

AN ABSTRACT OF THE THESIS OF

BEATRICE FINN for the degree of DOCTOR OF EDUCATION
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Title: A COMPARISON OF THE EFFECT OF INSTRUCTOR-DESIGNED READING
MATERIALS AND THE EFFECT OF PROGRAMMED READING MATERIALS
ON SELECTED READING SKILLS AND ACADEMIC ACHIEVEMENT OF
INTERCOLLEGIATE FRESHMAN STUDENT ATHLETES

Redacted for privacy

Major Professor Dr. Kenneth M. Ahrendt

The purpose of this study was to compare the effect of instructor-designed reading materials and the effect of programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes.

For purposes of comparison, two groups were established: Group A consisted of fifteen students who were randomly selected from a group of fifty-six students scoring below the 50th percentile rank on the McGraw-Hill Basic Skills System Reading Test, Form A, Part III, during the Fall Term, 1980; Group B was comprised of thirteen students who were randomly selected from a larger group of seventy-five students who scored below the 50th percentile rank on the McGraw-Hill Basic Skills System Reading Test, Form A, Part III, during the Fall Term, 1981. Pre- and posttest data were collected using parallel forms of the MHBSS Reading Test.

A one-way analysis of covariance and student's "t" test was used to analyze the data. Analysis of the data indicated that the hypotheses were sustained rather than rejected at the five percent level of confidence. Moreover, significant gains were indicated for two of the six paragraph comprehension subskills and the composite score of these subskills.

Three conclusions are suggested as a result of this study:

1. Gain scores in organizational skills and study-type reading do not necessarily aid in improving grade-point averages.
2. The freshman student athletes' grade-point averages did not reveal a significant difference that could be accounted for as a direct result of the two treatments utilized.
3. A reading improvement course is helpful to freshman student athletes in enhancing their overall basic reading skills during one quarter of instruction, as indicated by the composite gain score.

Recommendations

1. Replication of the materials as outlined in this study for a greater number of freshman student athletes, and instruction given over a longer time span.
2. Development of content materials from subjects' textbooks designed to identify and teach other reading comprehension skills which may contribute to a higher grade-point average.
3. Investigation of the effect that materials used in this study would have on grade-point average and selected reading skills of freshman student athletes whose percentile rank scores are specified, i.e., zero to the 10th percentile, etc.
4. Investigation of the reading performance and grade-point averages of freshman student athletes' in the six comprehension skills emphasized in this study during an off-season of play.
5. Replication of this study utilizing a control group of regular college students.
6. Development of a study of athletes in a college reading program utilizing different criterion measures for success, e.g.,

external and internal motivation, study habits, the individual's attitude, and positive changes in attitude.

7. Development of a longitudinal study to monitor attrition, attitude, and grade-point average.

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A Comparison of the Effect of Instructor-Designed
Reading Materials and the Effect of Programmed
Reading Materials on Selected Reading Skills
and Academic Achievement of
Intercollegiate Freshman
Student Athletes

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A Comparison of the Effect of Instructor-Designed
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I. INTRODUCTION

Background of the Problem

Research related to college reading improvement programs provides adequate evidence that a preponderance of freshman college students lack the reading skills needed for success in their academic work. Studies conducted by McGinnis (1951), Hadley (1957), Leedy (1958), and Anderson (1959) indicate that many freshman students cannot do adequate scholastic work since they lack the basic reading skills necessary to cope effectively with their classes. Leedy, (1958) and Brown (1980) reported that colleges often inherit a "so-called 3.0 average" high school graduate who, in fact, is reading at a sixth-grade level.

These studies, however, discussed the scholastic success or failure of freshman students as a composite. Few studies have been specifically concerned with freshman student athletes and the impact of an established reading improvement program upon their academic achievement. Pragman (1974) reported that academic achievement in college athletes had been infrequently investigated, despite its contributing role in the "eligibility" status of athletic candidates. Hultgren and Crewe (1964) found that upon completion of their four-

year "eligibility" for participation in college sports, many athletes did not receive degrees because they were "improperly equipped for effective college work." The basic skill levels of these athletes indicated that approximately one-third of them were less well trained in educational requisites such as reading rate, comprehension, retention, and vocabulary than the average high school senior. Ten percent of those athletes studied were below the skill level of the average ninth grader.

Edwards (1973) referred to reading and writing as the "stock of higher education," and his discussion concluded that many student athletes simply did not have the capacity for self-expression. Some student athletes, upon entering an academic community were doubly alienated because they were on the edge of illiteracy and completely without adequate tools for completing normal classroom assignments. Davis and Berger (1973) concluded that without athletic scholarships many student athletes would not attend college, since they would not be accepted on the basis of normal college entrance examinations.

These data suggest that a large number of student athletes lacking many of the essential skills needed to meet the regular demands of most college courses enroll in colleges and universities. Furthermore, it is clearly established that college classes require a prodigious amount of reading and comprehension of the assigned materials in text books and reference materials, often written at readability levels at or above Grade Level thirteen.

The present study compared the effect of instructor-designed and the McGraw-Hill Basic Skills System programmed reading materials on

selected reading skills of Oregon State University's intercollegiate freshman student athletes. Grade-point averages and the comprehension section of the McGraw-Hill Basic Skills System Reading Test, Forms A and B were used as a basis for measurement.

Statement of the Problem

The purpose of this study was to compare the effect of instructor-designed reading materials and programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes.

Objectives

The objectives of this study were to determine which of two treatments (1) instructor-designed or (2) the McGraw-Hill Basic Skills System programmed materials would significantly affect the subjects' grade-point average and improve performance in the following selected reading skills:

- A. Main ideas.
- B. Significant facts.
- C. General scientific principles.
- D. Paragraph organization.
- E. Critical evaluation.
- F. Study-type reading.
- G. Composite scores of skills A through F.

Limitations of the Study

The conclusions of this study must be considered in light of the following limitations:

1. This study was limited to intercollegiate freshman student athletes enrolled at Oregon State University during the Fall Term, 1980, and the Fall Term, 1981.
2. The population was limited to a random sample of subjects who scored somewhere below the 50th percentile rank on the McGraw-Hill Basic Skills System Reading Test (Part III, Paragraph Comprehension).
3. The instruction was limited to the Fall Term of the academic years, 1980-1981 and 1981-1982, for each treatment, i.e., twenty weeks.
4. The evaluation of progress was limited to the measurement of paragraph comprehension skills as outlined by the McGraw-Hill Basic Skills System Reading Test which utilizes multiple-choice questions following timed silent reading of passages.

Definition of Terms

For the purpose of this study, the following definitions were used:

Grade-point average: A score computed by dividing the sum of course credits and weighted grades by the total number of credits.

Grades are given the following weights:

$$A = 4, B = 3, C = 2, D = 1, F = 0$$

For example:

<u>Course Credits</u>		<u>Weighted Grades</u>	
3	X	3	(B) = 9
6	X	2	(C) = 12
3	X	4	(A) = 12

McGraw-Hill Basic Skills System Reading Test (MHBSS): A standardized reading test designed for measuring reading performance of freshmen in four-year colleges and universities. The test measures the student's general level of competence in three major areas of reading: (1) Reading Rate and Comprehension, (2) Skimming and Scanning, and (3) Paragraph Comprehension.

Freshman Intercollegiate Student Athlete: A student who has been recruited for his/her ability to play a sport and practices that sport (Flynn, 1980).

Instructor-Designed Materials: Reading materials compiled or created by the instructor. Factors considered in developing these materials included student interest, reading levels, and readability of the materials (see Appendix).

Commercially-Designed Materials: Programmed reading materials that were constructed by the McGraw-Hill Basic Skills Systems' authors.

Eligibility: The status of a student athlete who has satisfied the rules of the member institution in which he is enrolled and the athletic conference in which the institution holds membership (Flynn, 1980).

Selected Reading Skills: The paragraph comprehension skills measured by the McGraw-Hill Basic Skills System Reading Test, Forms

A and B. These skills are (1) recognition of the main idea, (2) locating significant facts, (3) general principle (science reading), (4) discovering organization, (5) critical reading improvement, and (6) study-type reading.

Percentile Rank: The percentage of scores in a distribution equal to or lower than the score corresponding to the given rank (Farr, 1969).

II. REVIEW OF THE RELATED LITERATURE

The review of literature related to this study was conducted in three areas: (1) Overview of Reading Improvement Programs in Higher Education, (2) Academic Achievement, and (3) Academic Achievement and the College Freshman Athlete.

Overview of Reading Improvement Programs in Higher Education

According to Maxwell (1979), attempts to help students adjust to the academic demands of college began with the publication of study skills handbooks in 1916. "How to Study" courses were required of underachieving applicants to the University of Buffalo as early as 1926. Staiger (1954) reported that the first successful reading improvement program was initiated in 1922 as an experiment by C. W. Stone, who worked with University of Illinois and University of Washington students.

During the 1930's, reading programs became increasingly popular, and by the end of the decade a few colleges and universities had established remedial reading clinics (Brubacher and Rudy, 1976) including New York University, Harvard University, University of Chicago, and the University of Minnesota. This decade also brought about the development and use of the tachistoscope and other mechanical devices that were utilized in psychological research relating to vision and perception.

To expedite the training of potential officers and skilled technicians during World War II, reading improvement courses were

emphasized for servicemen who attended college as a part of their training. Francis P. Robinson's SQ3R study method was introduced at Ohio State University during this time, to improve the study techniques of student servicemen who were enrolled in mini-courses on the campus (Robinson, 1946).

After World War II, the G.I. Bill permitted veterans to attend college with government funding. Because many of these students needed help with basic reading, writing, mathematics, and study skills, a variety of programs were developed in college and university counseling centers throughout the country to aid them.

The late 1940's brought about a rapid expansion of remedial, developmental reading and study skills courses at the college and university level. Such courses were largely taught through the use of mechanical study aids. In order to use some of these machines, which were bulky pacers, required tearing books apart. Others were tachistoscopes, for increasing eye span, as well as films, slides, and other mechanical devices (Maxwell, 1979). College reading improvement courses multiplied in the 1950's, and approximately half the colleges offering reading courses gave credit for them (Causey, 1955). The use of mechanical study aids enhanced the group method of instruction, which became the major approach to teaching study skills and reading during this period. The SQ3R study method developed by Robinson was often used as a basic technique for teaching reading and study skills. It is a curious anomaly of the era that, while "deprived" students were being encouraged to attend colleges and universities, at the same time, because of the launching of Sputnik I

and II by the Russians, an urgent need was felt to develop programs for "gifted" students in the United States. This led to an emphasis upon methods for determining, identifying, and training "gifted" students in the areas of science and mathematics (Brubacher and Rudy, 1976).

As the 1950's came to an end, the emphasis on training superior students brought about a decline in government funding for teaching "deprived" students, as federal agencies turned a deaf ear to programs that did not concern the upper ten percent of the college population (Maxwell, 1979). However, individualized reading programs began developing in 1959. The first program of this type was developed at the University of Florida by George Spache and others (Spache et al. 1960). Comparable programs were developed by Maxwell and Magoon at the University of Maryland in 1962 and by Raygor at the University of Minnesota in 1965. These programs were the first individualized programs to be developed, and were subsequently used as models by other colleges.

