, the knowledge that they had completed their contracts and the potential praise they might get from the section head, all intrinsic reinforcements, these results are indeed unusual, and suggest that some students at least have internalized a new reinforcement system for reading.

It has already been stated that this writer considers reading a very complex skill. The teaching of discrete subskills to readers with substantial deficits has had the effect of improving that subskill without significantly affecting the student's overall performance (Camp & Van Dornick, 1971; Staats, Minke & Butts, 1970). This may be because good readers employ strategies that combine a complex matrix of skills. The combinations of these subskills are not directly taught but are put together in an original way by each reader as he approaches the reading task. It has often been observed that many children learn to read well in spite of substantial cultural and teaching disadvantages, while others from the same neighborhoods, classrooms, and even families do not. It is therefore probable that this skill is self taught. In future research it might be interesting to attempt to break down the components of these strategies to determine whether there are common factors used by good readers that could be taught to poor readers.

In the meantime, teaching behaviors which include a multitude of skills,
grouped under such labels as "finding the main idea," "generalizing," etc., may provide a sufficient and balanced array of subskills for poor readers to develop their own combinations and strategies in the same way good readers did at an earlier time. The opportunity to do this is maximized when these skills are modeled by the tutors, and when the learners are able to retreat to their level of competence in order to acquire the prerequisite skills and strategies which form new foundations of skills now available to deal with more difficult tasks and material. It is here that the advantage of directing the treatment to filling in the gaps in individual repertoires of skills, rather than a remedial program designed for all students, becomes most evident. Students whose programs are individually tailored are able to select those skills which complement those they already have available, and combine them to form the new strategies they need to be successful at the overall reading task.

It is recognized that much of what has been said here is still conjecture. However, it may explain why the experimental subjects who received this treatment in the present study were successful at improving their scores on a comprehensive standardized reading test, which calls for a more generalized skill, while control subjects, and subjects in other research reported here, who received discrete skill training, were not as successful.

Contingency Management Procedures

Expressed verbal responses to the reading process. Data provided by the research assistant who visited each team indicated that during her visits there was 94.7% agreement with the tutors' recording and reinforcing of verbal responses. This suggests the tutors understood the principles of
behavior and effectively and appropriately used their contingency management procedures to modify the subjects' responses in the appropriate direction.

In addition, the research assistant observed in her final report that the tutors were generally well trained, that they understood contingency management and were using the procedures effectively most of the time. She felt that all the tutors had earned the trust of the high school students. She also reported that "98% of the subjects were reading and that most appeared to be enjoying it."

It is also interesting to note that most tutors reported a breakthrough, or a session when the skills training and contingency management procedures started to work. The following is an excerpt from a tutor's report:

For the first few weeks my client didn't emit any positive or negative responses. By the end of the fourth session I wondered whether it was myself or my client who was at fault. Faith, [research assistant] came, on session five, and she assured me not to worry, as my client was very shy and withdrawn, and I was to reinforce any voluntary statement. The sixth week came and it happened!! He volunteered a statement and I almost passed it by but I suddenly remembered and reinforced the statement with an excited verbal response. That session he volunteered six statements (neither negative or positive). The following week my client emitted even more responses until by session eight we enjoyed flowing conversation!! This continued to the end of the program.

After session six, he phoned me just to check about the time of the next session!!

The contingency management procedures used by the tutors, of reinforcing positive responses toward the reading process and ignoring negative responses, effectively increased the subject's positive statements about reading and about himself as a reader and reduced negative statements. While it can never be completely clear that modifying these statements is congruent with modifying the learner's attitude or what he is actually thinking, it is
suspected that it might be very close. Behaviors which suggest that the
learner is adopting new thinking patterns and practicing tasks which he
avoided before can be considered supportive evidence. Thus, the reading
done for the original and summer contracts is important here. In any event,
as he starts to talk more positively about himself, about his competence,
and about the tasks themselves, he will receive natural and positive
support from significant others like his tutor, his teachers and his parents,
which will strengthen both the positive statement responses and hopefully
will influence his attitude and thinking style.

The importance of including procedures which promote in the subject a
positive self image as a competent performer and a positive attitude to
reading and the practise of reading tasks should not be underestimated.
There is considerable evidence to suggest that people like to do what they
consider themselves good at doing. When the amount of treatment time is
short, and when the long term success of the treatment is dependent on the
extent to which it acts as a catalyst to encourage the subjects to continue
their own skill development, a positive attitude toward continued practise
is essential. Otherwise, the subjects may soon fall behind their peers
again, and their long term avoidance strategies will be reinstated.

A functional reinforcement system. For the same reasons, it is
important to include a reinforcement system which will continue to be
functional after the treatment is completed. The enormous advantage of
providing a payoff during treatment that continues to be available to all
students, compared to money or toys which are more commonly used in this
type of research, is very clear. Good grades, a point system and praise
for good performance were highly motivating to the adolescents in this sample, as evidenced by their overall positive attitude toward their work and their tutors, and the substantial number of completed contracts and books read. While it would be unwise to extrapolate these findings to other populations without qualification, it is important to note that for the adolescent student the acquisition of academic skills is the most essential and critical job. Many writers report that academic success is a priority concern for adolescents, and some (White, 1959) even suggest that competence motivation may have a broadly based biological origin. The use of intrinsic reinforcement to motivate competent performance should be considered for all kinds of populations, and if it is not initially appropriate, it should at least be systematically phased in.

The Use of the Adolescent Period

It has been previously suggested that the adolescent period was a particularly appropriate time for compensative activities. It has been observed by the writer during the course of this study that the use of adolescent subjects had several important advantages. Since this program was learner-centered rather than teacher-centered, and the contact time was minimal (one hour a week), it was important that the subjects be mature, and independent enough to carry through a week's obligations without constant reminder or support. In addition, the writer believes that the practice component, which is entirely the responsibility of the learner, is critical in the overall development of skills, and to their continued development. The adolescents in this study were able and willing to carry out this part of their responsibility as evidenced by the number of completed contracts (95.2%). Whether younger students would be able to do this is questionable.
In addition, the high drive characteristic of early adolescence seemed to be reflected in the sustained intensity and excitement about the program reported by the tutors. When the availability of effective help within the public education system for disabled readers is minimal, the advantages of a learner-centered program which places the responsibility for skill development on the student from the onset is most important. Therefore, in spite of the trend reflected in the research to begin remedial activities as early as possible, this study has demonstrated that, given the present conditions in the education system, the adolescent period is at least also appropriate and has several important advantages. Systematic research in remedial education using subjects of this age could be most useful.

**Comparison to Other Methods**

A chart which compares the important variables used in this study to some of the research reported earlier in which operant procedures were used to develop reading skills in disabled readers is presented in Table 18 for the purposes of this discussion.

It can be seen from this chart that the procedures used in this program allowed for: the inclusion of a substantial number of subjects; a limited number of contact hours, combined with a large practice component for the subjects; an individualized program based on specific skill deficits; and an intrinsic reinforcement system. It also provided tutors with substantial training in reading tutoring so that they could apply the reading program flexibly to their individual clients, as well as with training in contingency management procedures so that they could systematically reinforce positive verbalizations toward the reading process, enhance their clients' self image
### Table 18

Comparison of This Study to Others Using the Behavioral Approach to Remediate Reading Disabilities

<table>
<thead>
<tr>
<th>Study</th>
<th>Experimental Subjs.</th>
<th>Control Subjs.</th>
<th>Contact Time (hrs.)</th>
<th>Tutors' Training Time (hrs.)</th>
<th>Program based on Individual Skills for Subjs.</th>
<th>Type of Reinforcement Attempts to Modify Attitudes</th>
<th>Comprehensive standardized tests Used</th>
<th>Outcome of Attempts</th>
<th>Gain Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staats, et al. (1967)</td>
<td>18</td>
<td>No</td>
<td>38.2</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>$</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Staats, et al. (1970)</td>
<td>32</td>
<td>No</td>
<td>40.2</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>$</td>
<td>No</td>
<td>N.S.</td>
</tr>
<tr>
<td>Haring, et al. (1969)</td>
<td>4</td>
<td>No</td>
<td>98.6</td>
<td>Machines</td>
<td>No</td>
<td>No</td>
<td>Toys</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Camp, et al. (1971)</td>
<td>15</td>
<td>Yes</td>
<td>28.3</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>$</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Willis, et al. (1972)</td>
<td>10</td>
<td>No</td>
<td>35.0</td>
<td>partly</td>
<td>No</td>
<td>No</td>
<td>Toys</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Busse, et al. (1972)</td>
<td>13</td>
<td>No</td>
<td>54.1</td>
<td>Teacher</td>
<td>No</td>
<td>No</td>
<td>Toys</td>
<td>Yes</td>
<td>1.3*</td>
</tr>
<tr>
<td>Schwartz (1976)</td>
<td>42</td>
<td>Yes</td>
<td>10.0</td>
<td>45+</td>
<td>Yes</td>
<td>Yes</td>
<td>Grade on Report</td>
<td>Yes</td>
<td>Yes 2.1*</td>
</tr>
</tbody>
</table>

* $p < .05
as competent readers, and motivate them to read for their contract. The design included the use of a series of control groups, whose performance could be realistically compared to that of the experimental subjects, and follow-up testing six months after the completion of treatment, to determine whether progress had been maintained. These procedures resulted in significant gains on a standardized reading test.

In their recent review of the use of the behavioral approach to the treatment of reading disabilities, Pacquet and Malcuit (1975) critically examine the most pertinent research studies in this area. The most appropriate ones have been reviewed earlier (p.p35 - 37). These authors raise questions about what they considered to be important imperfections. They discuss such issues as the lack of prescriptive diagnosis for the treatment of skill deficits in individual subjects; the use of reinforcers which are arbitrary and not related to the natural social consequences of the subjects after treatment; the use of teaching material which is similar if not identical to the kind used to test the outcome of the study; the lack of a minimum amount of work and practice required each week; the use of superficially trained tutors; and the lack of systematic attempts to modify attitudes to reading. They concluded that in spite of the positive results reported by most authors, their results appear more statistically than clinically valid.

While this writer agrees with many of the issues raised by these reviewers, and independently designed the present study several years ago to deal with the most important ones, it appears that these authors are judging this research with a different measuring stick than the one for which it
was designed. It is true that these studies do not by themselves demonstrate procedures to remediate reading disabilities. They do, however, demonstrate that operant procedures and a functional reinforcement system are an effective means of getting disabled readers even the most intractable kind, to learn skills and subskills related to the reading task. It remains for programs of a more general nature, like CASE, Operation Step-Up, and the present study, to investigate the clinical use of these findings in an applied setting.

Implications for Future Research and Serendipity

While evaluating the learning experience of the tutors, it came to the attention of the writer that college students who had difficulty with reading themselves were benefiting substantially from participation in this program. This factor was crystalized by a college student who reported at a meeting on the evaluation of the research, "Me and my client sure improved our reading this semester." As a result, new research is currently under way which explores the effect of the program on the tutor. College students who are poor readers have been selected to act as tutors to grade seven students who are disabled readers. In this research the question is whether teaching reading efficiency and applying contingency management procedures to younger adolescents is an effective way to improve the reading skills and to enhance the self-management and organization skills of college students who are poor readers.

In spite of the success of the experimental subjects, 10 weeks is a short time to establish a wide range of new skills. The length of time is more critical for some students than for others. Indeed, some students were working well within their grade level and above at the end of the treatment
period, while others had not quite reached that level. It would be interesting to explore the clinical benefits of a more flexible and open-ended time period for students who still needed help at the end of 10 weeks. It is possible that if this were done all the subjects could be brought to the point of mastery of reading tasks at their grade level. In the present setting, the 15-week semester of the college students limits that possibility. However, the use of other populations as tutors should be considered. For example, it would be most advantageous to the high school to have trained tutors present in the same setting as their clients. High school seniors and even more competent peers would probably benefit considerably both from the training and from participation in a meaningful and helpful project. The development of programs in other subject areas, particularly mathematics, and languages, would also be interesting and practical extensions of the findings of this study.

The problem of the disabled reader is likely to be more acute in inner city schools than it was in the suburbs. The extension of the research into these areas would be most worthwhile. Here, the use of intrinsic reinforcement to motivate reading behavior and skill development could be effectively explored.

Finally, an important weakness in the research design should be considered here. Originally, it was thought that the subjects' English teacher would be an important variable which might affect the outcome of the treatment. In order to control for this factor, the subjects were grouped by teacher, and paired according to rank within that group. Each pair was then divided at random into the experimental and control groups. This procedure had several disadvantages. The pairing included several pairs in
which the weaker partner was much weaker. It occurred by chance that several very weak students appeared in the control group (C1). Since this occurred in a control group, and since a low pretest score was considered an advantage (in Pilot One, and Pilot Two, the weakest students improved the most), a redistribution of students into experimental and control groups was not undertaken. As a result, the matching in this case was not really effective and significant variability occurred in the pretest scores by chance. (It is interesting to note here that the low scoring students appear to have had a bad day. Perusal of individual scores shows that these subjects score closer to the mean for the group in the posttest.) It appeared that neither rank, nor teacher, was as important as individual differences in influencing the outcome of the treatment. In the future, it is probable that the variability among groups at the onset of treatment would be most effectively minimized by a completely random distribution of all the subjects in the remedial range within a school population without regard to rank or any other variable.

It also appeared that there was variability among the schools during this study which did not occur in previous years. For example, pretest scores in school three were 5.3 (E1) and 5.6 (C1), in Pilot Two, and 5.2 (C3) and 4.8 (C4) in the experimental phase. In field research of this kind, this amount of variability is not serious, and in any case cannot really be controlled. As well, it is the subjective observation of the writer that the school environment for poor readers is very similar, even when the schools are much more different than the ones in this study.