The adoption of open-admissions policies by two- and four-year colleges in the 1960's provided opportunities for a large number of disadvantaged minorities and other underprepared students to attend college. Government funding enabled traditional reading and study skills programs to serve these students in classes of twenty or fewer, a pupil-teacher ratio significantly smaller than traditional-size classes.

By 1970, one-half million students who were enrolled on college and university campuses in the United States came from poverty-stricken backgrounds. Low income students traditionally exhibited

(1) poor reading and study skills and (2) poor attendance standards which, when coupled with the permissive environments of the high schools and a de-emphasis of traditional college preparatory courses, produced a generation of students who were weaker in skills than students of the 1950's (Maxwell, 1979).

In summary, the major changes in American higher education have occurred within the last thirty years. Alterations in academic direction included (1) open admissions, (2) federal policies mandated to increase access to higher education for educationally disadvantaged students, (3) declining basic skills of entering college students, and (4) grade inflation (Maxwell, 1979).

Academic Achievement and College Reading Programs

Many research studies that investigated college reading programs considered academic achievement as a very important component for use in evaluation of these programs. The review of the literature revealed that when academic achievement was used as an evaluative measure, grade-point averages were found to be the most common criteria. Maxwell (1971) stated: "Certainly information about grades and grade-point averages should be collected since most programs do aim to help students improve their academic work . . ."

As early as 1930, academic achievement was used as a measure for a college reading improvement program (Pressey, 1930; Parr, 1931). Since that time, academic achievement as an evaluative measurement for reading improvement programs, continued to be a frequent subject of discussion, especially during the last thirty years. In 1950,

Robinson stated:

"Academic performance was clearly the sine qua non for the validation of remedial courses, particularly in the liberal arts curricula where, by far, the largest portion of scholastic agenda comprises reading of related activities. And in the final analysis, remedial instruction must necessarily stand or fall on the basis of this single criterion, however, ingeniously alternate standards of comparison are defended."

Other research studies that support academic success as an evaluative measurement of reading improvement programs were conducted by Kilby (1945), Mouly (1952), McDonald (1955), Bloomer (1962), and Pauk (1965). Hafner (1966) believes that a student on probation cannot justify his continuance in school on the basis of a reading score; he/she must show results in terms of academic achievement. Colvin (1971) found that reading was felt by the academic community to be essential to academic success. Furthermore, Colvin stated that if the majority of students enrolled in a college reading improvement program did not improve in grade-point average, the program should be re-evaluated.

McDonald's study at Cornell University (1956) drew the following conclusions regarding the influence of a reading improvement program on academic achievement of freshmen enrolled in a reading course the first semester of the freshman year: (1) after an analysis of covariance utilizing entrance test scores, reading test scores, age and sex, the experimental group "significantly exceeded" the control group in first semester grade point average (.05 level); (2) cumulative grade-point averages for two and three semesters were significantly superior for the experimental group; and (3) the experimental group had significantly smaller proportions of dropouts for the entire period of the

study than did the control group or the remainder of the freshman class.

Entwistle (1960) reported grade-point average improvement in eighteen college program studies that included an overall scholastic average measurement. He concluded an overall scholastic average was a valid measurement of the success of a reading improvement program, even though the improvement varied from "very slight" to a considerable amount. All subjects in Entwistle's study of the eighteen programs showed a gain in academic performance.

Bednar and Weinberg (1970) drew certain conclusions from their review of programs for underachieving college students which seem pertinent to the present study. They found that 1) highly structured and lengthy programs were more effective in improving academic performance, 2) grade-point improvement tended to last, once gained, 3) group counseling seemed to be more effective than individual counseling, and 4) the higher the therapeutic conditions (empathy, warmth, genuineness), the more effective the treatment.

Fairbanks (1972) located seventy-nine studies in which overall grade-point averages were an evaluative measure for program evaluation, and reported that some programs had succeeded in helping students to improve in academic achievement; others had "a tendency to do so;" and others failed to produce significant effects. These findings led the author to recommend that ". . . grade-point averages be interpreted cautiously as a criterion for college reading improvement program success, in light of the many other co-existing factors; i.e., student's ability level, attitude, personality, and curriculum in

which he is enrolled, as well as the nature of the program itself." (Fairbanks, 1972).

Despite the conclusions drawn from the research discussed above, many investigators considered academic achievement or grade-point averages as an inadequate measure for evaluating college reading improvement programs. Jackson (1955) and Wagner (1956) were two of the earlier skeptics who questioned the positive relationship between reading improvement programs and academic success. Reed (1956) reported a college reading program with freshman nursing students in which no academic gains were shown for the subjects. He expressed the view that grades were a "function of a complex interaction of many variables and are in part due to habits and abilities of long-standing." He stated in his conclusion that he did not "share the view that grade-point averages are a sole or necessarily even a useful criterion in evaluating a reading program."

Greaser (1963) also expressed the opinion that grades alone were not an adequate evaluative measure for reading improvement programs. Maxwell (1971) went a step further when she stated that the college reading improvement program evaluation should include many factors, and that researchers today are not so adamant about the necessity for using grades as a criterion, as they were in the previous ten years.

In summary, this review has presented a variety of theories and conclusions drawn from many sources related to the use of academic achievement as an evaluative measure for testing the efficacy of college reading improvement programs. In essence, Maxwell (1971) supports the writer's main thesis that:

". . . Certainly information about grades and grade-point averages should be collected since most programs do aim to help students improve in their academic work . . . but a variety of techniques should be used for evaluating individual students' progress in particular skills . . ."

Academic Achievement and the College Freshman Athlete

One of the few recent studies concerned with reading achievement and the athlete was conducted by Dr. Alvin C. Eurich (1931; 1978) at the University of Minnesota. This study compared the results of The Minnesota Reading Examination for College Students of Freshman students enrolled at the University in 1928, with a comparable group enrolled in 1978. The scores in 1978 were significantly "poorer across-the-board." College freshmen of 1978 tested even lower than high school seniors of 1928. Present day populations of college students did not alter the conclusions, since in the top one-percent, the very best students of 1978 tested at a much lower level than the best student fifty years ago. In earlier studies, Eaton (1934) found that non-athletes achieved higher grades than athletes, while Hindman and Darwin (1929) and Tuttle and Beebee (1941) found "no difference" in the scholastic performance of athletes and non-athletes. Pragman (1974) reported that academic achievement in college athletes had been infrequently investigated, despite its contributing role in the "eligibility" status of athletes. The results of these wide-ranging studies which yielded divergent conclusions, indicated that it was difficult to differentiate between college athletes and non-athletes in relationship to academic achievement.

Such variances in the literature, as revealed by these studies

and the conclusions drawn from them, have high-lighted one unfortunate result for many athletes. That is, they complete the four-year "eligibility" period for participation in varsity sports but seldom receive college degrees, because they are "improperly equipped for effective college work" (Hultgren and Crew, 1964). Hultgren and Crew found that the inadequacies were especially noticeable in the athletes' basic skill levels, particularly in reading. Approximately one-third of them were not as well trained in reading skills; i.e., rate, comprehension, retention, and vocabulary as the average high school senior. Approximately ten-percent were below the skill level of the average ninth grader; consequently, when these freshman athletes enrolled in college, they lacked many of the requisite study skills needed for achieving academically. Davis and Berger (1973) stated that one reason for the conflicting results reported in the literature about college athletes was due to the population being compared. The athletes studied were those students who would not ordinarily attend college if it were not for an athletic scholarship. These reactions suggested that the athletes might not achieve as much academically as non-athletes, however, the results of the data collected by Davis and Berger led to the conclusion that the academic achievement attained by athletes equalled that of non-athletes in college.

The review of the literature pointed out the problems and challenges facing the freshman athlete who enters college with a less-than-adequate preparation to undertake the scholastic work required for an academic course, even though he may be talented and capable as an athlete. At the same time, one cannot ignore the sometimes

overwhelming challenges that face the educator who endeavors to assist these students. According to Hultgren (1964), the personnel employed to deal with these inadequacies would be " . . . forced to work as a generalist, while developing competence in several specialties. He will be counselor, education skills expert, advisor on scholastic questions, confidante and friend, as well as information source on whatever, in the institution, may or must affect the student's education and growth . . ." (Hultgren and Crew, (1964). In addition, it should be noted that most instructors who teach reading improvement classes in colleges and universities usually carry a heavier course load than instructors in other disciplines (Maxwell, 1979), and their students often need intense personal attention. Therefore, if student athletes 1) have been diagnosed as "disabled readers," 2) are not highly motivated or cannot sustain such high motivation as they may achieve, and 3) cannot work in relative independence on self-paced materials, their chances are minimal for improving basic reading and study skills significantly, in order to advance to higher-level courses. When their failure to succeed in academic course work limits their sport participation, according to whatever athletic regulations prevail, it often places an inordinate burden of responsibility upon the reading instructor to assist in improving the reading and basic skills of the athletes so that they can maintain their grade-point average and athletic "eligibility."

To complicate the situation even more, varsity athletes, due to their participation in sports, necessarily engage in many heavy extra-curricular activities that the average university student does not

face. For example, they undergo long and hard practice sessions; they watch films; they often have injuries to be treated which necessitate frequent physical therapy sessions; they attend training table meetings; and as an added burden, they must keep in shape during off-season months via fitness and weight-training programs (Underwood, 1980). Furthermore, the demands of individual sports are often so great that many times athletes are forced to spend most of their daylight hours with teammates, leaving little or no time for studies.

Regardless of the extreme demands placed upon these intercollegiate athletes -- especially scholarship players -- the popularity of the sports program with college alumni is a well-known fact of life. Because of this, when post-secondary institutions encounter financial difficulties, citizens and alumni with much fanfare raise money for the support of their favorite collegiate athletic programs, while funds for special reading programs to assist student athletes, as well as other needy students, are quietly eliminated from school budgets (Maxwell, 1979). When this occurs, and students who excel at sports are deprived of a successful academic experience to the point where they eventually fail or "flunk out," more than a star athlete is lost. The experience of a successful college education means far more to achievements in later life than the mere success or failure within the strict confines of either the academic or the athletic field. Fortenberry (1964) stated that ". . . unless the college freshman experiences success . . . the odds are against him completing his collegiate career." While working with freshman student athletes, this researcher concluded that most student athletes must

experience success in their chosen sport, as well as in their academic work, in order to fulfill themselves and achieve the high purpose inherent in sports competition and higher education.

Arch Steel (1980) concurred with the concept that student athletes must experience success in both levels of endeavor by stating that the student athlete must live with the reality that his failures on the playing field are not nearly as important to him as his failures in the classroom. In order to provide the athlete with successful classroom experiences then, the teacher needs to be aware of two problems: 1) reading difficulties that college students in general experience, and 2) the situations that create those problems. Maxwell (1979) found the following conditions were seen most often by students as obstacles to their academic success:

1. Freshmen found that the amount of reading assigned by college professors exceeded anything they had been exposed to in high school, and the difficulty level and conceptual complexity of the assigned reading was also greater;
2. Whether students were very well prepared or totally "unprepared" for college, their skills problems were inextricably linked to their fears about succeeding or failing in college;
3. Students often complained about their inability to complete reading assignments (and their need to increase reading speed), as well as their inability to understand and learn from their textbooks (and their need to increase comprehension and memory)."