Low pretest scores, however, seem to be a consistent advantage. While
in the early stages it did not seem important in this study, particularly because it gave the advantage to the control groups, the results show that it did tend to exaggerate the effects of the treatment procedures on these control groups and to minimize to some extent the comparison with the experimental subjects. This kind of "noise" is part of the price that must be paid when doing field research and the data should be viewed with these factors in mind.

Conclusions

Reports of researchers and educators indicate that a substantial number of students in the public schools in North America are poor readers. The findings of this research substantiate these reports. Between 1972 and 1975, of the 2,520 grade seven students tested, 530 or 21% were 1.5 to 4.5 years below grade level. While much research remains to be done, it is possible that the approach taken by this program should be considered as a practical means to deal with the large numbers of adolescents who have not developed the prerequisite academic skills appropriate to their grade level.

The college students were very effective tutors. They reported that the experience was useful and beneficial to them. The training procedure was direct and uncomplicated and can be implemented with ease. The activities involved are closely related to the curricula of many courses in psychology and education, and therefore both reinforce learning, and provide the instructor with an interesting and innovative pedagogical technique. The one-room schoolhouse technique, where an older and more competent student tutors the younger one, has a long and honorable tradition.

The findings of this research support the position of Haring and Hauck (1969), Staats et al. (1967) and Staats et al. (1970), that it is possible
to apply the findings of laboratory-derived principles on the human level in the context of the acquisition of complex cognitive skills. Further, this study demonstrates that research and the use of experimental methods need not be confined to the study of discrete skills and subskills. Human behavior is indeed complex. If the development of learning theory is to have a useful effect in the schools and clinics of North America, educators and psychologists should begin to study representative, functional repertoires of human behavior.

While it is clear that field studies of this type present great difficulties in terms of control and design, and more often than not fail to provide definitive answers, the benefits which include generalizability and ease of transfer of findings are equally great. Reading is one of the most complex of human behaviors. It is also one of the most basic and critical skills for survival in our technological society. It follows, therefore, that the study and analysis of reading dysfunction will make a substantial contribution to the solution of an important problem of human behavior.
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References - Continued


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References - Continued


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The Editors of Scholastic Scope. Scope visuals 2, vocabulary building. New York: Scholastic Book Services, 1969. (b)


Appendix "A": Program Materials
I understand that the progress I make in developing my ability to read depends on the effort I make in completing this contract. I agree to spend at least 15 minutes per night or 3 hours per week working on this program. I intend to earn 150 reading points. If I do I will receive a B on my report. I may be able to earn 200 reading points. If I do I will receive an A on my report.

Points may be earned by reading and by working hard during the tutoring session. No points may be awarded until the reading form is completed.

The following points are assigned to books.

<table>
<thead>
<tr>
<th>Books</th>
<th>100 pages</th>
<th>150 pages</th>
<th>200 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Articles</td>
<td>Short</td>
<td>Long</td>
<td></td>
</tr>
<tr>
<td>Short stories</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Points earned</th>
<th>Bonus points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Signed
Student
J.A.C. Tutor
Teacher
To the teacher:

One of the most important aspects of your participation in this project is to help design, and to be a contractual member in the contracts of each of your students.

It is crucial to the success of this program this year and in the future that any grade earned by the students according to the rules of the contract is awarded.

To determine how many points should be awarded for each book, decide whether the student is in the upper or lower end of the remedial range. Record the points suggested below on the student's contract and sign the form.

<table>
<thead>
<tr>
<th>Books</th>
<th>Student</th>
<th>100 pages</th>
<th>150 pages</th>
<th>200 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>Upper</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Medium</td>
<td>Upper</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Easy</td>
<td>Upper</td>
<td>5</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>10</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student</th>
<th>Short</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles</td>
<td>Upper</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>4</td>
</tr>
<tr>
<td>Short Stories</td>
<td>Upper</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Lower</td>
<td>4</td>
</tr>
</tbody>
</table>

Amount of points awarded for books over 200 pages will be decided by JAC student and high school student.

Geraldine Schwartz,
Project Co-ordinator.
To: the student

The contract is an agreement between you, your John Abbott Tutor, and your teacher. It states that you agree to complete a specific amount of reading during the 10 week program period. The aim of this program is to help you become an independent reader and learner. As such any reading you do, not only earns points, but also helps you move closer to this goal.

Each type of reading material will be assigned a specific number of points depending on your present speed and skill. For example a short, easy novel of less than 100 pages may be worth 10 points, while a medium biography of 150 pages or less may be worth 20 points. The amount of points each book is worth to you will be decided by your tutor and your teacher and recorded on your contract before you begin.

You are asked to contract for 150 points. If you earn 150 points you will receive a "B" (or the equivalent in your school) on your report. If however you earn 200 points you will receive an "A" on your report.

Points may be earned by reading the books you have chosen and by filling out the simple reading form provided. Five points may also be earned during the tutoring session. One point for coming to the session prepared, two points for concentrating on your work, and two points for getting most of the answers right. As well, bonus points may be earned each week by doing exercises, learning new words, or doing extra reading. Points may only be assigned by tutors when the reading form is completed.

The number of points for the contract (150) should be divided into 10 equal parts. You should try to earn at least 15 points each week, 5 during the tutoring session, and 10 by reading at home.

Each student should set up a "project book" for this program where contract, forms and material may be kept in a neat package.

Geraldine Schwartz,
Project Co-ordinator.
### PROGRAM FOR THE REMEDIATION OF READING DISABILITIES

**Weekly Form**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This week I will read;

1. 
2. 
3. 
4. 
5.  

**TOTAL**

Points assigned

<table>
<thead>
<tr>
<th>Points assigned</th>
<th>Form filled in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Bonus Points

1. 
2. 
3.  

**TOTAL**

Total points earned for the ______ week.

**STUDENT’S SIGNATURE**

**TUTOR’S SIGNATURE**
Reading Form

Student's Name

Title of Book, Article, Story

Author's Name

Type of book (e.g. Novel, Biography)

Number of points

Number of Pages

Summary

In a few short sentences state what this book (article, story) was generally about.
## Tutor's Report

| Tutor's name: |  
| Tuttee's name: |  
| Age/Sex: |  
| School: |  

### Reading Scores: Gates MacGinitie Reading Test - Surrey E (grades 7-9)

<table>
<thead>
<tr>
<th>Grade Score</th>
<th>Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Speed:</td>
<td></td>
</tr>
<tr>
<td>2. Accuracy:</td>
<td></td>
</tr>
<tr>
<td>3. Vocabulary:</td>
<td></td>
</tr>
<tr>
<td>4. Comprehension:</td>
<td></td>
</tr>
<tr>
<td>5. Composite score (2 + 3 + 4):</td>
<td></td>
</tr>
</tbody>
</table>

**Summary/School History - remedial activities.**
Baseline Behaviors: Approach/Strategies/Skill levels/Attitudes

- Speed:
- Accuracy:
- Vocabulary:
- Comprehension:
- Reading:
- Organization:
- Independence:

Target Behaviors: (long range) - see T. of T. p.22

Summary of Weekly Reports:

Summary of Attitude Change: (include graph)

Contacts outside Tutoring session:

Summary of Tutee's achievements - re Target Behaviors:
List of Books and Articles read for Contract:

List of Workbooks and remedial Activities: (pages and time spent)

Recommendations for Summer Contract:

Recommendations for Future Action:

Comments:

* a summary of this report which outlines students achievements to date and your recommendations for future action should be prepared to be sent to parents and teachers (Xerox facilities and John Abbott letterheads will be provided).
CONTINGENCY MANAGEMENT
REPORT ON THE INDIVIDUAL SESSIONS

<table>
<thead>
<tr>
<th>Verbal Statements</th>
<th>Negative</th>
<th>Positive</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of agreements</th>
<th>% of agreement</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Student Responses to Verbal Statements</th>
<th>Appropriate</th>
<th>Inappropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tutor's Report

Program for the Remediation of Reading Disabilities in Adolescents

Weekly Report \ (see T. of T. p.23)

Session: \ Date: \ Time spent: \\

Target Behaviors:
1.
2.
3.
4.

Previous sessions spent on Target Behaviors:

Baselines:

Plan:

Materials:

Remedial Activities:

Expressed Responses and Verbal Report:

General Plan for next Session:

Comments:
**PROGRESS REPORT - TARGET BEHAVIORS**

This form should be used to tabulate your opinion about your client's progress in a reasonably objective measurable form. Rate your client's presenting behaviors on a scale of 1 - 5. Use the difficulty of baseline exercises he can do for the prescore.

Please indicate the target behaviors you worked on by a checkmark. Rate your client's performance after the program on a scale of 1 - 5. Use the difficulty of exercise your client can handle successfully to help your evaluation.

<table>
<thead>
<tr>
<th>Tutor</th>
<th>Client</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Target Behaviors**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase Speed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase Stamina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Books</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finding the Main Idea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detailing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyzing a Novel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filling our Reading Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contract completed</th>
<th>No. of pts.</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 - B; 200 - A; 250 - A</td>
<td></td>
</tr>
</tbody>
</table>

**Summer Contract Completed | Date | No. of pts. | Gerri**
RESEARCH PROCEDURES

The program to Remediate Reading Disabilities in Adolescents.

Team 3 - Beaconsfield High School
Team 4 - Riverdale High School

All students in the program have been tested with the Gates-MacGinitie Reading Test - Survey E, (grades 7-9) Form IM. This test provides 3 scores (1) speed and Accuracy (11) Vocabulary (111) Comprehension. For our purposes the standard scores in each category have been combined to provide a comprehensive score. All students were then ranked according to this comprehensive score. The students whose scores fell into the remedial range (grade 3-6) are our clients in this project.

As an experimental team carrying on serious psychological research it is essential that all members follow program procedures. This will allow us to control for differences in tutoring style (at least to some extent) and to make some general statements about our activities and results.

Program procedures:

1. Exchange phone numbers with your client, and encourage him to call you during the week whenever he has difficulty either with program work, or with his homework, or even to chat about a personal problem. Call to remind him about the tutoring session the evening before, at least for the first few times. Tell him he is responsible for calling you ahead of time if he is ill, or if he can't make the session for some reason. Explain that you are coming all the way out to see him (3 hours including travelling time) and that you would be very disappointed if he was not there. Explain that all missed meetings need to be made up.

2. Meet with your client one hour per week during school time. Missed meetings due to illness, snow storms, professional days, etc. need to be made up (a schedule of professional days and holidays in your school will be provided.) Rescheduled meetings may take place at John Abbott, (L-205 is available, also psychology labs in the basement of Laird) at the student's home, at your home, or at his school. They may occur after school or on the week end if necessary. Please try to avoid double sessions, they disrupt the school schedule and are not as effective as 2 single sessions.

3. The tutoring period
Come to the tutoring period with an organized plan, a list of target behaviors, and materials to carry on the session.

Work on skill building, strategies for task organization, and the relationship between you and your client. Allow time for discussing last week's work, for planning the next week's work, for visiting the library and for building a warm supportive relationship. Begin with the work that is least pleasing to the learner (the lowest
probability behavior) and proceed to the most enjoyable. In this way you can use high probability behavior, as well as points to reinforce low probability behavior.

4. Reinforce all positive statements about the self as a learner, reading, the school, the teachers, and the educational process with points and praise.

Ignore all negative statements
Record unobtrusively all positive and negative statements.

5. Be a positive model for your client
   Allow him to observe your approach to academic tasks, to see that you are organized, and that you enjoy reading.

6. Be supportive
   Do not emphasize errors or failures. Concentrate on reinforcing all approach behaviors. However be careful not to support and thus reinforce any negative attitudes.

7. Develop a professional relationship with your client
   This is a "learner centered" program. Help your client to do things for himself. Organizing his work, doing his homework, or allowing him to depend on your help will not be helpful in the long run.
   Establish right from the beginning that this is a 10 week program. Do not allow him to become dependent on your help.
   Show sincere interest, but do not let the relationship involve you personally (to the extent that this is possible).

8. Prepare a report as soon as possible after each meeting. Use the "Tutor's weekly report" as your guide.
   Report verbal statements for all expressed attitude statements.
   Check the validity of these statements with your partner. Record the number validated statements on your graph.

9. A final report, which follows the format of the "Tutors Report" should be prepared at the end of this program - It should include the graph of positive and negative responses and the Evaluation forms on this course and the program.

10. I expect you to take your commitment seriously
   This means you must be there each week, on time, or notify your client, and make alternate arrangements. This is a real work situation, and not a game. A young person is counting on you to be there. You are also part of a team. There are more than 200 people involved in this program, and we are only as strong as our weakest member.
11. Keep your cool.
If there are any problems at the school (e.g. your client
didn't show up, you can't find a quiet place to work) see
Ann MacLeish (vice principal) at Riverdale, and Wayne Clifford
(section head) or Ann Armstrong (guidance counsellor) at
Beaconsfield. It is a good idea to say hi to them, and the
teachers when there are no problems as well.

12. I am your supervisor.
If there are any problems with your client that you feel you
can't handle, please see me immediately. A week is too long to
let the matter go. If you are not sure whether the problem is
serious let me be the judge.

13. Hang on to your sense of humour. It will see you through the
most difficult situations.

Gerri
PARTICIPATING SCHOOLS

BEACONSFIELD HIGH SCHOOL
RIVERDALE HIGH SCHOOL

PROJECT CO-ORDINATOR
GERALDINE SCHWARTZ
PSYCHOLOGY DEPARTMENT

READING TUTOR
May 5, 1975

DEAR NEW READER

Your JAC reading programme was aimed at trying to change you from a slow or poor reader to a "potentially good" one. It was only a beginning! Now that you have started on the road with our help, you are ready to help yourself. Psychologists feel that the more you read of material that you can understand and that you are interested in - the better your reading ability will be. In fact, working on your own, you can change yourself from a "potentially good" reader to a person to whom reading is a breeze!

THE PLAN

Your contract was designed to move you at least one grade ahead in your reading scores. Over the summer, if you make an additional or equivalent contract on your own, that should be enough to prepare you for the next grade.

In the book provided by the John Abbott Reading Programme list the books, articles and stories you have read. State the author's name and the number of pages in the book. You may also include the number of points that you think it is worth. In September, all the note books will be collected and a bulletin will be published which will tell about your summer accomplishments.

In order to obtain reading material, you may either make a bargain with your parents to buy you a new book of your own choice each time you finish one (total contract would probably be under $10.00) or join a local library or make a deal with a friend or your high school. We think the first alternative is the best plan.

Anything that is readable can count! So newspaper articles, magazines and even school books, read and understood, can be included. Remember though that, as you work, you should be including some harder books to prepare yourself for the higher grades. As well once you have learned to read you may want to consider going to a CEGEP, and some of the reading may be difficult.

I would hope that you would keep my phone number and let me know how you are progressing during the summer. I would be especially interested to hear from you at the end of August and learn how you have done on your own. We have enjoyed working on this project with you and we are looking forward to your success!

Sincerely,

Your reading tutor

Reading Project Co-ordinator

Gerri Schwartz
**SUMMER CONTRACT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Pages Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy books</td>
<td>100 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Easy books</td>
<td>150 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Easy books</td>
<td>more than 150 pages</td>
<td>_____</td>
</tr>
<tr>
<td>Medium books</td>
<td>100 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Medium books</td>
<td>150 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Medium books</td>
<td>more than 150 pages</td>
<td>_____</td>
</tr>
<tr>
<td>Hard books</td>
<td>100 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Hard books</td>
<td>150 pages or less</td>
<td>_____</td>
</tr>
<tr>
<td>Hard books</td>
<td>more than 150 pages</td>
<td>_____</td>
</tr>
<tr>
<td>Short stories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magazine Articles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newspaper Articles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text books</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The name of the book, the author, and the number of pages should be recorded. As well if you wish, a short summary and your opinion of the book may be included.
SUMMER CONTRACT

STUDENT __________________________
SCHOOL __________________________
READING TUTOR ___________________

I intend to earn _______ reading points by September 1975.
I understand that in order to become an independent reader, I must demonstrate
that I can do this on my own.

Signed : student ____________________
date ______________________________

I intend to support my son's/daughter's effort to improve his/her
reading skills during the summer months. If necessary, I will see that reading
material is available.

Signed : parent _____________________
date ______________________________

All projects books will be collected in September. Please hand them in to your
school co-ordinator.

Miss A. MacLeish - Riverdale

Mr. W. Clifford - Beaconsfield
I would like to wish you every success in your reading and your school work. I'm sure if you continue to read on your own during the summer, that reading will no longer be a problem when I come to retest you next November.

Gerri Schwartz
RESEARCH PROCEDURES

The program to RemEDIATE Reading Disabilities in Adolescents.

Team 1 - Lindsay Place High School.

All grade 7 students have been tested with the Gates-MacGinitie Reading Test-Survey E (grades 7-9) Form 1M. This test provides 3 scores (I) Speed and Accuracy (II) Vocabulary (III) Comprehension. For our purposes the standard scores in each category have been combined to provide a comprehensive score. All students were then ranked according to this comprehensive score. The students whose scores fell into the remedial range (grade 3-6) are our clients in this project.

This week there will be a matching meeting for JAC and LP students. Each of you will be asked to identify the time you are available by writing your name and time on the board. (e.g. John Smith, Monday 9-11). The LP students will pick tutors whose time slot fits into their Language Arts period. (We have done this about 8 times now and it always works).

At the meeting you will meet your client and his teacher. Please exchange phone numbers, and arrange the time and place of your first meeting. Check the night before the first meeting to remind your client, and encourage him to bring any homework or academic problems he may be having.

The program will last for 10 weeks and may begin tomorrow.

Bus schedules are available at Catherine's office (012) extension 324.

As an experimental team, carrying on serious psychological research, it is important that all members follow the program procedures. This will allow us to control for differences in tutoring style (at least to some extent) and to make some general statements about our activities and results. It is sometimes very tempting to help a student more than the procedures allow. Please resist this temptation. You are now a research assistant and you must conduct yourself in a professional manner.

Program procedures:

1. Meet with your client once per week for 1 hour during school time. Missed meetings, due to illness, snow storms etc., should be made up.

2. Exchange telephone numbers with your clients, and encourage them to call either for academic or personal reasons.

3. The tutoring period should consist of:
   a) Helping students with their homework, or academic difficulties (any subjects).
   b) Teaching study skills and organization skills.
   c) Supporting positive attitude towards school, and the learning process.
d) Helping your client to build self esteem.

4. Develop a professional relationship with your client.
   a) This is a "learner-centered" program. Help your client to do things for himself. Organizing his work, doing his homework, or allowing him to depend on your help in Math or French will not be helpful in the long run.
   
b) Establish right from the beginning that this is a 10 week program. Do not allow your client to become dependant on your help.
   
c) Show sincere interest, but do not let the relationship involve you personally (to the extent that this is possible).

5. Keep a record or log of each meeting. Try to leave some time soon after the meeting to do this. Do not guess how you think your client feels. Stick to observable behavior.

**RECORD:**
1- The activities of the session (what you did).
2- The quality of the developing relationship (was it warm and open).
3- Problems you would like to work at.
4- Plans for next week's session.
5- Additional contacts during the week (meetings or phone calls).
6- Other observations.

I expect you to take your commitment most seriously. This means you must be there each week, on time, or notify your client and make alternate arrangements. This is a real work situation, and not a game. A young person is counting on you to be there.

You are also part of a team. There are more than 200 people involved in this program, and we are only as strong as our weakest member.

Irresponsibility in this matter is sufficient cause for failing this course.

6. **Keep your Cool**

   If there are any problems at the school, (e.g. your client didn't show up, you can't find a quiet place to work), Chris Sirov, the guidance counsellor, or cycle one is your contact person at Lindsay Place. It would be a good idea to say "Hi" to him when things are going well too.

7. **I am your Supervisor**

   If there are any problems with your client that you feel you can't handle please see me immediately. A week is too long to let the matter go. If you are unsure whether the problem is serious let me be the judge.

   If there are any administrative problems, see me as well.
8. You are responsible
The reputation of John Abbott will be enhanced if you conduct yourself professionally, and take your responsibility seriously. On the other hand, thoughtlessness by one or two people can jeopardize the future of our fieldwork program.

9. Objectives
   a) Learn to observe behavior objectively.
   b) Learn about experimental research in psychology.
   c) Relate what you observe to theoretical material presented in the classroom, particularly Learning Theory, experimental methods, development, personality, etc.
   d) See yourself in the helping relationship.

10. Evaluation
For this project will depend on your report which will be due at the end of the program. The report should include your weekly logs. A form will be available for this purpose.

There will be a conference in May for all the people involved in this project and you will be expected to attend.

11. Hang on to your sense of humor!

Welcome aboard,
Gerri
TUTOR'S REPORT

Tutor's Name:

Client's Name: Age/Sex:

1. Remedial Activities: List remedial activities during the 10 week period, itemized by week. (a) homework, (b) Tutoring, (c) Study Skills, (d) organization skills, (e) other.

2. Support Activities: Record activities that foster positive attitudes toward the education process. In this context: (a) discuss the developing relationship with you, (b) building self esteem, (c) any changes in behavior that you have observed.

3. Additional Contacts: List and describe any additional contacts you had with your client outside school hours.

4. Problems: Record any problems you had carrying out this fieldwork program.

5. Evaluation: Evaluate this fieldwork experience in terms of (a) your understanding of research procedures in psychology, (b) your ability to observe behavior objectively, (c) your understanding of the theoretical material presented in the classroom, e.g. experimental methods, learning theory, cognitive development, etc. (d) your self observation as a "helper".

Comment in general (a) about the value of this method as a pedagogical technique for introductory students, (b) suggestions for the future, (c) anything else.
THE PROGRAM TO REMEDIATE READING DISABILITIES IN ADOLESCENTS - 1975

RESEARCH PROCEDURES

Team 2 - John Rennie High School.

The program consists of 10 hours of Reading Training plus the use of behavior modification procedures on a group basis. Except for the fact that each student has an individual contract, there should be no extraordinary individualization of teaching except the kind that would ordinarily be possible in the regular classroom situation. Procedures should be confined to the 10 hours of program time except for the reading for the contract, and marking of reading forms.

Procedures used should be confined to those outlined in "Tricks of the Trade", and the workbooks listed on P.27. In general, plan to spend 20-25 minutes on each lesson, and the rest on contract discussion.

Reading Training Program

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Subject</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>I - 1</td>
<td>Speed</td>
<td>T of T. P.6; Sprint</td>
</tr>
<tr>
<td>- 2</td>
<td>Speed</td>
<td>T of T. P.6; Sprint</td>
</tr>
<tr>
<td>II - 3</td>
<td>Vocabulary</td>
<td>T of T. P.8,9</td>
</tr>
<tr>
<td>III</td>
<td>Comprehension</td>
<td>T of T; Scope Workbooks</td>
</tr>
<tr>
<td>- 4</td>
<td>Main idea</td>
<td>T of T. P.10</td>
</tr>
<tr>
<td>- 5</td>
<td>Headlining</td>
<td>T of T. P.10</td>
</tr>
<tr>
<td>- 6</td>
<td>Detailing</td>
<td>T of T. P.11</td>
</tr>
<tr>
<td>- 7</td>
<td>Sequencing</td>
<td>T of T. P.12</td>
</tr>
<tr>
<td>- 8</td>
<td>Generalizing</td>
<td>T of T. P.13</td>
</tr>
<tr>
<td>IV</td>
<td>Reading</td>
<td></td>
</tr>
<tr>
<td>- 9</td>
<td>How to Analyze a Novel</td>
<td>T of T. P.15-17</td>
</tr>
<tr>
<td>- 10</td>
<td>How to Analyze a Bibliography</td>
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BEHAVIOR MODIFICATION PROCEDURES

1. Read Behavior Technology, Motivation and Contingency Management.
   L. Homme, D. Tosti.

2. Restrict Behavior Modification Procedures to the 10 hours of program time. This will be difficult but it is most important.

3. Reinforce positive attitudes towards the self, school, and reading.

4. Reward success with praise and points.

5. Each student should have an individual reading contract based on your judgement of his level of skills. Points should only be awarded when students have completed their reading forms to your satisfaction. Points may then be exchangeable for a grade on the report. I have found that 100 points for a B and 150 points for an A (or whatever system you use) is a reasonable amount.

Books should be divided into Easy, Medium, and Hard, and Long (200 pages +), Medium (101-200 pages), and Short (up to 100 pages). Points for each category, for each student should be decided at the beginning of the program.

Testing

Testing must occur for all classes in the 11th week. The Gates MacGintie-Survey E - form 3M, and all testing materials will be provided. It is sometimes very tempting to help students more than the procedures allow. Please resist this temptation as it seriously contaminates the research.

Welcome aboard.

Gerri
January 20, 1975

Dear

Last fall you took a reading test which gave us a general indication of the level of your reading ability at that date.

The John Abbott College Program for Research in Reading has selected you, as a student with good potential to improve your reading skills during this year. Students selected in this way will take a similar test in the spring.

We are most interested in your progress, and we wish you every success in the coming semester.

Geraldine Schwartz
Project Co-ordinator
Appendix "B": Reading Training Materials
TRICKS OF THE TRADE

A TUTORING PROGRAM TO BUILD BASIC SKILLS IN READING FOR ADOLESCENTS WITH READING DISABILITIES
TRICKS OF THE TRADE

A tutoring program to build basic skills in reading for adolescents with reading disabilities.

Geraldine J. Schwartz

John Abbott College

Illustrations:
John Starkey
This booklet is dedicated to the idea that reading is a "fun", ego building, and productive activity for everyone.
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TO THE TUTOR:

It is most important to recognize that your client has many skills, however in some areas these skills have not yet been well developed. Everyone in this program knows how to read.

The exercises in this booklet should be used to provide your client with a flexible program, built directly on his individual needs. If you start at his level of competence in each skill area and build from that baseline, he will be successful most of the time and you will be able to reinforce this success with praise and points.

The reading scores on the Gates-MacGinitie Reading Test will indicate very generally where to begin. However, you will soon identify where your client needs more help in much greater detail, by working with him, and observing where he has difficulty. Work on his strengths as well as his weaknesses.

Record and measure wherever possible. Draw a baseline in every skill area, so that both of you can observe the progress you make.

Reading skills will improve with practice, and the idea that improvement will be a natural consequence of reading and practicing reading skills should be made very clear to your client. The remediation of reading disabilities is not magic. Unfortunately, we do not outgrow ignorance, nor have we yet discovered a drug to cure this disease. In the meantime we have had a great deal of success by developing the skills poor readers do not have, by practicing on skill building activities, and by reading.

This booklet is meant to be used in conjunction with the workbooks for the program to Remedia Reading Disabilities in Adolescents.
When our clients discover what many of us already know, that reading is personally enriching, and that it can provide real pleasure, they will no longer need points, or your encouragement to continue to read and to develop their skills.

The development of this love for reading is one of the most important long range goals of this program. If you have personally experienced this pleasure, you will be an excellent model for your client. The short term goals which include developing specific skills, increasing reading scores, and changing attitudes towards reading all contribute to the ultimate goal.