For students to function effectively in the college environment, more than a master of methods for study is demanded (Kirk, 1969). He further identified "functioning effectively in the college environment" as involving ". . . the suitability of the particular

educational institution for the student's needs; the suitability of the course of study in which he is embarking for his abilities, interests, and temperament; his readiness psychologically to be in college at all; the balance and satisfaction in his personal-social-emotional life; and of course, his complex of attitudes and motivations" (Kirk, 1969).

The review of the literature indicated that there was a paucity of studies which identified a successful program of reading and study skill development for freshman student athletes. Nonetheless, many student athletes are constantly being exposed as failures of the educational system. The literature abounds with studies of freshmen students and reading program achievement; however, in the study of the freshman student athletes' population, there is a great void.

III. DESIGN OF THE STUDY AND RELATED PROCEDURES

The purpose of this study was to compare the effect of instructor-designed reading materials and the effect of the McGraw-Hill Basic Skills System programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes. Included in this section are:

1. A description of the sample population of the study.
2. A summary of the two treatments.
3. A description of the instruments utilized.
4. The hypotheses tested.
5. Method of Analysis.

Population

First-term Oregon State University intercollegiate freshman student athletes comprised the population for this study. Group A consisted of fifteen students, randomly selected from a group of fifty-six students who scored below the 50th percentile on the MHBSS Reading Test, Form A during the Fall Term, 1980. Group B contained thirteen students who were randomly selected from a larger group of seventy-five students scoring below the 50th percentile rank on the MHBSS Reading Test, Form A during the Fall Term, 1981.

Instruments Used in the Study

The instruments employed in the collection of the data were 1) the McGraw-Hill Basic Skills System Reading Test, Forms A and B, Part III - Paragraph Comprehension section, and 2) the registrar's

reported grade-point average of the subjects selected at the end of Fall Term, 1980, and the subjects selected for Group B at the end of Fall Term, 1981.

The McGraw-Hill Basic Skills System Reading Test (MHBSS) is designed for testing freshmen in four-year colleges and universities. It purports to measure the students' general level of competence in those reading skills which are most relevant to academic success. The reading materials used in the test are taken directly from college textbooks.

Part III, Paragraph Comprehension, was used as the pre- and post-test measure for the designated reading skills included in this study. This sub-test was selected because it purports to measure the students' ability to comprehend paragraphs printed in college textbooks -- a skill which was identified by Raygor, et al. (1970), as the most important factor of a student's success or failure as a college student.

The Paragraph Comprehension section of the MHBSS Reading Test contains five reading passages. Each of the five items following a passage measures one of the following six comprehension skills:

1. Main ideas.
2. Significant facts.
3. General scientific principles.
4. Paragraph organization.
5. Critical evaluation
6. Study-type reading.

Validity and reliability have been reported by Stafford (1974) and Buros (1972) to be acceptable for this test.

The subjects' academic achievement was measured by comparing the grade-point average from the subjects' official transcripts as reported by the Registrar for Group A at the end of Fall Term, 1980, and that of Group B at the end of Fall Term, 1981.

Procedures

The reading act, with its various distinguishable subskills, is the foundation for academic success (Raygor, 1970). Six of these subskills were included in this study. These were reading for the main idea, reading for significant facts, reading to understand Science, reading to discover organization, critical reading improvement, and study type reading.

The McGraw-Hill Basic Skills System Reading Test, Form A was used as a pre-test measure and administered at the beginning of the Fall Term, 1980, to Group A and Fall Term, 1981, to Group B. Form B was used as a posttest measure and was administered at the end of Fall Term, 1980, to Group A and at the end of Fall Term, 1981, to Group B. The following procedures were used for each group.

1. Administration of the MHBSS Reading Test, Form A, to Group A at the beginning of Fall Term, 1980, and to Group B at the beginning of Fall Term, 1981.
2. Presentation of the treatment, the MHBSS programmed materials to Group A during the Fall Term, 1980. Presentation of the treatment, teacher-designed materials to Group B during the Fall Term, 1981.
3. Administration of the post assessment, the MHBSS Reading Test, Form B, to Group A at the end of Fall Term, 1980, and to Group B at the end of Fall Term, 1981.

4. Comparison of the pretest and posttest results of the subjects in Group A tested during the Fall Term, 1980, with the subjects in Group B tested during the Fall Term, 1981.
5. Comparison of the grade-point average of the subjects in Group A at the end of the Fall Term, 1980, with the grade-point average of the subjects in Group B at the end of the Fall Term, 1981.

Hypotheses

1. There is no significant difference between the post-test performances of the subjects in either Group A at the end of Fall Term, 1980, or Group B at the end of Fall Term, 1981, in the six paragraph comprehension subskills of the MHBSS Reading Test, Form B.
2. There is no significant difference between the total paragraph comprehension scores of subjects in Group A, who were instructed through the use of the MHBSS reading materials during Fall Term, 1980, when compared to the subjects of Group B, who were instructed through the use of teacher-designed materials during the Fall Term, 1981.
3. There is no significant difference between grade-point averages of subjects in Group A at the end of Fall Term, 1980, when compared to the grade-point averages of the subjects in Group B, at the end of Fall Term, 1981.

Method of Analysis

Two statistical tools, One-way Analysis of Covariance and Student's "t" test were employed in this study.

Courtney and Sedgwick (1972) described the analysis of covariance as a statistical technique which combines the concepts of analysis of variance and regression to handle situations when the variables in the

study cannot completely be controlled. It is a procedure for testing the significance of differences among means accounting for the influence of uncontrolled factors in the experiment.

The One-way Analysis of Covariance, using the "F" statistic, was used to determine whether any significant difference existed between the MHBSS achievement levels of the two groups. The pretest was designated as the covariate and used as the reference for comparison to the post-test.

The student's "t" test is one of the several parametric statistics designed to measure the difference between two independent group means. The student's "t" is appropriate for use with small samples (fewer than 30). Student's "t" was chosen as the appropriate tool for use in studying data generated by the grade-point averages of the two groups studied in this investigation.

TREATMENT A

McGraw-Hill Basic Skills Systems
Reading Materials

1. Reading for the Main Idea
2. Reading for Significant Facts
3. Reading to Discover Organization
4. Reading to Understand Science
5. Critical Reading Improvement
6. Study-Type Reading

Reading for the Main Idea

Raygor, Alton L. McGraw-Hill Book Company, 1969

READING FOR THE MAIN IDEA

Goal: Student will identify the central thought (or main idea) of paragraphs (Raygor, 1969).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Identifies three errors made in paragraph interpretation as stated by the author.	1. After reading "Note to the Student" which identifies the three errors, writes a description of the material to be read in paragraph interpretation in own words. Raygor, <u>Reading for the Main Idea</u> .	1. Obtains 70% accuracy on Learning Experience 1 and discusses the errors made in paragraph interpretation with the instructor.
2. Demonstrates the knowledge of how to work the exercises in the book.	2. After reading sixteen practice exercises which explain the concept of main ideas and further information about the type of errors to avoid, uses answer sheets numbered 1-16. Exercises 1-16, pp. 3-9.	2. Totals errors made for Learning Experience 2. If more than ten errors were made, re-read "Note to the Student" before continuing.
3. Demonstrates the knowledge of locating main ideas in simple and complex paragraphs.	3. After reading paragraphs, answers questions on answer sheets numbered 17-96. Keeps track of errors made in the following categories:	3. If total number of errors is fewer than twenty, skips to page 75 and continues the exercises. If more than 20 errors were made, continues with exercises on pp. 55-73. Upon completing ten consecutive answers without making an error, skips to page 75 and continues with the exercises.

Reading for the Main Idea - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
	<div> <div>Page</div> <div>Frame Number</div> <div>Main idea 3 1-4</div> <div>Too general 5 5-8</div> <div>Too specific 7 9-12</div> <div>Irrelevant 9 13-16</div> </div> <p>Exercises 17-96, pp. 11-51.</p>	
4. Recognizes errors of interpretations and makes own interpretations.	4. After reading ten paragraphs consisting of more difficult material, keeps a record of the the number of errors made, not kinds of errors made, Uses answer sheets numbered 137-176. Exercises 137-176, pp. 75-95.	4. If more than ten errors were made, reviews pp. 3-9. If the total number of errors is fewer than ten, skips to page 129 and continues the exercises. If total number of errors is fewer than ten, continues with exercises on page 99. Upon completing ten consecutive exercises without making an error, skips to Part 4, pp. 129-153.
5. Compares summaries of main ideas written by the author with summaries of main ideas written by the student.	5. Writes summaries of the main idea, in own words, for twenty-four paragraphs that increase in length and difficulty. Compares summaries with those stated by the author. Pages 129-153.	5. Answers cannot be scored as absolutely right or wrong. Consults with teacher if uncertain as to whether his/her responses are adequate statements of the main idea.

Reading for Significant Facts

Raygor, Alton L. McGraw-Hill Book Company, 1970

READING FOR SIGNIFICANT FACTS

Goal: Student will identify significant facts in paragraphs and understand the relationship of significant facts to each other and to the author's central ideas (Raygor, 1970).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Concentrates on the process of understanding the significant facts presented by the author.	1. After reading note "To the Student" which describes the purpose of the book and gives a description of the material, writes a description of the purpose of the book, in own words. Raygor, <u>Reading for Significant Facts</u> , "To the Student."	1. Completes Learning Experience 1 with 100% accuracy.
2. Recognizes and identifies significant facts in paragraphs.	2. Reads definition of a significant fact (detail) and does sample exercises. Raygor, <u>Reading for Significant Facts</u> , pp. 1-2.	2. Writes the definition of a significant fact in own words with 100% accuracy.
3. Distinguishes between the topic noun and two or three supporting nouns.	3. Identifies topic nouns and supporting nouns in twenty paragraphs by placing a T or S in the blanks indicating whether it is the topic noun or supporting noun, pp. 2-9.	3. Completes Learning Experience 3 with 70% accuracy.
4. Distinguishes the topic sentence from its supporting sentences.	4. Reads ten underlined and lettered sentences containing a topic sentence and supporting sentences, responds by	4. Completes Learning Experience 4 with 70% accuracy.