People do not like to do things they cannot do. Your task, and that of your client is to overcome this problem to the extent possible. Your further responsibility is to provide him with the tools to continue after the sessions are complete.

* I would like to apologize to the tutors for referring to the client as "he" throughout the text. For some reason reading disabilities are a much more prominent problem for boys. For convenience, and to avoid using the neutral "it" or "one" which might offend both sexes, I have used the masculine pronoun. I am sure the instructions are easily translatable into feminine. G.S.
PROMOTE GOOD READING HABITS:

Reading is most productive sitting in a comfortable chair, or preferably at a desk. The lighting should be good.

Read with a pencil. When the meanings of words are not clear they should be written down and looked up later. Reading should not be interrupted so long as the meaning is clear from the context. These words should be added to a vocabulary list and learned as soon as possible.

Those people whose eyes wander over the page and who lose their place should read with a ruler or piece of cardboard under the line. This practice should be discontinued as soon as it is no longer necessary.

Reading is a priority activity. Undisturbed time must be set aside, particularly when reading is not a high probability behavior. A rewarding snack, or the opportunity to engage in a high probability behavior (a favorite T.V. program) should occur after the reading assignment is complete (Premack, 1959). There should be sufficient time planned before the T.V. program, or ball game, so that reading is not rushed.

Despite rumours to the contrary, empirical evidence has shown that concentration is best when the senses are not being assaulted with extraneous stimuli. Reading in front of the T.V. set, or with musical accompaniment is not as effective as reading without these disturbances.

---

TEACH ORGANIZATION SKILLS:

Analyze the organization of a book. Point out the author, publisher, and year of publishing. Discuss the table of contents, as an outline of what the book is about; as the sequence of events; and as a means of identifying what each chapter contains. Demonstrate the use of the index.

Students should be familiar with the library routine. The ability to check out a book, and to use the reference section are essential academic skills.

Check out the first book with your client so that you are certain he can do this on his own. Check his referencing skills by providing several topics for him to look up.

Introduce yourself and your client to the librarian. Most librarians will be very helpful, and will personalize the library service. This will reinforce being in the library and using library materials.

Sometimes just knowing the routines and the basic techniques provides the confidence and incentive to work on a project. Success in academic subjects like history, geography, or science will reinforce your skill building. All these activities require reading.

Practice Reading Directions. Write down a series of directions beginning with 3 items (e.g. Open your book to page 10; Read the first 3 words aloud; Give me the book open to page 8). Expand the number of directions until your client can remember 7 or 8 instructions easily after one reading.

Use the exercises in conjunction with COUNTDOWN, SCOPE STUDY SKILLS 1.1

TEACH STRATEGIES FOR TEST TAKING:

Understanding the test's instruction is crucial to success. Take the time to do this, and ask questions until everything is clearly understood.

Learn if guessing is to your advantage. If it is, begin by eliminating those answers that are probably wrong. This is called educated guessing.

Work at top speed, but never too fast to lose comprehension. The energy generated by this approach is usually an advantage even where time is not crucial. It will also allow time to check the work, and to ponder over difficult items.

Practice test conditions for short periods of time whenever possible. When clients are particularly anxious about testing, desensitize slowly by including longer and more frequent periods of test conditions as you proceed. Do not reinforce test anxiety by saying tests make you nervous too, or in any other way. Clients will feel more relaxed as they see themselves improving under test conditions.

BUILD STAMINA:

Many poor readers have a short attention span for reading. Their inability to spend enough time at this activity is detrimental to skill development. From the first day the client should agree to spend at least 15 minutes per night reading. After 3 days the time per sitting should be increased to 25 minutes. From that point the time per sitting should be increased until he is comfortable reading for 1 hour at a time. By the end of the sessions he should be able on occasion to read for 2 hours without pain. The number of minutes per sitting spent on reading should be recorded from the first day.
BUILD SPEED:

Get a baseline on reading material on your client's level of competence as early as possible (use the workbook articles). Start by timing 15 second units, but record the rate as words per minute. Move up to 30 second units, and to 1 minute units as quickly as possible. By the end of the program you should be timing 5 minute intervals.

The idea is to read faster on harder material. As his level of competence increases he should be able to deal with more difficult material at faster speeds.

Reading fast without comprehension is useless. Always check orally for comprehension and slow down the rate when your client does not answer the questions correctly.

Keep the accent on performance, it is not just doing something but doing it right that counts!

Match speed with your client. Read an article with him. When you have finished the line cover it, ask him to show you how far he's read. Let him complete the line to maintain comprehension, then go on to the next line. Challenge him to catch up to your speed. Read the same article several times. If you use a newspaper article he can cross out the words he's has read to record progress.

This exercise should improve your speed too. At the end of the activity check for comprehension.

Increase eye span, or the number of words seen at a glance. Use 3 second intervals, and ask your client to repeat as many words as he can remember. Record the number of words. Work at this activity until the average number of words in 3 successive trials increases. Spend a few minutes at this activity several times. Match his efforts with your own. Chart progress. Your eye span should improve too.

Moving lips and subvocalizing while reading is a childhood habit, learned because children first learn to read aloud! This habit slows down reading speed and most people are not aware they are doing this. To eliminate this practice ask clients to hold their fingers over their lips and on their vocal chords. Practice reading this way until subvocalizing stops.
Bring a stop watch to speed building sessions. It is important for readers who are trying to improve their speed to be aware of the passage of time. Reading faster makes reading a less tiresome and a more interesting and enjoyable activity.

Use the exercises in conjunction with SPRINT, Scope Speed Reading 1. 1

---

1 Goldswieg, B. *Sprint, Scope Speed Reading Skills 1*. Scholastic Book Services, New York, 1970.
INCREASE VOCABULARY:

Clients should record all words they don't understand while reading, in their project notebook. Put the words in this list in a sentence which demonstrates the meaning.

e.g. rejuvenated

The old man was rejuvenated by the strange liquid and set about climbing the mountain jauntily, a feat that he could not do for many years.

Assign 4 or 5 of these words for homework. Ask the students to put them into sentences. Assign points to this work if the sentences are correct, and the words are correctly spelled.

Be your client's dictionary particularly at the beginning of the sessions. For poor readers the dictionary's synonyms are often less meaningful than the words themselves. Introduce dictionary skills towards the end of the sessions by using it together until he is comfortable on his own.

Use the context to guess the meaning of words. Read a short newspaper article. Ask your client to circle the words he does not know. Let him guess the meaning from the context, match his guesses with your own, and use the dictionary together to see who was right. Give him a score for each correct guess. Chart his progress. Words from the week's reading may be chosen by either you or your client, and guessing their meaning from the context could be a useful exercise.

Bring a dictionary to vocabulary building sessions. Start by using it yourself when you need it, later use it together. When your client feels comfortable with it, encourage him to look up words himself.

Keep a list of all the words learned during the program. Review it periodically. A substantial word list will make your client proud of what he has learned.
Dividing words into their prefixes, roots and suffixes makes them much less mysterious. Teach the meaning of the following common prefixes and assign them for homework. Bonus points may be assigned for memorizing them.

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<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ante</td>
<td>before</td>
<td>anteroom</td>
</tr>
<tr>
<td>anti</td>
<td>against, opposite</td>
<td>antiwar</td>
</tr>
<tr>
<td>de</td>
<td>down, from, separation</td>
<td>degrade</td>
</tr>
<tr>
<td>extra</td>
<td>beyond, in excess</td>
<td>extraordinary</td>
</tr>
<tr>
<td>in, ig, il, im, ir</td>
<td>not</td>
<td>illiterate</td>
</tr>
<tr>
<td>mal</td>
<td>evil, ill, badly</td>
<td>maladjusted</td>
</tr>
<tr>
<td>micro</td>
<td>small, enlarging</td>
<td>microphone</td>
</tr>
<tr>
<td>mis</td>
<td>error, wrong</td>
<td>misplace</td>
</tr>
<tr>
<td>poly</td>
<td>many</td>
<td>polysyllabic</td>
</tr>
<tr>
<td>post</td>
<td>after</td>
<td>post graduate</td>
</tr>
<tr>
<td>pre</td>
<td>before</td>
<td>preview</td>
</tr>
<tr>
<td>re</td>
<td>a second time</td>
<td>review</td>
</tr>
<tr>
<td>trans</td>
<td>across, over</td>
<td>transcontinental</td>
</tr>
<tr>
<td>un</td>
<td>non</td>
<td>unclear</td>
</tr>
</tbody>
</table>

Make up a new list of words containing these prefixes. Work on the definitions. Remove the prefix and define the word again.

Exercises in vocabulary should be used in conjunction with SCOPE VISUALS 2 - VOCABULARY BUILDING and SCOPE VISUALS 10 - WORD POWER.

1Scope Visuals 2, Vocabulary Building, prepared by the editors of Scholastic Scope, Scholastic Book Service, New York, 1969.

IMPROVE COMPREHENSION:

Comprehension is a fairly complex skill. It is composed of many specific skills which need to be blended together in order to understand a story, an article or a novel. Good readers seem to develop this skill naturally as they read. In order to teach this skill to poor readers, we need to reduce the complexity to the simplest form. Begin by focusing on the paragraph as a unit, and by analyzing its structure. Concentrate on 2 essential techniques:

1. Finding the Main Idea
2. Selecting relevant details.

The Main Idea:

The main idea is often expressed in the topic sentence. This sentence is usually found at the beginning of the paragraph, and its function is to introduce the idea to be discussed, and to establish the author's point of view.

For example:

Reading is the key to success in all academic activities.

The author goes on to explain how much knowledge we get from reading as compared to other ways of learning. We can see from this topic sentence that the paragraph will be about reading and that in the author's opinion it is the key to success. The rest of the paragraph will contain details that illustrate and enlarge on that point of view.

Choose several articles from workbooks, magazines, or newspapers. Underline the topic sentence in red. State in a few words what the paragraph is about, and how the author intends to deal with the material (his point of view).

Headlining:

Cover the title of the article and provide 4 titles of your own. One title should refer to the main idea, and three to details which occur in the story. Ask the student to choose the title which reflects the main idea.

Present several articles without titles. Ask the student to make up a headline or title which expresses the main idea. Compare his title to the real one. Sometimes students may be better at headlining than journalists.
Detailing:

When the student can identify the main idea and the topic sentence with ease, ask him to underline the details that enlarge and illustrate the central idea with blue pen. Discuss how paragraphs are built, and ideas clarified through the use of details.

Use the following exercise to show the importance of details. Describe a snowman to a man from outer space who has never seen snow. Begin with the following topic sentence:

This funny looking sculpture is a snowman which is made by children from a cold, soft, sticky substance that covers the ground in the winter.

Ask the students to fill in the details.

Choose topic sentences from articles and practice filling in your own details.
Sequencing:

If your client has difficulty remembering the events of the story in order; draw a time chart of events. Fill in the first event and the last one. Ask your client to tell you what happened after the first event and record what he says. Continue to fill in the details in order.

For example:

1. After her mother died Cinderella went to live with a wicked stepmother and her ugly daughters.

2. She worked hard every day to look after the house and her sisters' clothes.

3. One day, the prince invited all the ladies in the land to a fancy ball.

4. 

5. 

6. 

7. 

8. CLIMAX

9. ANTICLIMAX

The Prince and Cinderella were married and lived happily ever after.
Generalizing:

Being able to recognize the underlying theme, or moral, of a story is a sophisticated skill which does not usually appear until the reader is working within what Piaget calls the period of Formal Operations. The reader must pull the details of the story together and come up with an abstraction which organizes them in a novel way. This ability demonstrates their understanding of the whole idea or story, as well as of the parts.

To develop this skill, try hamming up a fairy tale like The Three Little Pigs.

For example:

One day 3 teenagers set out into the world to see where it was at, etc.

After the story is complete, quiz for details. If the questions are answered correctly ask what the message of the story is. (It pays to do your work properly even if it takes a little longer - just in case you needed the hint.)

Other stories like:

Little Red Riding Hood
The Ugly Duckling
The Boy who Cried Wolf
etc.

are also appropriate.
HELP YOUR CLIENT BEGIN TO READ CRITICALLY:

The ability to determine the author's point of view, to separate fact from opinion, and to appreciate work that is well written, is a sophisticated skill. Often, even college students cannot do this.

You can help your client to develop these skills by taking every opportunity to point these things out as you work together. When you do this you make him aware of what to look for. Modeling or imitating the strategy of a person we admire is a very natural inclination.

It is not necessary for him to demonstrate competence in reading critically during the time you are working together. The first step in learning is often being aware of what to look for. Modeling your approach to reading may be very useful to him in the future.
HELP YOUR CLIENT ANALYZE A NOVEL:

Novels should be considered in terms of their 4 main elements:

1. The Plot - The story line
2. The Characters - The people
3. The Setting - The places
4. The Theme - The underlying idea

THE PLOT:

The basic skill required to understand a novel is being able to summarize the events of the story in sequence. A sound knowledge of the story line will enhance comprehension of the other elements.

Ask your client to tell you the story orally. If he does not know how to begin, ask him what happened first. Record the events he describes on a graph building upwards to the climax, and down to the anticlimax. (In some stories the climax is at the end and there is no anticlimax.) (See page 16.)

If you act as secretary you will be able to take advantage of his skills in oral communication which are probably superior to his written skills.

At the beginning you may have to do a lot of prompting, and it is important that you are reasonably familiar with the details of the story. Parallel reading should be done. As you proceed you should have to prompt less and less until your role is only to record what your client says.

At some point both you and your client should realize that what he is able to do orally is much more advanced than what he is producing on his reading forms. He should then be encouraged to act as his own recorder.

As an intermediate step, he might use a tape recorder (if this equipment is available) to record his thoughts. He should then transcribe his own work until he is able to achieve more congruence between his oral and written skills.
For example:

**Little Red Riding Hood**

Author unknown.

1. Little R.R.H.'s mother asked her to bring some goodies to her sick Grandmother.

2. On her way through the forest she forgot her mother's warning and stopped to pick some flowers.

3. She met the big bad wolf who asked her where she was going.

4. The wolf raced ahead to Grandma's house, ate Granny and jumped into her bed to wait for R.R.H.

5. When R.R.H. arrived she saw the wolf dressed in Grandma's nightie lying in her bed.

6. She said "What big teeth you have!" (among other things).

7. The wolf jumped out of bed and said "The better to eat you with!"

8. Just then, along came the Woodcutter and chopped off the wolf's head!

9. Out popped Grandma, better than ever.

10. The Woodcutter, little R.R.H. and Grandma had a party with the goodies in R.R.H.'s basket.

ANTICLIMAX

CLIMAX
THE CHARACTERS:

Discussion about the characters could begin by asking the student to identify and describe the major character. When you have recorded such details as his name, age, physical characteristics etc., ask your client to give you an adjective which would tell you something about his character. Support this statement with an incident from the book.

For example.

Little R.R.H. was disobedient because she strayed from the path and stopped to talk to the wolf when her mother told her not to.

David was brave because he was not afraid to face Goliath who was a seasoned warrior and much stronger than he was.

When the student is able to apply 2 or 3 adjectives to each of the major characters, he has a reasonable understanding of what they are like.

If you are successful with the major characters, ask the students to identify any unusual minor characters who add interest and colour to the story. Their description of the character and his role should include anecdotes from the story.

THE THEME:

The theme or underlying idea of the story is a difficult concept for those who are not able to generalize or abstract. Do not dwell on this point until the understanding of plot and character are well established. The theme is not always evident in every story, but often it is a simple moral issue (like it pays to be honest).

Some books lend themselves to a discussion of theme. (e.g. Jonathan Livingston Seagull, by Richard Bach, or Go Ask Alice, Anonymous). If your client has read a book of this kind, and cannot identify the underlying idea, introduce and explain it yourself. Leave him with the idea that stories often have a deeper meaning than what is evident on the surface, and encourage him to think about what the theme might be in the books he has already read. Ask him to keep the theme in mind in future reading. If you have started him thinking about this, the skill may develop more quickly.

THE SETTING:

The setting, or places where the events of a story occur, adds colour, atmosphere and excitement. Since we are usually pressed for time in discussing a novel, it is probably sufficient at this point to identify the places where the action occurs, and to indicate the importance of setting as an element of the novel.
An interesting exercise to highlight the setting is to describe an event taking place in one setting and then to set the same event in another setting.

For example:

The sound of running footsteps echoing on the deserted pavement increased Joanne's wild terror, as she tried in vain to escape her unknown assailant. Panic-stricken, and looking for a place to hide, she chose the deep black alley directly in front of her.

Try this chase scene:

a) Through a children's playground at noon;
b) Through a crowded city street at 9 A.M.

Note the effect created by the change.

If the book you are reading uses setting to heighten suspense, or to create atmosphere, choose an appropriate scene and try a similar exercise. An awareness of the effect of the setting on events will bring its importance into focus for your client.

In general, it is important not to be too ambitious, particularly at the beginning. How far your client will go in understanding and analyzing a novel depends mostly on where he begins. A student who has read only a few books in his academic life has rudimentary skills in this area.

As you ask questions about the 4 elements, you are providing a structure which he can use to think about what he is reading. Do not hesitate to write down the questions, to identify the elements, and to provide any clues that may help him understand. The questions you ask now should provide a model for him to ask himself later.

Concentrate on moving from his present level of competence (point A) to a point further along the continuum (point B). Remember that the greater the depth and clarity of his comprehension the more he will enjoy what he reads.
Reading Form

Student's Name ____________________________________________

Title of Book, Article, or Story ________________________________

Author's Name _____________________________________________

Type of book (e.g. Thin Biography) _____________________________

Number of Points

Number of Pages

Summary

In a few short sentences state what this book (article, story) was generally about:

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________
HOW TO DISCUSS A SHORT STORY WITH YOUR CLIENT:

Short stories contain the same 4 elements as novels. However, because of the limited space, the author concentrates on developing only one in depth. Some short stories emphasize theme, others develop an unusual character, or tell a suspenseful tale. For the most part, detective stories, sports stories, and science fiction emphasize plot. Determine the most important element in the story in question, and use the techniques outlined in the section on the novel for your discussion.

HELP YOUR CLIENT ANALYZE A BIOGRAPHY:

Biographies are written about special people who have made an unusual contribution. Ask your client to explain why a book has been written about this person.

Fill in a chart of the person's life, listing in note form the major influences in his childhood, his important achievements, his principal contributions, and his outstanding personal characteristics. Support these statements with incidents from the person's life.
For example:

JOHN F. KENNEDY, 35th PRESIDENT OF THE U.S.A.

Biographer - Charles P. Graves

Born - May 29, 1917

CHILDHOOD INFLUENCES:

- Family visits to historic sights
- Loved American history
- A good student in subjects he enjoyed
- Loved sports
- Father's job as Ambassador to England made him feel close to public affairs.

PERSONAL CHARACTERISTICS:

- Hot tempered - always getting into fights with friends and brother Joe.
- Courageous - awarded the Navy Corps medal for courage and excellent leadership, for saving his men from drowning when his P.T.-109 was sunk by the Japanese during W.W. II.

ACHIEVEMENTS:

- Graduated with honours from Harvard University
- Elected to Congress, 1947
- Became a U.S. senator, 1953
- The first Catholic to be elected president, 1960.

CONTRIBUTIONS:

- "New Frontier" - idea for a way of life - advances in science, education, employment
- Cuban Missile Crisis - saved America by forcing Russians to remove nuclear missiles from Cuba - 90 miles from American soil
- Introduced civil rights bill
- Signed agreement with Russians not to test nuclear weapons in space.

Died - November 22, 1963 - shot by an assassin in Dallas, Texas.
PLAN AHEAD:

Many of the work and learning strategies you use will be
imitated by your client. Therefore, it is important that you are
prepared and well organized for each session. In addition to providing
a good model, you will be most effective if you plan both your short
and long range target behaviors.

Each session should have specific goals:

For example:

**Session 3: February 15**

**Target Behaviors:**
1. To increase speed
2. To analyze a biography

By the end of your second session you should have a complete
list of target behaviors based on your client's individual needs. Use
this list to plan your sessions, choosing tasks that seem appropriate
at the moment. As you proceed you may enlarge this list if time permits.
At the end of the program your list should indicate the sessions in
which you worked on specific target behaviors.

**Client:** Jack Smith

**Age:** 13 years, 6 months

**Grade Scores:** The Gates-MacGinitie Reading Test - Survey E

**Speed and Accuracy:** 4.3

**Vocabulary:** 5.1

**Comprehension:** 5.3

**Target Behaviors:**

- To increase speed
- To increase vocabulary
- To build stamina for reading
- To analyze a novel - emphasize plot
- To analyze a biography
- To pick out the main idea
- Etc.

**Sessions Practiced**

<table>
<thead>
<tr>
<th>Target Behavior</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase speed</td>
<td>2, 3, 8</td>
</tr>
<tr>
<td>To increase vocabulary</td>
<td>1, 4, 5</td>
</tr>
<tr>
<td>To build stamina for reading</td>
<td>1 - 10</td>
</tr>
<tr>
<td>To analyze a novel - emphasize plot</td>
<td>2, 3, 5, 6</td>
</tr>
<tr>
<td>To analyze a biography</td>
<td>4, 7, 9</td>
</tr>
<tr>
<td>To pick out the main idea</td>
<td>6, 10</td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
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</tbody>
</table>
A SAMPLE PLAN FOR SESSION 3:

Session 3: February 15

Target Behaviors:
1. To increase speed
2. To analyze a short story

Previous Sessions:
1. On speed; February 1; February 8.
2. On short stories; —

Baselines:
1. Speed - presenting behavior
   - session 1: 60 words per min.
   - session 2: 75 words per min.
   - session 3: 90 words per min.

Materials:
1. Stop watch
2. Sprint
3. 3 short articles from sports section

Plan:
1. Match speed with Jack p. 6 (10 min)
2. Work on subvocalizing p. 6 (5 min.)
3. Continue to work on Sprint
   ("There's more than one way to read") p. 31 (20 min.)
4. Work on short story from
   Science Fiction Stories -
   concentrate on plot. (15 min.)
5. Choose a book for next week's reading (10 min.)

Report - Session 3:
1. Sprint p. 31-42
2. Speed - 103 w.p.m.
3. Read 3 articles in matching exercises
4. Worked on The Strange Man, p. 27-43
   in Science Fiction Stories
5. Book for next week, His Own Where,
   by June Jordan (medium-92 pages)
FINAL COMMENT:

Theory:

Gagne (1965) has proposed a theory of learning based on a hierarchal model. He suggests that prior mastery of prerequisite skills is the most important factor in the solution of problems at the next level of difficulty. He structures his experiments by analyzing the contents of the final task and by asking what prerequisite structures must be part of the learner's repertoire in order to perform this task successfully. He then sets up a series of tasks whose successive mastery is a prerequisite to successful performance of the final task.

We have hypothesized that the learning of reading skills is hierarchal in nature, and that successful performance at higher levels is based on the acquisition of the relevant prerequisite skills at lower levels in that hierarchy.

For this program we have chosen, as our final task, the skills required for the Quebec Junior Matriculation Examination in Literature. We have attempted, through the exercises presented, to develop those skills which would form a good foundation for successful performance in these tasks at the junior high school level.

In addition, because reading skills are so critical to successful performance in all academic subjects, mastery of these skills will be most useful to all students.

---

Bloom (1968)¹ has suggested that the most effective method of teaching might be a tutorial system, fitted to the needs of the individual student where the tutor can assess which prerequisites for learning are absent from the student's repertoire and thus by filling in these gaps, bring every student to the point where he possesses the necessary prerequisites for mastery of what is being taught.

The goals of this workbook have been to provide exercises in a wide range of foundation skills in reading. It is the task of the tutor to design a program based directly on the individual needs of the student, and to fill in the gaps in his reading skills to the extent possible.

We have hypothesized that if we do this successfully, the student will internalize his own reinforcement for reading and for the practicing of reading skills. He will, therefore, be in a better position to take advantage of whatever new opportunities for learning group instruction provides, and to continue to develop these skills independently at the same rate as his peers.

Practice:

As every teacher knows, the experience of helping another person learn is most rewarding. However, the process is not always smooth, and setbacks occur regardless of the soundness of the program. One frustrating session should prompt a rethinking of the next week's approach. The use of a new workbook, concentration on a stronger area, a retreat to an easier level, or a particularly enjoyable activity would be appropriate.

¹ Bloom, B.S. Learning for Mastery. Evaluation Comment, U.C.L.A. May 1968. 1, No. 2
changes. Often these difficulties are the results of extraneous causes. However, because the program is short, more than one unproductive session should result in a conference and some new solutions.

Keep the accent on performance! Vary the activities in each session and make sure your program is fast moving and flexible. Above all, hang on to your sense of humour and your program will be a great success.
LIST OF WORKBOOKS

Wide World, Scope/Reading Skills 1,
The Editors of Scholastic Scope,
Scholastic Book Services, New York.
1967.

Dimensions, Scope/Reading Skills 2,
The editors of Scholastic Scope,
Scholastic Book Services, New York.
1970.

Spotlight, Scope/Reading Skills 3,
The Editors of Scholastic Scope,
Scholastic Book Services, New York.
1969.

Scope Visuals 1, Reading Skills, The
Editors of Scholastic Scope, Scholastic

Scope Visuals 2, Vocabulary Building, The
Editors of Scholastic Scope, Scholastic

Scope Visuals 10, Word Power, The
Editors of Scholastic Scope, Scholastic

Sprint, Scope/Speed Reading 1,
Goldswieg, B., Scholastic Book

Countdown, Scope/Study Skills, Goldswieg, B.,

Trackdown, Scope/Language Skills 1,
Goldswieg B., Scholastic Book Services,

USES

To increase comprehension and vocabulary. To promote interest and enjoyment in reading.

Ibid.

To build vocabulary.

Ibid.

To increase speed.

Ibid.

To develop organization skills.

To increase comprehension and vocabulary.