Reading for Significant Facts - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>5. Develops skill in understanding the purpose, function and importance of factual information in reading by doing the following:</p> <p>a) Understanding the relation of the supporting facts in a paragraph to the central idea.</p> <p>b) Understanding the function of specific facts.</p> <p>c) Predicting the nature of supporting information from the topic sentence.</p>	<p>placing the letter of the sentence in the blanks next to the words that best describe the function of that sentence, pp. 10-14.</p> <p>a) After reading author's explanation and characterization of words used to describe the function of details, reads 20 paragraphs and selects the best description of the general purposes of the supporting information (the details) in the paragraphs. Checks responses with the author's answers, pp. 15-21.</p> <p>b) After reading 20 paragraphs, answers questions relating to specific details or statements within the paragraph, pp. 22-31.</p> <p>c) Reads ten topic sentences and decides from a list of four choices, the details that are</p>	<p>5. A mastery of 70% accuracy on Learning Experiences 5a - 5e is acceptable.</p>

Reading for Significant Facts - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>d) Using a set of facts or details to generalize to a broader concept.</p> <p>e) Recognizing the importance of details in study-type material.</p>	<p>expected to follow, pp. 31-32.</p> <p>d) After reading the author's example, proceeds to read eleven descriptive passages and generalizes from the four facts which follow, pp. 33-36.</p> <p>e) After reading 20 paragraphs that have subject headings written above and below each paragraph, check the letter of the underlined section which contains the most important details. Uses the guide question, "What do I want most from this test?" pp. 36-46.</p>	
<p>6. Recalls specific factual information found in short passages.</p>	<p>6. After reading 40 short passages in which the facts to be recalled are underlined, checks answers with the authors answers, pp. 47-68.</p> <p>a) After reading 40 short selections in which the facts to be recalled are not underlined, answers three comprehension questions without referring back to the selection, pp. 68-94.</p>	<p>6. Recalls facts with 80% accuracy.</p> <p>a) Obtains a mastery of 70% accuracy on comprehension questions for each short selection.</p>

Reading for Significant Facts - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>7. Recalls underlined facts in longer selections.</p> <p>8. Recalls details in longer selections in which the significant facts are not underlined.</p>	<p>7. After reading eleven long selections, answers ten comprehension questions for each selection read without referring back to the selection, pp. 95-128.</p> <p>8. After reading fourteen long selections, paying close attention to details, answers ten comprehension questions without referring back to the selection, pp. 128-165.</p>	<p>7. Obtains a mastery of 70% accuracy on comprehension questions for each selection read.</p> <p>8. Obtains a mastery of 70% accuracy on comprehension questions for each selection read.</p>

Reading to Discover Organization

Fisher, Joseph A. McGraw-Hill Book Company, 1969

READING TO DISCOVER ORGANIZATION

Goal: Student will be alerted to the various organizational patterns used by writers to present their ideas so that s/he can remember them more easily (Fisher, 1969).

Specific Competencies	Learning Experiences	Criterion Behavior
<p>1. Displays a knowledge of the procedures to follow in using the text.</p> <p>1.1 Recognizes the elements of organization.</p>	<p>1. After reading note "To the Student," summarizes in own words the steps in using the text. Fisher, <u>Reading to Discover Organization</u>.</p> <p>1.1 After reading the author's review of the elements of organization, writes responses in the frames provided. Fisher, <u>Reading to Discover Organization</u>, Exercises 1-8, pp. 1-4.</p> <p>a) After reading ten sentences, answers questions with either one or two words. Exercises 9-19, pp. 4-6.</p> <p>b) After reading 50 paragraphs, answers questions as suggested by the author in his note "To the Student." Exercises 20-70, pp. 7-18.</p>	<p>1. Discusses the procedures on how to use the text as summarized with the instructor.</p> <p>1.1 Check answers by comparing them with the correct responses given in the margins beside the frames. If an answer is incorrect, reviews the frame to determine why the response was wrong. Requests instructor's assistance if it cannot be determined why the answer was incorrect.</p>
<p>2. Detects how writers use thought reduction by using</p>	<p>2. After reorganizing the paragraphs presented by the author pertaining to how ideas are</p>	<p>2. Refers to Criterion Behavior 1.1.</p>

Reading to Discover Organization - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>a) Definitions.</p> <p>b) Repetition.</p> <p>c) Illustrations and Examples.</p> <p>d) Justification.</p>	<p>explained, answers questions.</p> <p>a) Fills in the best response that completes six sentences pertaining to the author's technique of using words in a special way. Exercises 11-15, pp. 22-23.</p> <p>b) Chooses the best response that completes eight activities pertaining to the author's technique of repetition in which he uses the same idea but different words. Exercises 16-23, pp. 23-24.</p> <p>c) Completes responses to four activities presented by the author indicating how examples and illustrations are often used to help clarify certain thoughts or ideas. Exercises 24-27, pp. 24-25.</p> <p>d) Completes four activities by choosing the best response pertaining to the technique of justification in which the author gives reasons or proofs for a statement used.</p>	

Reading to Discover Organization - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
e) Expansion.	Exercises 28-31, pp. 25-26.	
3. Explains how words or clauses can be substituted for longer units of writing so that the writers thoughts may be expressed in fewer words, thereby, making the thoughts easier to remember.	e) After reading two paragraphs to show how the technique of expansion aids clarity, completes sentences using a group of words, a phrase, or a clause. Exercises 4-5, pp. 20-21.	3. Refers to Criterion Behavior 1.1.
4. Demonstrates the most efficient ways to make the relationship of ideas easy to see (visual organization).	3. Completes ten exercises substituting shorter forms. Exercises 32-41, pp. 27-28. Completes 34 exercises substituting clauses and words. Exercises 42-75, pp. 28-34. Completes ten exercises substituting phrases and words. Exercises 76-85, pp. 34-36.	
	4. After completing fifteen outlining skills which pertain to the definition of an outline, how the outline is prepared, the rules which must be followed in preparing the outline, and the qualities of an effective outline, does exercises 1-15, pp. 37-46.	4. Refers to Criterion Behavior 1.1.
	a) Answers twelve completion questions explaining the purpose	

Reading to Discover Organization - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
	<p>of outlining. Exercises 16-27, pp. 46-48.</p> <p>b) After completing five outlining exercises of selections taken from text books, fills in blanks pertaining to each paragraph of the selection, and completes an outline for each of the five selections. Exercises and pages follow:</p> <ol style="list-style-type: none"> 1) Outline Exercise 1, Exercises 1-97, pp. 51-83. 2) Outline Exercise 2, Exercises 1-111, pp. 84-111. 3) Outline Exercise 3, Exercises 1-20, pp. 112-121. 4) Outline Exercise 4, Exercises 1-43, pp. 122-141. 5) Outline Exercise 5, Exercises 1-9, pp. 142-145. 	
5. Applies what has been learned from reading by expressing the same idea in own words (Précis writing).	<p>5. Completes exercises pertaining to the qualities of a good Précis. Exercises 1-7, pp. 147-149.</p> <p>a) Practices five précis writing exercises as a summary of using the skills of thought</p>	5. Refers to Criterion Behavior 1.1.

Reading to Discover Organization - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
	<p>reduction, recognizing organization and outlining. These activities follow:</p> <ol style="list-style-type: none"> 1. Précis-writing Exercise 1, Exercises 8-13, pp. 150-153. 2. Précis-writing Exercise 2, Exercises 14-19, pp. 154-157. 3. Précis-writing Exercise 3, Exercises 20-25, pp. 158-161. 4. Précis-writing Exercise 4, Exercises 26-31, pp. 162-167. 5. Précis-writing Exercise 5, Exercises 32-42, pp. 168-173. 	

Reading to Understand Science

Fisher, Joseph A. McGraw-Hill Book Company, 1970

READING TO UNDERSTAND SCIENCE

Goal: The student will develop skills necessary for effective reading in the various fields of science and gain an insight into the kinds of thinking involved in scientific writing (Fisher, 1970).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Displays a knowledge of the procedures to follow in using the text.	1. After reading the preface and note "To the Student", summarizes the steps on how to use the text. Fisher, <u>Reading to Understand Science</u> .	1. Discusses the procedures on how to use the text with the instruction.
1.1 Recognizes the principal idea and the supporting statements for understanding the principal idea in the physical sciences.	1.1 After reading twenty passages taken from textbooks in physics, biology, and chemistry, completes exercises pertaining to each passage. Refers back to the passage if necessary and completes sample exercises, Fisher, pp. 1-58.	1.1 Checks answers by comparing them with the correct responses given below each question. If an answer is incorrect, reviews the frame just studied to ascertain why it was wrong. Requests instructor's assistance if it can not be determined why the answer was incorrect. Note: The above criteria will be used as evidence of competency attainment for all exercises throughout the text.
1.2 Recognizes the principal idea and the supporting statements for understanding the principal idea in the social	1.2 After reading thirteen passages taken from Social Science textbooks, i.e., History and Economics, completes exercises	1.2 Refers to Criterion Behavior 1.1.

Reading to Understand Science - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>sciences.</p> <p>2. Recognizes definitions given in context and the use and function of explanation, illustration, and comparison as the rhetorical means for clarifying ideas.</p> <p>3. Demonstrates a knowledge of the steps involved in establishing efficient laboratory skills when doing experiments.</p>	<p>pertaining to each passage, referring back to the passage if necessary. Fisher, pp. 59-85.</p> <p>2. Completes exercises pertaining to supporting sentences and details which usually consist of one of the following:</p> <ul style="list-style-type: none"> a) details that define Fisher, pp. 87-89. b) details that explain Fisher, pp. 100-111. c) details that illustrate Fisher, pp. 112-117. d) details that compare Fisher, pp. 118-121. e) combinations of details Fisher, pp. 123-135. <p>3. After reading six passages involving various scientific experiments, does accompanying exercises, referring back to the passage as often as necessary. Fisher, pp. 137-155.</p>	<p>2. Refers to Criterion Behavior 1.1.</p> <p>3. Refers to Criterion Behavior 1.1.</p>

Reading to Understand Science - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>4. Demonstrates a knowledge of gaining meaning from:</p> <p>a) graphs</p> <p>b) tables</p> <p>c) diagrams</p>	<p>4. a) After reading the author's explanation of a graph and the definition of a graph, studies four graphs and answers questions referring back to the graphs, Fisher, pp. 158-169.</p> <p>b) After reading author's information on why tables are used and the three parts of a table, studies three tables and answers questions, referring to the table when answering questions. Fisher, pp. 170-183.</p> <p>c) After reading the definition of a diagram and the four parts that make up a diagram, studies four diagrams and answers questions, referring back to the diagram as often as necessary. Fisher, pp. 184-195.</p>	<p>4. Refers to Criterion Behavior 1.1.</p>
<p>5. Displays knowledge as a review for:</p> <p>a) finding the principal idea</p> <p>b) recognizing the details</p>	<p>5. After reading six passages, chooses from four statements the one that best summarizes what the passage is about.</p>	<p>5. Refers to Criterion Behavior 1.1.</p>

Reading to Understand Science - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
c) understanding experiments and graphic aids	Fisher, pp. 197-209.	