To motivate reluctant readers.
LANGUAGE ARTS PROGRAM
for the
REMEDIATION OF READING SKILLS IN ADOLESCENTS

Colver, Anne. Florence Nightengale, New York: Dell, 1972
Goscinny and Uderzo. Asterix and the Roman Agent, Leicester: " " , 1972
Goscinny and Uderzo. Asterix, the Gaul, Leicester: " " "
Goscinny and Uderzo. Asterix and Cleopatra, Leicester: " " "
Goscinny and Uderzo. Asterix in Switzerland, Leicester: " " "
Goscinny and Uderzo. Asterix in Spain, Leicester: " " "
Goscinny and Uderzo. Asterix and the Big Fight, Leicester: " " "
Goscinny and Uderzo. Asterix and the Legionary, Leicester: " " "
Graves, Charles P. John F. Kennedy, New York: Dell, 1971
Graves, Charles P., Robert F. Kennedy, New York: Dell, 1972
Graves, Charles P. Benjamin Franklin, New York: Dell, 1971
Kaufman, Mernyn D. Thomas Alva Edison, New York: Dell, 1971
Patterson, Lillie. Martin Luther King, Jr. Man of Peace, New York: Dell, 1971
Sobol, Donald J. Encyclopedia Brown Tracks them Down, New York: " "
Stewart & Graff, Polly Anne. Helen Keller, New York: Dell, 1972
Wagner, Jane. J. T., New York: Dell, 1972
LANGUAGE ARTS PROGRAM
for the
REHABILITATION OF READING SKILLS IN ADOLESCENTS

Blume, Judy. Then Again, Maybe I Won't, New York: Dell, 1973
Bonham, Frank. Mystery of the Fat Cat, New York: Dell, 1972
Hemingway, Ernest. The Old Man and the Sea; New York: Charles Scribner's Sons, 1952
Jordan, June. His Own Hero, New York: Dell, 1971
Little, Jean. Kate, New York: Harper & Row, 1972
Lunn, Janet. Twin Spell, New York: Dell, 1973
Platt, Kin. Hey, Dummy, New York: Dell, 1971
Thompson, Ilma. That Barbara!, New York: Dell, 1971
Steele, Mary C. Journey Outside, New York: Dell, 1972
Wersha, Barbara. The Dress Hatchet, Bloomfield, Conn: Atheneum, 1968
LANGUAGE ARTS PROGRAM

for the

REHABILITATION OF READING SKILLS IN ADOLESCENTS

Blume, Judy. It's not the End of the Road, Toronto: Bantam, 1973
Nazer, Norman. I Trissy, New York: Dell, 1971
for the

REMEDIATION OF READING SKILLS IN ADOLESCENTS

For the

REINFORCEMENT OF READING SKILLS IN ADOLESCENTS


Williams, Mary McFee, and Kane, Irene. *On Becoming a Woman*, New York: Dell, 1971
Did you ever see the red and white stripes on barber poles that stand outside many barber shops? Did you ever wonder why they are there?

The answer may surprise you. The barber pole is a special kind of sign. Three hundred years ago, it meant that inside the barber shop people could have operations. The red and white stripes on the pole looked like bloody bandages after an operation.

Who performed the operations? The barbers did. Barbers were the first surgeons. They had some very odd ideas. They thought that a person got sick because his blood was not pure. Therefore they "bled" a sick man so he would get rid of his "bad" blood. To bleed a man, they put little blood-sucking worms (called leeches) on his arm.

The next time you go to the barber shop, take a good look at the red and white pole outside the shop. And be glad that you are there for a haircut and not an operation!

1. This selection is mainly about
   a. barber shops
   b. barber poles
   c. barbers
   d. operations

2. The leeches were put
   a. on the barber poles
   b. on the barbers
   c. on the patient's arm
   d. on the bandages

3. In this selection, pure probably means
   a. free from illness
   b. a solid red
   c. flowing
   d. free from hair
In ancient Rome, Emperor Nero Claudius Caesar (A.D. 54-68) wanted a new kind of dessert. He sent champion runners to the Swiss Alps to bring back snow. Quickly, before it melted, he added fruit slices or honey to it. This was the first ice cream—a dish only kings could afford.

Hundreds of years later, milk and other ingredients were added to ice cream. Often the ingredients were kept a secret. Still, only the rich ate ice cream.

There's a story that King Charles I of England (1625-1649) wanted to be the only one in England who could serve ice cream. He got his ice cream from a Frenchman. Each year he paid the Frenchman not to tell anyone how he made his ice cream. Finally, he had the man killed.

Today most people can afford ice cream, and there's plenty of it around. Last year, the average American ate 23 gallons of ice cream. And unlike the Roman emperor, they could choose from 350 different flavors.

More Americans are eating more ice cream than ever before. In 1900, U.S. companies produced five million gallons of ice cream. By 1940, they were making about 350 million gallons. Today this figure has more than doubled.

One reason ice cream has become a big business is modern refrigeration. Under refrigeration, ice cream can be stored for a long time. And refrigerated trucks can carry ice cream to stores and restaurants all over the country.

1. This selection is mainly about
   a. a dessert for rich people
   b. the freezing of ice cream
   c. the first ice cream
d. the growth of ice cream eating

2. Today U.S. ice cream companies make more than ______ a year.
   a. 5 million gallons
   b. 23 million gallons
   c. 350 million gallons
d. 700 million gallons

3. In this selection, dish probably means ______
   a. dessert
   b. something made of glass
   c. ice cream
d. a flavor of ice cream
John Glenn was alone in a spacecraft. He was about to orbit (go around) Earth in space—or die trying. It was the morning of February 20, 1962. The place was Cape Canaveral, Florida.

Glenn began to count. "Ten, nine, eight, seven, six ..." A great flame shot out from the rocket that would carry his spacecraft. "Five, four, three, two, one, zero." Then he blasted off.

Millions of Americans were watching Glenn's flight on TV. Many wondered if the U.S. could catch up to Russia in the space race. The year before, two Russians had orbited Earth.

After five minutes, the spacecraft left the rocket. It went 100 miles above Earth. Glenn was now weightless. He was outside the pull of gravity.

Over Africa, Glenn tested what it was like to be weightless. First, he squeezed a tube of applesauce into his mouth. He had no trouble swallowing. Then he shook his head hard. He wondered if this would make him feel sick. But he felt fine. Being weightless was not a problem.

But later there was trouble. The spacecraft started to swing from side to side. Something had gone wrong with the automatic control system. This could be very dangerous. But Glenn stayed calm. He switched from automatic control to hand control. He got the spacecraft back into position. Then Glenn "flew" it himself by hand.

More trouble came during the second orbit. The heat shield came loose. If it fell off, the spacecraft would burn up when coming back into Earth's atmosphere. But the men at Cape Canaveral came up with a plan.

Glenn was supposed to fire some rockets as he came back into Earth's atmosphere. This would slow down the spacecraft. Then, Glenn was supposed to dump the package that held the rockets. The package was outside the spacecraft. It was held by metal straps that hooked onto the heat shield. So the men at Cape Canaveral told Glenn not to dump the package. They hoped the metal straps would keep the heat shield on.

Five hours later, the spacecraft slowed down, then dived toward Earth. The heat shield stayed on! Glenn opened a parachute that lowered his spacecraft slowly into the Atlantic Ocean.

A Navy ship picked him up. And John Glenn became a national hero.

1. What is the main idea of this article?

2. _____ is least important for understanding the main idea of this article.
   a. John Glenn was about to orbit Earth in space.
   b. Millions of Americans were watching Glenn's flight on TV.
   c. During his flight, there was trouble with the spacecraft.

3. The statement that proves that for John Glenn being weightless was not a problem is _____.
   a. He shook his head hard.
   b. He was outside the pull of gravity.
   c. He had no trouble swallowing.

4. Atmosphere and spacecraft are _____.
   a. synonyms
   b. antonyms
   c. neither synonyms nor antonyms
the case of the STRANGE MESSAGE

"My daughter Daisy has been kidnapped," Mr. Hays told Alec Ardley. "I got this note in the mail today. It's in Daisy's writing."

Dear Mommy and Daddy,

Guess what! A mint ate Sally. But don't worry, I'm okay. They said to tell you that if you want to see me alive, leave $10,000 in the boathouse at Lake Mini. Daisy

Ardley read the note and said, "What does she mean by 'A mint ate Salley'? It doesn't make sense. And why does Sally end in ey, the way alley does?"

"We don't know anyone named Sally," Mr. Hays said. "But I suppose we'll have to do as the men say. I must get that money somehow. Or who knows what they'll do."

"We can't trust them," Ardley said. "They might take the money and not return Daisy. I'd rather trust a hunch of my own. I've been saying 'A mint ate Salley' over and over, and it's given me an idea."

The men drove across town and stopped near the old Tate house. Ardley walked to the alley in the back of the house. There was a garage there. He peeked through a window, then called the police. Soon the police came, caught the kidnappers, and freed Daisy.

How did Ardley know where Daisy was? (There is another clue on the next page.)
Suppose Daisy wrote:
I is okay.
The kidnappers wants me to write.
The boathouse are open.
She would not be using careful English. Why?
She broke these three rules:
1. With I (you, we, and they), use an action word not ending in s. (I am okay).
2. When the subject (doer) ends in s, the action word usually does not. (The kidnappers want me to write.)
3. When the subject does not end in s, the action word usually does. (The boathouse is open.)

Note: Rules 2 and 3 do not apply to names like Bess or Mr. Hays.

A. In each sentence below, you are given a choice of two action words. Choose the correct one and write it in the blank. (Check rule 1 for help.)

1. I (am, is) ________16 years old.
2. I (know, knows) ________ the truth.
3. You (tell, tells) ________ her.
4. You (do, does) ________ it well.
5. We (is, are) ________ winning.
6. We (was, were) ________ late.
7. They (do, does) ________ well in math.
8. They (was, were) ________ angry.

B. Add an action word to each of these sentences. (Check rules 2 and 3 for help.)

1. The candies ________ all eaten.
2. The birds ________ the worms.
3. These books ________ too heavy to carry.

4. These skirts ________ too short.
5. My mother ________ often mean.
6. This word ________ "man" in Spanish.
7. That boy always ________ to school.
8. He ________ milk every day, too.

Now look at these sentences:
Here is my candy. Here are my candies.
There is the car. There are the cars.

When a sentence begins with Here or There, how do you know whether to use is or are?

Turn the sentence around:

My candy ______ here. My candies ______ here.
The car ______ there. The cars ______ there.

Then, if the word before the blank ends in s, use are. If the word before the blank does not end in s, use is.

C. Write "is" or "are" in each sentence.

1. Here ______ ten dimes.
2. There ______ a robin.
3. Here ______ some pens.
4. There ______ the spot.
5. Here ______ a note.

EXTRA CLUE: This sentence is written backward: YELLA S'ETAT NI MA. Write the letters in reverse order in the spaces below.

Still can't solve the mystery? Check with your teacher.
Most of the things we read are made up of sentences. Here are two sentences:

On the picnic the boys spent a lot of time swimming in the lake. They were good swimmers and raced each other from the dock to the raft.

The first sentence tells about boys on a picnic. The second sentence tells more about the boys and what they did. The two sentences belong together. They are related.

One of the three groups below has related sentences.

A \[ \begin{align*}
& \text{The stars and the earth are all part of the universe.} \\
& \text{Trees and plants need water in order to grow.}
\end{align*} \]

B \[ \begin{align*}
& \text{The warm rain had been falling for a full day.} \\
& \text{The station wagon was old but the engine was in good condition.}
\end{align*} \]

C \[ \begin{align*}
& \text{The football game was exciting from beginning to end.} \\
& \text{The winning team made a touchdown in the last minute of play.}
\end{align*} \]

(continued on next page)
(continued)

Which group has related sentences?

Group A has related sentences. (No. 12)

Group B has related sentences. (No. 16)

Group C has related sentences. (No. 20)

Now look at the front of the Student Record Sheet. There you will be told what to do next.

---

Group A is a paragraph.

Yes! You found the sentences that make a paragraph. The sentences are related. The first sentence tells of the great oceans around the earth. The second sentence tells something more about them. It gives the names of the two largest oceans.

Was this your first choice? If not, did you circle the other answer number on the Student Record Sheet?

Go now to No. 10.
Group A has related sentences.

No. Sorry. The frowning face tells you your answer is wrong. Here are the two sentences in Group A:

The stars and the earth are all part of the universe.
Trees and plants need water in order to grow.

The two sentences above are about different things. You can probably see now that they do not belong together. If sentences don't belong together, they are not related.

Return to No. 1 and read the two other choices again. Circle the number of your new answer on the Student Record Sheet. Then turn to that number in this booklet.
Group B has related sentences.

No. The sad face tells you your answer is wrong. Here are the two sentences from Group B:

The warm rain had been falling for a full day.
The station wagon was old but the engine was in good condition.

The two sentences above are about different things. The first sentence is about a rainy day. The second sentence is about an old station wagon. You probably can see now that the two sentences are not related.

Return to No. 1 and read the two other choices again. Circle the number of your new answer on the Student Record Sheet. Then turn to that number in this booklet.
Group C has related sentences.

Yes! The smiling face tells you your answer is right. The two sentences in Group C are related. The first sentence tells about an exciting football game. The second sentence tells more about the game. It tells what one of the teams did. It tells something about the excitement of the game. The two sentences clearly go together.

Turn now to No. 7 in this booklet.
In reading, the main idea is what the reading is mostly about. A single paragraph often contains a topic sentence—a sentence that tells you what the paragraph means. But for longer articles, you must figure out the one idea—the main idea—that ties together all the paragraphs.

Try testing yourself. Find the main idea for each of the following paragraphs. Then try writing the one idea that connects the two paragraphs.

**Cars are a big part of our lives. Because of them, we have drive-in banks, restaurants, movies, and shopping centers. Because of cars, people can live in one town and work in another.**

Because of cars, we've had to build millions of miles of roads and highways. The streets of our cities often suffer from big traffic tie-ups. And the air above our cities becomes foul partly from the chemicals that pour out of car exhausts.

*Circle* the title that tells most about the first paragraph.

A. A Driving Lesson  
B. Some Benefits from Cars  
C. Life in Another Town  
D. Growth of Shopping Centers

*Circle* the title that tells most about the second paragraph.

A. Other Benefits from Cars  
B. Highway Dangers  
C. Some Problems Caused by Cars  
D. Chemicals in the Air

Now try writing one main idea, telling what the two paragraphs are about.

A title that tells the most about the article is:
Once you find the main ideas in an article, it is easy to recognize important details. After you select the important details, one way to remember them is to put them into an outline. Then study the outline.

Read again the following paragraphs. In the outline which follows, the main ideas are given. But the important details are missing.