Critical Reading Improvement

Harnadek, Anita E. McGraw-Hill Book Company, 1969

CRITICAL READING IMPROVEMENT

Goal: Student will improve the ability to read critically (Harnadek, 1969).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Perceives accurately the several types of responses suggested by the author for gaining maximum benefit from the text.	1. After reading author's note "To the Student," writes responses to questions. <u>Critical Reading Improvement</u> , Harnadek.	1. Completes Learning Experience 1 with 70% accuracy.
2. Displays knowledge of the "cardinal rule" of a critical reader. "Don't believe everything you read," Harnadek, 1969.	2. After reading Chapter 1, reviews 25 concepts that involve critical reading skills and compares interpretations with those presented by the author. Chapter 1, pp. 1-3.	2. Supports all interpretations with one or more of the 25 concepts presented. Note: This procedure is used throughout the text as evidence of competency attainment.
3. Considers the kind of publication being read in terms of a grading scale.	3. After reading Chapter 2, responds by completing questions regarding the reliability of 17 publications. Chapter 2, pp. 4-6.	3. Refers to Criterion Behavior 2.
4. Recognizes and distinguishes between the author's statements and the reader's inferences.	4. After reading Chapter 3, responds to several statements following each selection. Chapter 3, pp. 7-16.	4. Refers to Criterion Behavior 2.
5. Recognizes five common fallacies in thinking when drawing	5. After reading Chapter 4, completes the following exercises:	5. Refers to Criterion Behavior 2.

Critical Reading Improvement - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>conclusions regarding the author's writing:</p> <p>a) Proof by failure to find a counter-example.</p> <p>b) Special pleading.</p> <p>c) Avoiding the question.</p> <p>d) Begging the question.</p> <p>e) Substitution of converse or inverse for proposition.</p> <p>f) Reviews the five fallacies.</p>	<p>a) Proof by failure to find a counter-example, p. 10, (presented in Chapter 3).</p> <p>b) Special pleading, pp. 19-21.</p> <p>c) Avoiding the question, pp. 21-22.</p> <p>d) Begging the question, pp. 23-25.</p> <p>e) Substitution of converse or inverse for proposition, pp. 25-29.</p> <p>f) Reviews exercises for the five fallacies presented, pp. 29-34. Chapter 4, pp. 17-34.</p>	<p>a) Refers to Criterion behavior 2.</p> <p>b) Refers to Criterion behavior 2.</p> <p>c) Refers to Criterion behavior 2.</p> <p>d) Refers to Criterion behavior 2.</p> <p>e) Refers to Criterion behavior 2.</p> <p>f) Refers to Criterion behavior 2.</p>
<p>6. Recognizes the assumptions and implications made by the authors.</p>	<p>6. After reading Chapter 5, does accompanying exercises. Chapter 5, pp. 35-40.</p>	<p>6. Refers to Criterion Behavior 2.</p>
<p>7. Recognizes the intent, attitude, tone, and bias of the writers.</p>	<p>7. After reading author's definitions of intent, attitudes, tone, and bias, answers sample questions.</p>	<p>7. Refers to Criterion Behavior 2.</p>

Critical Reading Improvement - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
8. Demonstrates knowledge of how to analyze arguments.	8. After reading eight selections, answers questions that reveal the writer's intent, attitude, tone, and bias. Chapter 6, pp. 4-67.	8. Refers to Criterion Behavior 2.
9. Continues to demonstrate a knowledge of how to analyze arguments.	9. After reading the examples of some approaches to analyzing arguments used by the author for identification purposes, completes exercises in which the author gives answers for comparisons for some questions but omits answers to other questions, and justifies responses. Chapter 7, pp. 68-87.	9. Refers to Criterion Behavior 2.
10. Displays knowledge of how to read critically by applying the skills presented in Chapters 1-7.	10. After reading "A Time of Tragedy," a special report published by the Detroit News, August 11, 1967, does all exercises that incorporate all critical reading skills presented in the text and compares answers with the author's answers. Chapter 8, pp. 88-202.	10. Refers to Criterion Behavior 2.

STUDY-TYPE READING

Pauk, Walter. How to Study in College, 2nd. Ed.
Boston: Houghton Mifflin Company, 1974

STUDY-TYPE READING

Goal: Student will demonstrate an understanding of systematic approaches used in text book reading.

Specific Competencies	Learning Experiences	Criterion Behavior
<p>1. Recognizes the importance of reading the "preface" of text-books.</p>	<p>Note: Unless indicated, the Learning Experiences for this unit of work was elicited from the following source: Pauk, Walter, <u>How to Study in College</u>, 2nd Ed., Boston:Houghton Mifflin Company, 1974.</p> <p>1. After reading pp. 141-142, writes a brief description of what should be gained as a result of reading the "preface" of a textbook.</p> <p>a) After reading the preface of the above mentioned source, writes a brief description of the information presented by the author that can be used to develop a strategy for reading the text.</p>	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p> <p>a) Completes Learning Experience 1a and obtains a mastery of 70% accuracy.</p>

Study-Type Reading - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
	b) After reading the preface of a textbook currently being used, follows the same directions as stated in Learning Experience 1a.	b) Completes Learning Experience 1b and obtains a mastery of 70% accuracy.
2. Recognizes the advantages of surveying a chapter and how the information can be used to benefit the reader.	2. After reading pp. 142-144, lists the steps in surveying a chapter and writes a brief description of the benefits one is expected to derive from surveying the text.	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.
3. Displays an understanding of the paragraph-by-paragraph method of reading a chapter.	3. After reading pp. 144-146, completes paragraph reading exercises.	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.
4. Displays an understanding of the sentence-by-sentence method of reading in order to make use of organizational clues presented by the author.	4. After reading pp. 144-146 and handout (see Appendix K), underlines pivotal words found in one chapter of a current textbook.	4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.
5. Identifies three methods for studying textbooks and selects one of the methods to use as a guide when reading textbooks.	5. After reading pp. 149-152, outlines the three methods presented by the author.	5. Completes Learning Experience 5 and obtains a mastery of 70% accuracy.
6. Indicates an understanding of how to apply the SQ3R method of study to reading selections.	6. After reading pp. 150-151 and a handout (see Appendix J) on the SQ3R method of study, completes	6. Completes Learning Experience 6 and obtains a mastery of 70% accuracy.

Study-Type Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
	<p>exercises for the two readings that give practice in applying this method of study.</p>	

Study-Type Reading - Continued

Goal: Student will discriminate between the essential and nonessential idea in note-marking in textbooks and taking notes from the textbooks.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Recognizes and recalls the guidelines for marking notes in textbooks.	1. After reading pp. 153-158, recalls and writes the guidelines for note-marking in textbooks.	1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.
2. Selects from samples of well-marked textbooks to apply in content textbook.	2. After studying the samples of how textbook pages are marked, selects one of the samples and applies in content textbook.	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.
3. Recognizes and recalls the guidelines for taking notes on textbooks.	3. After reading pp. 158-159, recalls and writes the guidelines for taking notes on textbooks.	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.
4. Selects from samples of note-taking given by the author for daily use.	4. After studying samples on pp. 160-165, takes notes on same chapter used in Learning Experience 1.	4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.

Study-Type Reading - Continued

Goal: Student will demonstrate an understanding of the best way to tackle different kinds of examinations.

Specific Competencies	Learning Experiences	Criterion Behavior
<ol style="list-style-type: none"> 1. Indicates an understanding of the "tips" presented by the author for being prepared for an examination. 2. Recognizes what is required in taking an essay examination. 3. Recognizes what is required in taking objective tests. 	<ol style="list-style-type: none"> 1. After reading pp. 176-178, recalls and writes a summary on how to prepare before taking an examination. 2. After reading pp. 178-181, organizes and writes what is required when taking essay examinations. 3. After reading pp. 181-185, completes the following: <ol style="list-style-type: none"> a) identifies and writes the different kinds of objective questions as presented by the author. b) recalls and writes the guidelines for taking objective tests. c) recalls and writes the additional guidelines to follow when taking standardized tests that are machine scored. 	<ol style="list-style-type: none"> 1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy. 2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy. 3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy on exercises a, b, and c.

TREATMENT B

Teacher-Designed Reading Materials

1. General Reading for Understanding (RFU)
2. Reading for Main Ideas
3. Significant Facts
4. Organization
5. Science Reading
6. Critical Reading
7. Study-type Reading

Instructor-Designed Reading Materials

Thurstone, Thelma G. General Reading for Understanding (RFU)
Science Research Associates, Inc., Chicago, Illinois, 1969

READING FOR UNDERSTANDING

Goal: The student will understand what is read, get the author's point of view, think about what is read, and judge or evaluate what is read (Thurstone, 1969).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Listens to directions for completing the exercises for the <u>General Reading for Understanding (RFU)</u> placement test, contains 100 paragraphs that increase in difficulty.	<p>1. Takes the RFU placement test and follows the instructions given for completing exercises 51-100 within a fifty minute time limit.</p> <p>a) Corrects the answers from an answer sheet provided by the instructor. Records the number of correct responses at the top of the test paper.</p> <p>b) Adds 50 points (the number of items in preceding sections not administered) to the correctly responded items obtained from exercises 51-100 in order to receive a total score.</p> <p>c) Informs the instructor of the total score in order to obtain a starting practice level in the RFU kit. <u>Thurstone, General Reading for Understanding.</u></p>	1. The items recommended for administering the placement test to students in grades 12 + are items 51-100 (Thurstone, 1969). A student is placed in RFU kit depending on the individual's test performance.

Reading for Understanding - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>2. Indicates knowledge of how to use the RFU kit by:</p> <ul style="list-style-type: none"> a) Indicating placement level on profile sheet. b) Obtaining the correct number from the RFU kit. c) Answering the practice paragraphs. d) Comparing answers with the answers in the <u>Answer Key Booklet</u>. 	<p>2.</p> <ul style="list-style-type: none"> a) Fills in the correct level to begin work in the RFU kit on "Reading Progress Profile sheet" (See Appendix C). b) Takes the card assigned from the RFU kit and records the level and symbol from the card on the profile sheet. c) Writes responses using letters (a,b,c, etc.) for ten practice paragraphs on profile sheet. d) Corrects answers using the RFU Answer Key Booklet, counts the number of correct answers and writes the correct number at the bottom of the profile sheet. If answer is incorrect, writes the correct answer beside it and rereads the paragraph to see why the answer was incorrect. Obtains assistance 	

Reading for Understanding - Continued






Specific Competencies	Learning Experiences	Criterion Behavior
<p>e) Changing correct responses to percentages on profile sheet.</p> <p>f) Asking for assistance after completing two cards and obtaining a score of 90 or above or obtaining 60% or below.</p> <p>3. Demonstrates a knowledge of how to use the RFU kit throughout the Fall Term, 1981.</p>	<p>from the instructor if the paragraph is not understood.</p> <p>e) Takes off ten points for each incorrect response.</p> <p>f) Requests instructor's assistance after having completed two cards.</p> <p>3. Follows procedures in Learning Experiences 2b, 2c, 2d, 2e, and 2f for fifteen minutes at the beginning of each class session for sixteen sessions.</p>	<p>e) A Mastery of 70% accuracy is acceptable at any level of work completed.</p> <p>f) A mastery of 90% or better on two completed assignments indicates that a forward adjustment is needed. A mastery of 60% or below on two completed assignments indicates that a backward adjustment is needed.</p> <p>3. Completion of 32 RFU cards with a mastery of 70% accuracy, including adjustment.</p>

Instructor-Designed Reading Materials

Reading for Main Ideas

READING FOR MAIN IDEAS

Goal: Student will recognize a paragraph as a series of sentences developed around a main idea.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Recognizes that the main idea or central thought of a paragraph can be found anywhere within the paragraph.	<p>1. Uses the following symbols as an example of how paragraphs are organized.</p> <div style="margin-left: 40px;">  = main idea at beginning of paragraph.  = main idea at end of paragraph.  = main idea within paragraph.  = main idea at the beginning and end of paragraph.  = main idea not stated. </div> <p>Underlines the main idea and draws the symbol that illustrates the location of the main idea for 15 specified</p>	1. Completes Learning Experience 1 with 70% accuracy.

Reading for Main Ideas - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
	<p>paragraphs. "Some Suggestions for More Efficient Reading", paragraphs 1-15 (See Appendix E).</p> <p><u>Alternatives</u></p> <p>2. a) Monroe, et al., <u>Basic Reading Skills</u>, pp. 70-73.</p> <p>b) Underlines the sentence and draws the symbol for six paragraphs that illustrates the location of the main idea. Monroe, et al., <u>Basic Reading Skills</u>, pp. 74-75.</p> <p>c) Follows instructions for Learning Experience 3b using a different source. "Skimming for Main Ideas" (See Appendix D).</p>	<p>2. Completes alternative Learning Experiences 2a, 2b, and 2c obtaining a mastery of 70% accuracy.</p>

Reading for Main Ideas - Continued

Goal: Student will identify main ideas that are explicitly stated in paragraphs.

Specific Competencies	Learning Experiences	Criterion Behavior
2. Identifies the main idea in paragraphs.	<p>2. Writes the number of the sentence that states the main idea in each of ten paragraphs and illustrates the correct diagram for each paragraph. Gilbert, <u>Study in Depth</u>, pp. 19-21.</p> <p>a) Writes the main ideas of the ten unrelated paragraphs in Learning Experience 3 in own words.</p> <p><u>Alternatives</u></p> <p>2. b) Follows same procedures in Learning Experience 3 using different sources. Monroe, Artley, Robinson, <u>Basic Reading Skills</u>, pp. 70-73.</p> <p>c) Smith, <u>Be a Better Reader</u>, Book I, pp. 50-52.</p> <p>d) Smith, <u>Be a Better Reader</u>, Book IV, pp. 22-23.</p>	<p>2. Completes Learning Experience 2 obtaining 70% accuracy.</p> <p>a) Completes Learning Experience 2 obtaining 70% accuracy.</p> <p><u>Alternatives</u></p> <p>2. b) Completes alternative Learning Experiences 2b, 2c, and 2d, obtaining 70% accuracy.</p>

Reading for Main Ideas - Continued

Goal: Student will infer main ideas that are not explicitly stated in paragraphs.

Specific Competencies	Learning Experiences	Criterion Behavior
3. Interprets meanings of paragraphs in which the main ideas are implied.	<p>3. After reading material that describes how inferences are determined, writes in own words what the material implied. "<u>Determining Inferences</u>" (See Appendix I).</p> <p>a) After reading assigned paragraphs, answers questions based on inferences contained in paragraphs. Niles, Fitzgerald, Tuinman, <u>Reading Tactics D</u>, pp. 92-95.</p> <p><u>Alternatives</u></p> <p>3. b) After reading paragraphs, answers questions based on inferences implied. Monroe, Artley, Robinson, <u>Basic Reading Skills</u>, pp. 74-78.</p> <p>c) Thinking and Drawing Inferences, Gilbert, <u>Study in Depth</u>, pp. 131-133.</p>	<p>3. Completes Learning Experience 4 with 70% accuracy.</p> <p>a) Completes Learning Experience 3a with 70% accuracy.</p> <p><u>Alternatives</u></p> <p>Completes alternative exercises 3b and 3c with a mastery of 70% accuracy.</p>

Reading for Main Ideas - Continued

Goal: Student will identify main ideas that are explicitly stated in selections.

Specific Competencies	Learning Experiences	Criterion Behavior
4. Identifies main ideas in selections.	<p>4. After reading a selection, underlines the main idea in each paragraph of the selection. Smith, <u>Be a Better Reader</u>, Book 4, pp. 23-24.</p> <p>a) Reads and writes the main idea in own words for selected short biographies (See Appendix H).</p> <p>b) After reading selected paragraphs, completes ten questions. Smith, <u>Be a Better Reader</u>, Book 4, pp. 26-27.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>4. c) Spargo, <u>Selections from the Black</u>. Spargo, <u>Voices From the Bottom</u>. Spargo, <u>Topics for the Restless</u>.</p>	<p>4. Completes Learning Experience 4 obtaining mastery of 70% accuracy.</p> <p>a) Completes Learning Experience 4a obtaining a mastery of 70% accuracy.</p> <p>b) Completes Learning Experience 4b obtaining a mastery of 70% accuracy.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>4. c) Completes alternative exercise 4c obtaining a mastery of 70% accuracy.</p>

Reading for Main Ideas - Continued

Goal: Student will draw inferences from selections in which the meanings are implied.

Specific Competencies	Learning Experiences	Criterion Behavior
<p>5. Interprets the implied meanings of selections.</p> <p>a) Formulates intelligent guesses and draws conclusions based on indirect clues given in a short story.</p>	<p>5. After reading, completes exercises following each section of the story. Niles, et. al., <u>Reading Tactics</u>, D, pp. 103-106.</p> <p>a) After reading, completes exercises that follow each section of a story. Niles, <u>Reading Tactics</u>, F, pp. 81-84.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>5. b) Monroe, et. al., <u>Basic Reading Skills</u>, pp. 112-114.</p> <p>c) Hess, et. al., <u>Developing Reading Efficiency</u>, pp. 121-125.</p>	<p>5. Completes Learning Experience 5 obtaining a mastery of 70% accuracy.</p> <p>a) Completes Learning Experience 5a obtaining a mastery of 70% accuracy.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>Completes alternative exercises 5b and 5c obtaining a mastery of 70% accuracy.</p>

Teacher-Designed Reading Materials

Significant Facts

SIGNIFICANT FACTS

Goal: Student will differentiate between main ideas and significant facts (details) and organize details around the main ideas to which they are related.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Differentiates between major and minor details using outlining and diagraming skills.	<p>1. a) After reading a sample paragraph that aids finding major details, reads two paragraphs and draws block diagrams of the main idea and the major details. Smith, <u>Be a Better Reader</u>, Book 4, pp. 29-30.</p> <p>b) After reading an outline form for stating the main idea and major details for two paragraphs, uses the author's example as reference and outlines six paragraphs. Smith, <u>Be a Better Reader</u>, Book 4, pp. 30-31.</p> <p>c) After practicing locating main ideas, major details, and minor details, draws diagrams and outlines each paragraph. Smith, <u>Be a Better Reader</u>, Book 4, pp. 31-33.</p>	<p>1. a) Completes Learning Experience 1a with a mastery of 70% accuracy.</p> <p>b) Completes Learning Experience 1b with a mastery of 70% accuracy.</p> <p>c) Completes Learning Experience 1c with a mastery of 70% accuracy.</p>

Significant Facts - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>2. Recognizes major and minor details that support the main idea in selections.</p>	<p>d) Practices locating main ideas, major details, and minor details in paragraphs from different sources:</p> <p>1) Niles and Memory, <u>Reading Tactics F</u>, Lesson I, pp. 85-87.</p> <p>2) Gilbert, <u>Study in Depth</u>, Exercise 3, pp. 25-27.</p> <p>3) Monroe, et. al., <u>Basic Reading Skills</u>, pp. 110-111.</p> <p>4) Pauk, <u>Six-Way Paragraphs</u>, choose any paragraph from 1-100.</p>	<p>d) Obtains a mastery of 70% accuracy on the alternates listed in Learning Experience 1d.</p>
	<p>2. a) After reading "The Moment of Truth" regarding seven athletes, does accompanying exercises, pp. 187-196.</p> <p>b) After reading "Adventures of an Unemployed Motorcycle Rider", does accompanying exercises. Hess, et al., <u>Developing Reading Efficiency</u>, pp. 187-196 and 197-202.</p>	<p>2. a) Obtains a mastery of 70% for Learning Experience 2a.</p> <p>b) Obtains a mastery of 70% accuracy for Learning Experience 2b.</p>

Significant Facts - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
3. Recognizes the importance of details in understanding study-type material.	<u>Alternatives</u> Weinberg, <u>College Reading: Skills and Practice</u> , pp. 223-226 or pp. 233-235.	Obtains a mastery of 70% accuracy for Alternative exercises.
	3. After reading ten paragraphs on hand-out entitled "Some Suggestions for More Efficient Reading," paragraphs 38-48, writes the most important detail on a sheet of paper for each paragraph (See Appendix E). <u>Alternatives</u> Pauk, <u>How to Study in College</u> , Chapter 2, "Supportive Skills".	3. Completes Learning Experience 3 obtaining a mastery of 70% accuracy.
4. Recognizes the importance of details in reading material of special interest.	4. a) After reading "A Special Winner", (adapted from the CBS-TV Series, The White Shadow) acts out play and recalls details for discussion. b) After reading "The 1979 World Series: Can it Top These Award Winners of the	Completes alternative exercises obtaining a mastery of 70% accuracy.
		4. a) Completes Learning Experience 4a with a mastery of 70% accuracy. b) Completes Learning Experience 4b with a mastery of 80% accuracy.

Significant Facts - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
	<p>Past?", writes the major and minor details for each of the five paragraphs contained in the article.</p> <p>Roberts, Jack L., <u>Scholastic Action</u>, Vol. 3, No. 2, October 1979.</p>	

Teacher-Designed Reading Materials

Organization

ORGANIZATION

Goal: Student will demonstrate the ability to place ideas and details into levels of importance in sentences, paragraphs, and longer selections from practicing the skill of organization.

Specific Competencies	Learning Experiences	Criterion Behavior
<p>1. Indicates the relationship that exists among sets of items.</p> <p>1.1 Indicates the relationships that exist among a) words, b) phrases, and c) sentences.</p>	<p>1. After reading directions for pretest and a sample item, completes twelve items by indicating the relationship that exists among them and corrects items using the answer key. Kolzow, Lee, <u>Idea Power for Reading Comprehension</u>, pp. 5-33.</p> <p>1.1 If further practice is needed, reads explanation on page 13, completes Parts A, B, and C, and corrects answers. Kolzow, Lee, <u>Idea Power for Reading Comprehension</u>, pp. 5-33.</p> <p>a) Pre-test, pp. 10-11.</p> <p>b) Further practice: <u>Part A - Organization Between Words</u>, pp. 14-20. <u>Part B - Organization Between Phrases</u>, pp. 21-22. <u>Part C - Organization Between Sentences</u>, pp. 27-33.</p>	<p>1. Completes Learning Experience 1 with a score of 10 or more correct items. If score is fewer than 10 correct items, further practice is needed.</p> <p>1.1 Completes Learning Experience 1.1 obtaining a mastery of 70% accuracy for parts A, B, and C.</p>

Organization - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
2. Demonstrates a knowledge of selecting major ideas from minor or insignificant facts in paragraphs.	<p><u>Alternative</u></p> <p>Monroe, et al., <u>Basic Reading Skills</u>, pp. 143-144.</p> <p>2. After reading explanations, completes twelve paragraphs following the author's instructions. Kolzow, Lee, <u>Idea Power for Reading Comprehension</u>, pp. 49-60.</p>	<p>2. Completes Learning Experience 2 with a score of 70% accuracy</p> <p><u>Alternatives</u></p> <p>Completes alternatives obtaining a mastery of 70% accuracy.</p>
	<p><u>Alternatives</u></p> <p>Smith, <u>Be a Better Reader</u>, Book I, p. 68.</p> <p>Niles and Memory, <u>Reading Tactics</u>, F, pp. 85-87.</p> <p>Niles, et al., <u>Reading Tactics</u>, D, pp. 116-118.</p> <p>Monroe, et at., <u>Basic Reading Skills</u>, pp. 138-139 and 146-147.</p> <p>Progress check, pp. 148-149.</p> <p>2.1 Demonstrates a knowledge of organizing and placing major and minor details in their</p>	
	2.1 After reading, completes ten exercises in "Reading for Organization," Exercise 43	2.1 Obtains a mastery of 70% accuracy for Learning Experience 2.1.