Cars have become a big part of our lives. Because of them, we have drive-in banks, restaurants, movies, and shopping centers. Because of cars, people can live in one town and work in another.

Because of cars, we've had to build millions of miles of roads and highways. The streets of our cities often suffer from big traffic tie-ups. And the air above our cities becomes foul partly from the chemicals that pour out of car exhausts.

Try testing yourself. Fill in the missing details in the outline. Notice how the main ideas help you select the important details.

1. Benefits from Cars II. Problems from Cars
   A. _________ A. _________
   B. _________ B. _________

REMEMBER: THE MAIN IDEAS HELP YOU TO RECOGNIZE—AND REMEMBER—THE IMPORTANT DETAILS.
The hitchhiker got a fast lift. What do fast and lift mean? Their meanings depend on context—how the words are used in a sentence or paragraph.

In the following paragraph, fast and lift take on different meanings. You can guess each meaning by the other words in the sentence. Try testing yourself by using the context to get each meaning.

Times were bad. Stan Newsom shook from hunger. He had (1) fasted for three days. He couldn't find work. He couldn't get a (2) lift to another town. His small amount of money had gone (3) fast. He feared he would starve. He became crazed by the thought. Finally, Stan tried to (4) lift a woman's purse. But she held (5) fast and yelled for the police. Stan ran, still wondering if he would ever eat again.

Write the number for fast or lift next to the words which tell the meaning from context.

_________ ride with another person
_________ tight, not easily freed
_________ in a short time
_________ take by surprise, steal
_________ go without food

REMEMBER: THE MEANING OF A WORD DEPENDS ON ITS CONTEXT—THE WAY THE WORD IS USED IN A SENTENCE OR PARAGRAPH.
In reading, it is important to understand the author's purpose. The author of an ad, for example, is trying to sell you something. Selling is his purpose.

Whenever you read, you should ask yourself: "Why is the author telling me this?" At times, you may decide that the author has more than one purpose. At other times, you may decide that the author wishes only to report. In any case, noting the author's purpose will help you understand what you are reading.

Try testing yourself. Read again the following paragraph. Then see if you can check the author's purpose.

Times were bad. Stan Newsom shook from hunger. He had fasted for three days. He couldn't find work. He couldn't get a lift to another town. His small amount of money had gone fast. He feared he would starve. He became crazed by the thought. Finally, Stan tried to lift a woman's purse. But she held fast and yelled for the police. Stan ran, still wondering if he would ever eat again.

The author's purpose is:

_____ to describe a woman
_____ to show how hunger might lead to crime
_____ to show that a person can live without food
_____ to describe how not to rob someone

REMEMBER: NOTING THE AUTHOR'S PURPOSE HELPS YOU TO UNDERSTAND WHAT YOU ARE READING.
In reading, you must be able to tell a fact from an opinion. One of the following two sentences is a fact. The other is an opinion. See if you can tell the difference between them.

A. World War II ended in 1945.
B. The toughest American soldiers were Marines.

Now you can't check every statement you read. But facts can be checked. Opinions can't. If you doubted sentence A, you could check it in other sources (encyclopedias, books, magazines, etc.). Each source would give the same date. So sentence A is a fact.

But if you doubted sentence B, you couldn't check it in other sources. The sources wouldn't say the same thing. What do you think an Army general might say, for example? So sentence B is an opinion.

Read the following paragraph. Circle the three sentences that are opinions. These can't be checked. The other two sentences are facts. See if you can guess where you might check these facts.

Americans will elect a President in 1972. Every person of age should vote. Those who don't are fools. In some states, 18-year-olds can vote. Every 18-year-old should have that right.

REMEMBER: DON'T ACCEPT OPINIONS AS FACTS. IF YOU DOUBT A STATEMENT, CHECK IT.
Suppose you are getting dressed. You have very tight slacks. Which would you put on first—you shoes or your slacks? You'd probably put on the slacks because they might not fit over the shoes. In any event, you probably would follow some order. Things placed in order are in sequence.

In reading, you find many things in sequence. Some are: tables of contents and directions. Can you think of others?

The following five sentences are directions for voting by machine. The directions are not in the right order. Read the sentences carefully. Then figure out the order of steps that makes the most sense.

1. Examine names on the ballot
2. Pull lever to close curtains
3. Enter voting booth
4. Pull lever to register vote and open curtains
5. Point arrows at your choices

Write the number of the sentence next to the step that it should be for correct sequence.

_______ step 1  _______ step 3
_______ step 2  _______ step 4

_______ step 5

REMEMBER: IN READING, YOU SHOULD BE ABLE TO PUT EVENTS OR IDEAS INTO AN ORDER THAT MAKES SENSE.
Shots ripped into the sandbags. "We’re trapped!" Bernie screamed. "We don’t have much time left!"

"Shut up," Pete whispered. "They can’t see us. By tomorrow, help might come. And if not, there’s still a chance."

"It’s no use," Bernie sniffled. "When they can see us, we’ll be as dead as the rest of the company."

Can you guess what will happen next? Can you make some predictions about what you will find out in the story?

The following six sentences are predictions made from the information given in the paragraphs above. Some predictions are probable. They seem to go along with the information given. Others are not probable—if there is nothing in the paragraphs to support them.

Try testing yourself. Put a check in front of the predictions that make sense.

1. You will find out that it is night.
2. You will find out that Pete has weak eyesight.
3. As time passes, Bernie will become even more frightened.
4. Pete will have a heart attack.
5. The enemy will surrender.
6. You will find out what military branch they belong to.

REMEMBER: IN READING, TRY TO MAKE PREDICTIONS, BUT YOUR PREDICTIONS SHOULD BE PROBABLE.
DEBBIE: How was your date last night?
CAROL: Terrible! He was a real mouse...

Does Carol mean that her date ate cheese all night? That he ran away from cats? Let's go back and listen to her next sentence.

CAROL: I don't like quiet boys.
That explains it. She compared her date with a mouse because he was so quiet. In reading, you often find comparisons. You should try to see why and how the comparisons fit. Don't guess! Wait until you have enough information to understand the comparison!

Try testing yourself. Find the comparison in the following paragraph. Then try to tell why and how it fits.

He stared out the window, watching the rain hit the sidewalk. It's no use, he thought. This is a zoo! His wife entered the room. She looked tired. Well, the weekend was almost over. He'd be glad to get back to work—get away from this zoo. Finally, he said, "If the rain stops, would you take the kids out for a while? I want some peace and quiet."

The man compared his apartment with a zoo because

REMEMBER: IN READING, YOU SHOULD TRY TO SEE WHY AND HOW THE COMPARISON FITS.
Appendix "C": Course Materials
TEXTS

1. Adolescence - Behavior and Development, Boyd R. McCandless
2. Behavior Technology: Motivation and Contingency Management, L. Homme and D. Tosti
3. A Program for the Remediation of Reading Disabilities in Adolescents, Geraldine Schwartz
4. Tricks of the Trade, Geraldine Schwartz

COURSE OUTLINE

TOPIC

I A Research Program to Remediate Reading Disabilities in Adolescents
   a) An overview of the program

II A Developmental Approach to The Study of Psychology
   a) A Conceptual Framework for the Study of Adolescence
   b) Adolescence - definitions

III Behavior Modification Procedures
   a) Social Learning Theory
   b) Contingency Management

PREPARATION

Encounter, G. Schwartz*
College Students as Contingency Managers for a Remedial Reading Program with Adolescents, G. Schwartz

McCandless, C.1**

The Stormy Decade, Bandura*

Behavior Technology, Homme and Tosti - Units 1-4*

Treatment of non-reading in a Culturally Deprived Juvenile Delinquent, Staats and Butterfield*

The Elimination of Tantrum Behavior by Extinction Procedures, Williams*
IV The Research Program
   a) a detailed Analysis
   b) Being a Reading Tutor

V The Experimental Method
   a) Dimensions of Research
   b) Methodological Problems
   c) Statistics

VI Cognitive Function
   a) Intelligence and Intellectual Growth
      b) Intelligence Tests
      c) Cognitive Function in
      d) Egocentrism in Adolescence
      e) Remedial Activities in Adolescence

VII Affective Function
   a) Theories of Personality
      Social learning Theory
      Erikson's Stage Theory
      Phenomenological Self Theory
   b) Moral Development

VIII Old Age

* Adulthood will be covered as an integral part of sections VI and VII. Since Intellectual function stops changing with the period of formal operations, and social learning theory takes over, the whole range of human development from Adolescence to Old Age is covered in this course.
EVALUATION

Evaluation in this course will be based on
a) Final Report - 40 marks  due April 30
b) Portfolio   - 20 marks  due April 1
c) Extra reading - 40 marks  ongoing

** Read and prepare an Abstract (see form) (compulsory)
* Read and checked orally   (compulsory)
Extra reading               (optional)

The Portfolio is worth 20 marks (2 for quality). As you can see, you may earn the rest of your grade by reading, and relating your understanding of the article or chapter orally to your partner, or by writing abstracts on any of the readings and handing them in to me whenever they are completed. Your grade will therefore be dependent on the amount of work you do in this course. There is however a minimum of essential work to be done.

I consider attendance a critical factor in this course, both in class, and in your fieldwork assignment. This project is for "real". Your client is expecting you to show up, and I expect you to show up prepared. There are over 200 people on this research team, and we are only as strong as our weakest link. If you stay in this course I will count on you to be a responsible adult.

Gerri
<table>
<thead>
<tr>
<th>Title</th>
<th>Abstract</th>
<th>Checked orally</th>
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<tbody>
<tr>
<td><strong>PORTFOLIO</strong></td>
<td></td>
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<tr>
<td>1. Contingency Managers for a Remedial Reading Program with Adolescents</td>
<td>3</td>
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<tr>
<td>2. Intelligence - Why it grows, why it declines</td>
<td>3</td>
<td></td>
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<tr>
<td>3. McCandless - Adolescents - Chapter 1</td>
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<td>7. Encounter</td>
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<td>8. The Stormy Decade</td>
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<tr>
<td>9. Behavior Technology</td>
<td>Unit 1</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>Unit 2</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
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<td>2</td>
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<tr>
<td>12.</td>
<td>Unit 4</td>
<td>2</td>
</tr>
<tr>
<td>13. Treatment of non reading in a culturally deprived juvenile delinquent</td>
<td>4</td>
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<td>14. The Elimination of Tantrum Behavior by Extinction Procedures</td>
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<td>15. Program for the Remediation of Reading Disabilities</td>
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<td>16. Tricks of the Trade</td>
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<td>17. McCandless,</td>
<td>Chapter 9</td>
<td>2</td>
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<td>Chapter 12</td>
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<td>20.</td>
<td>Chapter 15</td>
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<td>21. Myth of Twilight Years</td>
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<tr>
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<td>----------------</td>
</tr>
<tr>
<td>22. The little Man who might be there</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>23. What Behavioral Engineering Is</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>24. Contingency Management and Motivation</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>25. Behavior Frequency Modification</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>26. Intelligence has three Facets</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>27. How Children Fail</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>28. The Discovery and Encouragement of Exceptional Talent</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>29. Cognitive Development in Adolescence</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>30. Egocentrism in Adolescence</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>31. Learning for Mastery</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>32. 2 marks for Portfolio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OBJECTIVES: For the Program on the Remediation of Reading Skills in Adolescence.

1. To individualize a reading program for each student so that he may begin from his tested baseline to increase his skills in reading by at least one grade.
   \[5\ 4\ 3\ 2\ 1\]

2. To provide structured sessions in remedial reading to accelerate the development of skills.
   \[5\ 4\ 3\ 2\ 1\]

3. To provide unstructured reading experience at the student's level of competence so that he engages in reading behavior in a natural and voluntary way in his home environment and outside the classroom.
   \[5\ 4\ 3\ 2\ 1\]

4. To motivate the student through the use of Behavior Modification procedures, and a reading contract, to read and to practice reading skills.
   \[5\ 4\ 3\ 2\ 1\]

5. To systematically break down avoidance strategies to reading and practicing reading skills through the use of behavior modification procedure.
   \[5\ 4\ 3\ 2\ 1\]

6. To modify the student's concept of himself as a poor reader to a potentially good one.
   \[5\ 4\ 3\ 2\ 1\]

7. To develop sufficient reading skill, and intrinsic pleasure in reading so that reading behavior becomes sufficiently self reinforcing, to be initiated independently after the treatment has been completed.
   \[5\ 4\ 3\ 2\ 1\]

8. To provide assistance and motivation and support to the students through the use of a Reading Tutor, whose position as a college student has status value so that objectives 1 - 7 may be achieved.
   \[5\ 4\ 3\ 2\ 1\]

(Circle 5 when you feel the objective has been reached completely, and the other numbers when you feel they have been partially reached.)

Evaluation of Objectives should be completed at the end of this course, and included with your final report.
OBJECTIVES: For the course Developmental Psychology 350-305-69

1. To develop a basic understanding of the theories of Cognitive and Affective Development as they apply to adolescence, most particularly those of Piaget, Gagné, Guilford, Erikson, Elkind, Kohlberg, etc.

2. To demonstrate the use of experimental method and design, as it applies to research in Adolescent Psychology.

3. To demonstrate the use of operant technology and social learning theory as they apply to problems outside the laboratory setting.

4. To provide meaningful field work where the student can observe the adolescent milieu, as well as participate actively in the life of an adolescent, in order to put the theories to work and to test their validity in a practical way.

5. To allow the student to observe himself in the role of a "helper" in order to facilitate career decisions regarding the helping professions.

6. To observe the science of psychology in action by participating in a real and meaningful experimental program thus tying up the theory, the practice and the research.

7. To draw forward the theories of cognitive and affective development past adolescence into adulthood and old age in order to look at human behavior from adolescence to old age from the developmental point of view.