Organization - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
<p>levels of importance in paragraphs.</p> <p>2.2 Explains the major and minor points in one statement.</p>	<p>(See Appendix L).</p> <p>2.2 After reading, writes a statement that includes the major and minor points for ten paragraphs. "Reading for Organization" (See Appendix F).</p> <p><u>Alternative</u></p> <p>Kolzow, Lee, <u>Idea Power for Reading Comprehension</u>, pp. 61-68.</p> <p>3. After reading three articles, does accompanying exercises. Smith, <u>Be a Better Reader, Book 3</u>, pp. 38-43.</p> <p><u>Alternatives</u></p> <p>After reading three articles, completes exercises. Niles and Memory, <u>Tactics in Reading, F</u>, pp. 98-104.</p> <p>After reading, completes exercises for the following three articles:</p>	<p>2.2 Obtains a mastery of 70% accuracy for Learning Experience 2.2.</p> <p><u>Alternatives</u></p> <p>Obtains a mastery of 70% accuracy for the alternative exercises.</p> <p>3. Obtains a mastery of 70% accuracy for Learning Experience 3.</p> <p>Obtains a mastery of 70% accuracy on alternatives.</p>

Organization - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
<p>4. Redo exercises if mastery for the above specific competencies is not obtained.</p>	<p>"The Revolt of the Black Athlete", pp. 130-134.</p> <p>"Negro First in Sports", pp. 145-149.</p> <p>"The Bench", pp. 150-154.</p> <p>Spargo, <u>Selections from the Black, Brown</u>, 1974.</p> <p>Monore, et al., <u>Basic Reading Skills</u>, pp. 139-142.</p> <p>4. After reading, completes exercises in programmed text. Student works at own pace. Kolzow, <u>Idea Power for Reading Comprehension</u>, Part I.</p>	<p>4. Obtains a mastery of 70% accuracy on all exercises contained in Part I of the programmed text.</p>

Teacher-Designed Reading Materials

Science Reading

SCIENCE READING

Goal: Student will recognize the importance of gaining control of the Social Science textbook by discovering its central purpose, how it is organized, and what one can expect to learn from it.

Specific Competencies	Learning Experiences	Criterion Behavior
<p>1. Recognizes the basic organization and purpose of:</p> <ul style="list-style-type: none"> a) Table of contents b) Forward and introduction c) Copyright page d) Format of the book, the topics that are covered and other aids, i.e., index, glossary of terms, etc. 	<p>1. After examining text, <u>How to Read the Social Sciences</u> by Adams, writes answers to the following questions:</p> <ul style="list-style-type: none"> a) What do you know about this book? b) How well have you sized it up? c) Have you read the table of contents carefully to see what the structure of this book is and what it covers? d) Have you read the forward and introduction? e) When was the book published? Is it up to date? f) What is the format of the book? 	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p>
<p>2. Demonstrates a knowledge of examining Social Science assignments by finding out what is to be learned before</p>	<p>2. After examining Chapter 1 of the same source mentioned in Learning Experience 1, answers the following questions:</p>	<p>2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.</p>

Science Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
trying to learn it.	1) What is the title of this chapter? 2) Is there a summary at the end of this Chapter? If so, what does it list as the main points you should know after reading the Chapter? 3) How many sample selections from social science texts are used in this Chapter? For what purpose are they used?	
3. Demonstrates an understanding of how to read History material by taking a pretest.	3. Completes pretest exercises using following source: Weinberg, Joel, <u>College Reading: Skills and Practice</u> , pp. 314-316.	3. Completes pretest with a mastery of 70% accuracy for Parts I and II. If less than 70% accuracy is obtained does Learning Experience 4. If 70% accuracy is obtained, skips to Learning Experience 5.
4. Displays an understanding of how to read History materials by: a) grouping words	4. Using the same source as stated in Learning Experience 3, completes the following exercises:	4. Completes each exercise stated in Learning Experience 4, obtains a mastery of 70% accuracy on all exercises.

Science Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
b) using a map, atlas, encyclopedia, globe, etc. c) looking for the things that happened and the order in which they happened d) looking for cause and effect relationships, and e) changing side-heads into questions. 5. Demonstrates an understanding of how to read History and categorized Social Science words.	Exercise 7: pp. 317-330. Exercise 8: pp. 330-331. Exercise 9: pp. 331-332. Exercise 10: pp. 333-336. Exercise 11: pp. 336-340. 5. Completes review test exercises using the same source as stated in Learning Experience 1, pp. 341-343.	5. Completes review test exercises and obtains a mastery of 70% accuracy on each exercise.

Science Reading - Continued

Goal: Student will display a knowledge of how to find the meanings of scientific words and how to read two types of scientific materials.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Demonstrates how to find meanings of scientific words.	1. After practicing exercises in using a list of Greek and Latin roots and their meanings, defines scientific words. <u>Adams, Royce, How to Read the Sciences, pp.48-53.</u> <u>Alternative</u> <u>Weinberg, College Reading: Skills and Practice, pp. 300-304.</u>	1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy on all exercises. <u>Alternative</u> Completes alternative exercises and obtains a mastery of 70% accuracy.
2. Lists unfamiliar facts and scientific terms in order to learn them.	2. After reading, completes practice exercises: Exercise 2: pp. 302-304. Exercise 3: pp. 304-306. <u>Weinberg, College Reading: Skills and Practice.</u>	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy on all exercises.
3. Demonstrates an understanding of how to read scientific materials that explain scientific principles.	3. After reading directions, completes Exercise 4, pp. 304-310 (same source as Learning Experience 2).	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.

Science Reading - Continued

Specific Competencies	Learning Experiences	Criterion Behavior
<p>4. Demonstrates how to read science material that tells about a cause and effect, i.e., why something happened or may happen.</p>	<p>4. After previewing and reading selected science articles, completes exercises.</p> <p>Weinberg, <u>College Reading: Skills and Practice</u>, pp. 310-311.</p>	<p>4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.</p>
<p>5. Demonstrates an understanding of Specific Competencies 1-4 by taking a review test.</p>	<p>5. After reading directions, completes review test.</p> <p>Weinberg, <u>College Reading: Skills and Practice</u>, pp. 311-313, (same source as Learning Experience 4).</p>	<p>5. Completes Learning Experience 5 and obtains a mastery of 70% accuracy for each exercise on review test.</p>

Instructor-Designed Reading Materials

Critical Reading

CRITICAL READING

Goal: Students will survey a selection to frame general questions that can be used to guide their study of the material (Niles et al., 1977).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Recognizes that by surveying various components, i.e., the title, head notes, illustrations, and subtitles of an article, purpose-setting questions can be developed.	1. After listening to lecture on surveying an article, discusses the steps orally.	1. Completes Learning Experience 1 and obtains a mastery of 100% accuracy.
2. Explains how surveying aids in determining the purpose for reading a selection or an article.	2. After surveying the subtitles and reading the first and last paragraphs of an article, writes three purpose-setting questions. Niles, et al., <u>Reading Tactics</u> , D, "Satchel Paige - An American Folk Hero", pp. 210-213. <u>Alternatives</u> Niles, et al., <u>Reading Tactics</u> , F, "The Firewalk", pp. 204-207.	2. Completes Learning Experience 2 and obtains a mastery of 100% accuracy. <u>Alternatives</u> Completes the alternative Learning Experience and obtains a mastery of 100% accuracy.
3. Explains how questions aid in keeping alert while reading and gives purpose to the individual's reading of the	3. After reading the article referenced in Learning Experience 2, answers questions without referring back to the	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.

Critical Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
<p>selection.</p> <p>4. Decides the rate in which an article is read, i.e., very rapid, rapid, average, or slow and careful when the purpose of reading the article is to recall and understand main ideas and major details.</p>	<p>selection.</p> <p>4. After skimming the article to determine the knowledge already known about the subject, the difficulty of the concepts, vocabulary and sentence structure, determine the rate in which the material will be read and reads and answers questions without referring back to the article. Niles, et al., <u>Tactics in Reading</u>, D, "The Race of Strangers", pp. 214-217.</p> <p><u>Alternatives</u></p> <p>Norman & Norman, <u>How to Read and Study for Success in College</u>, "The Black Athlete: A Shameful Story", pp. 126-128, Comprehension questions, p. 133.</p>	<p>4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.</p> <p><u>Alternatives</u></p> <p>Completes the alternative Learning Experience and obtains a mastery of 70% accuracy.</p>

Critical Reading - Continued

Goal: Students will frame and answer detailed questions while they are reading (Niles et al., 1977).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Recognizes that intensive reading entails pausing from time to time in order to question and summarize what has been read, especially when the purpose of reading the material is to remember in detail the contents of an article.	<p>1. After surveying and reading two short articles, answers questions (pausing when bracketed numbers appear in the article) requiring detailed responses. Niles, et al., <u>Reading Tactics</u>, D.</p> <p>Article 1: "Women in the American Revolution", pp. 218-223.</p> <p>Article 2: "The Construction of stonehenge and the Pyramids", pp. 224-228.</p> <p style="text-align: center;"><u>Alternative</u></p> <p>Niles, et al., <u>Reading Tactics</u>, F, "The Need for a Universal Second Language", pp. 229-232.</p>	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p> <p style="text-align: center;"><u>Alternative</u></p> <p>Completes alternative Learning Experience and obtains a mastery of 70% accuracy.</p>

Critical Reading - Continued

Goal: Student will make interim summaries of sections of a selection as it is being read (Niles et al., 1977).

Specific Competencies	Learning Experiences	Criterion Behavior
<p>1. Indicates the ability to make interim summaries of sections of a selection as it is being read.</p>	<p>1. While reading the two selections cited in Learning Experience 1, Goal 2, completes the summaries presented intermittently throughout the selections by filling in words omitted by the author.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>Niles, et al., <u>Reading Tactics</u>, F.</p> <p>Article 1: "Chicago - The Young Giant", pp. 217-221.</p> <p>Article 2: "Answering Want Ads", pp. 222-228.</p>	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p> <p style="text-align: center;"><u>Alternatives</u></p> <p>Completes alternative exercises and obtains a mastery of 70% accuracy.</p>

Critical Reading - Continued

Goal: Student will make interim predictions as to the nature of the material that follows in paragraphs and selections (Niles et al., 1977).