(Circle 5 if you feel the objectives have been reached in your case. Use the other numbers to indicate the degree when they have been partially reached.)

Evaluation of Objectives should be completed at the end of this course, and included into your final report.
Appendix "D": Statistical Analyses
Table A

Analysis of Variance Summary - Composite Pretest Scores for All groups - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
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<th>df</th>
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<th>F</th>
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<tbody>
<tr>
<td>Total</td>
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<td>106.54</td>
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<tr>
<td>Between groups</td>
<td>1721.00</td>
<td>6</td>
<td>286.83</td>
<td>2.90*</td>
</tr>
<tr>
<td>Within groups</td>
<td>13727.00</td>
<td>139</td>
<td>98.76</td>
<td></td>
</tr>
</tbody>
</table>

Note. $F_{.05}(6, 139) = 2.16$

$p < .05$
Table B

Table of Means
Speed Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>pretest</th>
<th>posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>20</td>
<td>43.40</td>
<td>52.90</td>
</tr>
<tr>
<td>C1</td>
<td>20</td>
<td>40.50</td>
<td>44.05</td>
</tr>
<tr>
<td>School 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>22</td>
<td>42.95</td>
<td>49.64</td>
</tr>
<tr>
<td>C2</td>
<td>22</td>
<td>43.23</td>
<td>44.82</td>
</tr>
</tbody>
</table>
Table C

Table of Means

Vocabulary Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
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<th>pretest</th>
<th>posttest</th>
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</thead>
<tbody>
<tr>
<td>School 1 E1</td>
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<td>43.65</td>
<td>52.00</td>
</tr>
<tr>
<td>School 1 C1</td>
<td>20</td>
<td>41.20</td>
<td>44.15</td>
</tr>
<tr>
<td>School 2 E2</td>
<td>22</td>
<td>42.86</td>
<td>51.91</td>
</tr>
<tr>
<td>School 2 C2</td>
<td>22</td>
<td>42.41</td>
<td>47.27</td>
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</table>
Table D

Table of Means

Comprehension Scores - Gates-MacGinitie-Reading Test

<table>
<thead>
<tr>
<th>Group</th>
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<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>20</td>
<td>41.30</td>
<td>50.45</td>
</tr>
<tr>
<td>C1</td>
<td>20</td>
<td>40.05</td>
<td>42.60</td>
</tr>
<tr>
<td>School 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>22</td>
<td>42.00</td>
<td>48.77</td>
</tr>
<tr>
<td>C2</td>
<td>22</td>
<td>43.59</td>
<td>43.73</td>
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</table>
### Table E

Analysis of Variance Summary - Speed Scores - Gates-MacGinitie Reading Test

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<tr>
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<td>1</td>
<td>0.12</td>
<td>0.24</td>
</tr>
<tr>
<td>error - schools</td>
<td>1971.91</td>
<td>40</td>
<td>49.30</td>
<td></td>
</tr>
<tr>
<td>Main effect Groups</td>
<td>668.01</td>
<td>1</td>
<td>668.01</td>
<td>15.88*</td>
</tr>
<tr>
<td>Interaction schools x groups</td>
<td>135.94</td>
<td>1</td>
<td>135.94</td>
<td>3.23</td>
</tr>
<tr>
<td>error - groups</td>
<td>1682.80</td>
<td>40</td>
<td>42.07</td>
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<td>1168.15</td>
<td>1</td>
<td>1168.15</td>
<td>57.34*</td>
</tr>
<tr>
<td>Interaction schools x trials</td>
<td>59.77</td>
<td>1</td>
<td>59.77</td>
<td>2.93</td>
</tr>
<tr>
<td>error - trials</td>
<td>814.83</td>
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<td>20.37</td>
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<tr>
<td>Interaction groups x trials</td>
<td>317.63</td>
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<td>317.63</td>
<td>20.42*</td>
</tr>
<tr>
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<td>1.93</td>
<td>0.12</td>
</tr>
<tr>
<td>error - groups x trials</td>
<td>622.192</td>
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<td>15.55</td>
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</table>

Note. \( F_{.05} (1, 40) = 4.08 \)

\*\( P < .05 \)
### Table F

**Analysis of Variance Summary - Vocabulary Scores - Gates-MacGinitie Reading Test**

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</thead>
<tbody>
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<tr>
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</tr>
<tr>
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<td>71.07</td>
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<tr>
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<td>1684.67</td>
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<td>1</td>
<td>17.83</td>
<td>2.13</td>
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<tr>
<td>error - trials</td>
<td>335.51</td>
<td>40</td>
<td>8.39</td>
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<td>238.10</td>
<td>10.86*</td>
</tr>
<tr>
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<tr>
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**Note.** $F_{.95}(1, 40) = 4.08$  

$*p < .05$
Table G

Analysis of Variance Summary - Comprehension Scores - Gates-MacGinitie Reading Test

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</thead>
<tbody>
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<td>1.16</td>
</tr>
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<td>error - schools</td>
<td>1232.65</td>
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<td>30.82</td>
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</tr>
<tr>
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<td>1</td>
<td>886.88</td>
<td>60.07*</td>
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Note. F.95 (1, 40) = 4.08

*p < .05
Table H

Table of Means

Speed Scores - Gates MacGinitie Reading Test

(El & E2) and (Cl & C2) combined

<table>
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<th>Group</th>
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<th>Posttest</th>
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<tbody>
<tr>
<td>Schools 1 and 2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>El and E2</td>
<td>42</td>
<td>43.17</td>
<td>51.19</td>
</tr>
<tr>
<td>Cl and C2</td>
<td>42</td>
<td>41.93</td>
<td>44.45</td>
</tr>
<tr>
<td>School 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>17</td>
<td>39.76</td>
<td>43.88</td>
</tr>
<tr>
<td>C4</td>
<td>17</td>
<td>40.65</td>
<td>48.18</td>
</tr>
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<td>School 4</td>
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<td></td>
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</tr>
<tr>
<td>C5</td>
<td>28</td>
<td>40.11</td>
<td>44.04</td>
</tr>
</tbody>
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### Table I

Table of Means

**Vocabulary Scores - Gates-MacGinitie Reading Test**

(El & E2) and (Cl & C2) combined

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<th>Groups</th>
<th>n</th>
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<th>Posttest</th>
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</thead>
<tbody>
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<td></td>
<td></td>
</tr>
<tr>
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<td>43.24</td>
<td>51.95</td>
</tr>
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<td>Cl and C2</td>
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<td>41.83</td>
<td>45.79</td>
</tr>
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<td>School 3</td>
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<td></td>
</tr>
<tr>
<td>C3</td>
<td>17</td>
<td>42.47</td>
<td>47.65</td>
</tr>
<tr>
<td>C4</td>
<td>17</td>
<td>38.41</td>
<td>44.59</td>
</tr>
<tr>
<td>School 4</td>
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<td></td>
</tr>
<tr>
<td>C5</td>
<td>28</td>
<td>40.93</td>
<td>43.82</td>
</tr>
</tbody>
</table>
Table J

Table of Means

Comprehension Scores - Gates-MacGinitie Reading Test

(E1 & E2) and (C1 & C2) combined

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools 1 and 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1 and E2</td>
<td>42</td>
<td>41.67</td>
<td>49.57</td>
</tr>
<tr>
<td>C1 and C2</td>
<td>42</td>
<td>41.90</td>
<td>43.19</td>
</tr>
<tr>
<td>School 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>17</td>
<td>45.76</td>
<td>44.82</td>
</tr>
<tr>
<td>C4</td>
<td>17</td>
<td>43.29</td>
<td>42.06</td>
</tr>
<tr>
<td>School 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>28</td>
<td>39.93</td>
<td>40.71</td>
</tr>
</tbody>
</table>
Table K

Analysis of Variance Summary - Speed Scores - Gates-MacGinitie Reading Test

All groups, (E1 and E2), (C1 and C2), C3, C4, C5

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Groups</td>
<td>1275.54</td>
<td>4</td>
<td>318.89</td>
<td>6.77*</td>
</tr>
<tr>
<td>error - groups</td>
<td>6694.66</td>
<td>141</td>
<td>47.48</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials†</td>
<td>1931.51</td>
<td>1</td>
<td>1931.51</td>
<td>94.12*</td>
</tr>
<tr>
<td>Interaction groups x trials</td>
<td>396.34</td>
<td>4</td>
<td>99.08</td>
<td>4.83*</td>
</tr>
<tr>
<td>error - trials</td>
<td>2893.65</td>
<td>141</td>
<td>20.52</td>
<td></td>
</tr>
</tbody>
</table>

Note. $F_{.95} (4, 141) = 2.43$

*p < .05
Table L

Analysis of Variance Summary - Vocabulary Scores - Gates-MacGinitie Reading Test

All groups, (E1 and E2), (C1 and C2), C3; C4, C5

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Groups</td>
<td>1414.30</td>
<td>4</td>
<td>353.58</td>
<td>7.22*</td>
</tr>
<tr>
<td>error - groups</td>
<td>6901.70</td>
<td>141</td>
<td>48.95</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials</td>
<td>2224.78</td>
<td>1</td>
<td>2224.78</td>
<td>121.54*</td>
</tr>
<tr>
<td>Interaction groups x trials</td>
<td>367.17</td>
<td>4</td>
<td>91.79</td>
<td>5.01*</td>
</tr>
<tr>
<td>error - trials</td>
<td>2581.05</td>
<td>141</td>
<td>18.31</td>
<td></td>
</tr>
</tbody>
</table>

Note. F.95 (4, 141) = 2.43

*p < .05
### Table M

**Analysis of Variance Summary - Comprehension Scores - Gates-MacGinitie Reading Test**

*All groups, (E1 and E2), (C1 and C2), C3, C4, C5*

<table>
<thead>
<tr>
<th>Source</th>
<th>ss</th>
<th>df</th>
<th>ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effect Groups</td>
<td>1144.10</td>
<td>4</td>
<td>286.03</td>
<td>8.03*</td>
</tr>
<tr>
<td>error - groups</td>
<td>5023.83</td>
<td>141</td>
<td>35.63</td>
<td></td>
</tr>
<tr>
<td>Main effect Trials</td>
<td>471.37</td>
<td>1</td>
<td>471.37</td>
<td>37.60*</td>
</tr>
<tr>
<td>Interaction groups x trials</td>
<td>904.67</td>
<td>4</td>
<td>226.17</td>
<td>18.04*</td>
</tr>
<tr>
<td>error - trials</td>
<td>1767.45</td>
<td>141</td>
<td>12.54</td>
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</tr>
</tbody>
</table>

Note. $F_{.95}(4, 141) = 2.43$

*p < .05*
Table N

Post Hoc Comparisons of Change Scores (Scheffé)

Speed Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(E1 &amp; E2) vs (C1 &amp; C2)</td>
<td>10.37*</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C3</td>
<td>4.60</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C4</td>
<td>0.07</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C5</td>
<td>9.01</td>
</tr>
<tr>
<td>C4 vs C5</td>
<td>3.34</td>
</tr>
</tbody>
</table>

Note. $F_{.95} (4, 141) = 2.43$, $F' = 9.72$

*p < .05
### Table O

Post Hoc Comparisons of Change Scores (Scheffé)

Vocabulary Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$(E_1 &amp; E_2)$ vs $(C_1 &amp; C_2)$</td>
<td>12.94*</td>
</tr>
<tr>
<td>$(E_1 &amp; E_2)$ vs $C_3$</td>
<td>4.12</td>
</tr>
<tr>
<td>$(E_1 &amp; E_2)$ vs $C_4$</td>
<td>2.12</td>
</tr>
<tr>
<td>$(E_1 &amp; E_2)$ vs $C_5$</td>
<td>15.55*</td>
</tr>
<tr>
<td>$C_4$ vs $C_5$</td>
<td>3.13</td>
</tr>
</tbody>
</table>

Note. $F_{0.05}(4, 141) = 2.43$, $F' = 9.72$

*p < .05*
Table P

Post Hoc Comparisons of Change Scores (Scheffé)

Comprehension Scores - Gates-MacGinitie Reading Test

<table>
<thead>
<tr>
<th>Group</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(E1 &amp; E2) vs (C1 &amp; C2)</td>
<td>36.60*</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C3</td>
<td>37.72*</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C4</td>
<td>40.24*</td>
</tr>
<tr>
<td>(E1 &amp; E2) vs C5</td>
<td>33.97*</td>
</tr>
<tr>
<td>C4 vs C5</td>
<td>1.70</td>
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</table>

Note. $F_{.95}(4, 141) = 2.43$, $F' = 9.72$

*p < .05
Table Q

Mean Grade Scores - Follow-up Test
Gates-MacGinitie Reading Test Subtest Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Speed</th>
<th>Vocabulary</th>
<th>Comprehension</th>
<th>Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1 and E2</td>
<td>30</td>
<td>8.1</td>
<td>8.4</td>
<td>7.0</td>
<td>7.8</td>
</tr>
<tr>
<td>C1 and C2</td>
<td>27</td>
<td>7.5</td>
<td>6.8</td>
<td>5.9</td>
<td>6.7</td>
</tr>
<tr>
<td>C3</td>
<td>12</td>
<td>6.2</td>
<td>7.3</td>
<td>5.6</td>
<td>6.4</td>
</tr>
<tr>
<td>C4</td>
<td>14</td>
<td>6.3</td>
<td>6.7</td>
<td>6.3</td>
<td>6.4</td>
</tr>
<tr>
<td>C5</td>
<td>25</td>
<td>7.0</td>
<td>6.7</td>
<td>6.1</td>
<td>6.6</td>
</tr>
</tbody>
</table>