Specific Competencies	Learning Experiences	Criterion Behavior
1. Indicates the ability to find the author's clues in paragraphs in order to predict what the next paragraph will contain.	1. When reading selected paragraphs, looks for clues that indicate what will come next in succeeding paragraphs, then circles the letter of the best prediction from three presented by the author. Niles, et al., <u>Reading Tactics</u> , D, pp. 229-230.	1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.
2. Indicates the ability to find the author's clues presented in an article in order to make predictions.	2. After surveying an article, answers three questions, then reads to understand and remember main points, a few details that support the main points, and stops and writes questions and answers where indicated. After that, asks questions, summarizes, and makes predictions as directed by the author. Niles, et al., <u>Reading Tactics</u> , D, "San Salvador to Wounded Knee: The Persecution of the American Indian", pp. 231-236.	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.

Critical Reading - Continued

Goal: Student will construct a well-organized summary of a selection after reading it.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Indicates a knowledge of Goals 1-4 by constructing a well-organized summary of a selection.	<p>1. After reading, incorporates the skills presented in Goals 1-4 and writes a short summary of the article. Niles, et al., <u>Reading Tactics</u>, D, "Armies of the Night", pp. 237-240.</p> <p><u>Alternatives</u></p> <p>Niles, et al., <u>Reading Tactics</u>, F, "Lucille Clifton: Making the World 'Poem-up'".</p> <p>Niles, et al., <u>Reading Tactics</u> F, "The First Operation", pp. 233-236.</p> <p>Jacobus, Lee A., <u>Developing College Reading</u>, "To an Athlete Dying Young", pp. 9-14. (See Appendix G).</p> <p>Jacobus, Lee A., <u>Developing College Reading</u>, "The New Improved Drug Scene," pp. 233-246.</p>	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p> <p><u>Alternatives</u></p> <p>Completes one alternative of the four listed and obtains a mastery of 70% accuracy on all exercises, and 70% accuracy on summary of the chosen alternative.</p>

Instructor-Designed Reading Materials

Study-Type Reading

STUDY-TYPE READING

Goal: Student will demonstrate an understanding of systematic approaches used in textbook reading.

Specific Competencies	Learning Experience	Criterion Behavior
1. Recognizes the importance of reading the "preface" of textbooks.	<p>Note: Unless indicated, the Learning Experiences for this unit of work was elicited from the following source: Pauk, Walter, <u>How to Study in College</u>, 2nd Ed., Boston:Houghton Mifflin Company, 1974.</p> <p>1. After reading pp. 141-142, writes a brief description of what should be gained as a result of reading the "preface" of a textbook.</p> <p>a) After reading the preface of the above mentioned source, writes a brief description of the information presented by the author that can be used to develop a strategy for reading the text.</p> <p>b) After reading the preface of a textbook, currently being used, follows the</p>	<p>1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.</p> <p>a) Completes Learning Experience 1a and obtains a mastery of 70% accuracy.</p> <p>b) Completes Learning Experience 1b and obtains a mastery of 70% accuracy.</p>

Study-Type Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
	same directions as stated in Learning Experience 1a.	
2. Recognizes the advantages of surveying a chapter and how the information can be used to benefit the reader.	2. After reading pp. 142-144, lists the steps in surveying a chapter and writes a brief description of the benefits one is expected to derive from surveying the text.	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.
3. Displays an understanding of the paragraph-by-paragraph method of reading a chapter.	3. After reading pp. 144-146, completes paragraph reading exercises.	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.
4. Displays an understanding of the sentence-by-sentence method of reading in order to make use of organizational clues presented by the author.	4. After reading pp. 144-146 and handout (See Appendix K), underlines pivotal words found in one chapter of a current textbook.	4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.
5. Identifies three methods for studying textbooks and selects one of the methods to use as a guide when reading textbooks.	5. After reading pp. 149-152, outlines the three methods presented by the author.	5. Completes Learning Experience 5 and obtains a mastery of 70% accuracy.
6. Indicates an understanding of how to apply the SQ3R method of study to reading	6. After reading pp. 150-151 and a handout (See Appendix J) on the SQ3R method of study,	6. Completes Learning Experience 6 and obtains a mastery of 70% accuracy.

Study-Type Reading - Continued		
Specific Competencies	Learning Experiences	Criterion Behavior
selections.	completes exercises for the two readings that give practice in applying this method of study.	

Study-Type Reading - Continued

Goal: Student will discriminate between the essential and nonessential idea in note-marking in textbooks and taking notes from the textbooks.

Specific Competencies	Learning Experiences	Criterion Behavior
1. Recognizes and recalls the guidelines for marking notes in textbooks.	1. After reading pp. 153-158, recalls and writes the guidelines for note-marking in textbooks.	1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy.
2. Selects from samples of well-marked textbooks to apply in content textbook.	2. After studying the samples of how textbook pages are marked, selects one of the samples and applies in content textbook.	2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy.
3. Recognizes and recalls the guidelines for taking notes on textbooks.	3. After reading pp. 158-159, recalls and writes the guidelines for taking notes on textbooks.	3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy.
4. Selects from samples of note-taking given by the author for daily use.	4. After studying samples on pp. 160-165, takes notes on same chapter used in Learning Experience 1.	4. Completes Learning Experience 4 and obtains a mastery of 70% accuracy.

Study-Type Reading - Continued

Goal: Student will demonstrate an understanding of the best way to tackle different kinds of examinations.

Specific Competencies	Learning Experiences	Criterion Behavior
<ol style="list-style-type: none"> 1. Indicates an understanding of the "tips" presented by the author for being prepared for an examination. 2. Recognizes what is required in taking an essay examination. 3. Recognizes what is required in taking objective tests. 	<ol style="list-style-type: none"> 1. After reading pp. 176-178, recalls and writes a summary on how to prepare before taking an examination. 2. After reading pp. 178-181, organizes and writes what is required when taking essay examinations. 3. After reading pp. 181-185, completes the following: <ol style="list-style-type: none"> a) identifies and writes the different kinds of objective questions as presented by the author. b) recalls and writes the guidelines for taking objective tests. c) recalls and writes the additional guidelines to follow when taking standardized tests that are machine scored. 	<ol style="list-style-type: none"> 1. Completes Learning Experience 1 and obtains a mastery of 70% accuracy. 2. Completes Learning Experience 2 and obtains a mastery of 70% accuracy. 3. Completes Learning Experience 3 and obtains a mastery of 70% accuracy on exercises a, b, and c.

Hypotheses

The results of the study were determined by the retention or rejection of the following null hypotheses:

1. There is no significant difference between the posttest performances of the subjects in either Group A at the end of Fall Term, 1980, or Group B at the end of Fall Term, 1981, in the six paragraph comprehension subskills of the MHBSS Reading Test, Form B.
2. There is no significant difference between the total paragraph comprehension scores of subjects in Group A, who were instructed through the use of the MHBSS reading materials during Fall Term, 1980, when compared to the subjects of Group B, who were instructed through the use of instructor-designed materials during the Fall Term, 1981.
3. There is no significant difference between grade-point averages of subjects in Group A at the end of Fall Term, 1980, when compared to the grade-point averages of the subjects in Group B, at the end of Fall Term, 1981.

Method of Analysis

Two statistical tools, One-Way Analysis of Covariance and Student's "t" test were employed in this study.

Courtney and Sedgwick (1972) described the analysis of covariance as a statistical technique which combines the concepts of analysis of variance and regression to handle situations when the variables in the study cannot completely be controlled. It is a procedure for testing the significance of differences among means accounting for the influence of uncontrolled factors in the experiment.

The One-Way Analysis of Covariance, using the "F" statistic, was used to determine whether any significant difference existed between the MHBSS achievement levels of the two groups. The pretest

was designated as the covariate and used as the reference for comparison to the posttest.

The student's "t" test is one of the several parametric statistics designed to measure the difference between two independent group means. The student's "t" is appropriate for use with small samples (fewer than 30). Student's "t" was chosen as the appropriate tool for use in studying data generated by the grade-point averages of the two groups studied in this investigation.

IV. PRESENTATION AND ANALYSIS OF THE DATA

The purpose of this study was to compare the effect of instructor-designed reading materials and the effect of programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes. First term Oregon State University intercollegiate freshman student athletes comprised the population for this study. Group A consisted of fifteen students who were randomly selected from a group of fifty-six students scoring below the 50th percentile on the MHBSS Reading Test, Form A, Part III, during the Fall Term, 1980. Group B contained thirteen students who were randomly selected from a larger group of seventy-five students scoring below the 50th percentile rank on the MHBSS Reading Test, Form A, Part III, during the Fall Term, 1981.

The statistical tools utilized in the research were analysis of covariance (ANOCOVA) and the Student's "t" test. The .05 alpha level was used as the criterion for retaining or rejecting the null hypotheses. For purposes of decision-making, if the computed values were less than the tabular values, the null hypothesis was retained. Conversely, when the computed value was equal to or greater than the tabular value, the null hypothesis was rejected.

The hypothesis tested in the study were as follows:

H₁: There is no significant difference between the posttest performances of the subjects in either Group A at the end of Fall Term, 1980, or Group B at the end of Fall Term, 1981, in the six paragraph comprehension subskills of the MHBSS Reading Test, Form B.

- H₂: There is no significant difference between the total paragraph comprehension scores of subjects in Group A, who were instructed through the use of the MHBSS reading materials during Fall Term, 1980, when compared to the subjects of Group B, who were instructed through the use of instructor-designed materials during the Fall Term, 1981.
- H₃: There is no significant difference between grade-point averages of subjects in Group A at the end of Fall Term, 1980, when compared to the grade-point averages of the subjects in Group B, at the end of Fall Term, 1981.

Findings Relative to the Hypotheses
Under Investigation

- H₁: There is no significant difference between the posttest performances of the subjects in either Group A at the end of Fall Term, 1980, or Group B at the end of Fall Term, 1981, in the six paragraph comprehension subskills of the MHBSS Reading Test, Form B.

Upon comparing the scores among the selected reading skills, no significant differences were found among the paragraph comprehension subskills. Therefore, the null hypothesis was retained for each of the six skills. These data are reported in Table I.

- H₂: There is no significant difference between the total paragraph comprehension scores of subjects in Group A, who were instructed through the use of the MHBSS reading materials during Fall Term, 1980, when compared to the subjects of Group B, who were instructed through the use of instructor-designed materials during the Fall Term, 1981.

On the MHBSS Reading Test, which provided a total score of the paragraph comprehension skills tested, the mean score differences were not found to be significant when Group A, Fall Term, 1980, was

compared with Group B, Fall Term, 1981. Thus, the null hypothesis was retained. These data are reported in Table II.

H₃: There is no significant difference between grade-point averages of subjects in Group A at the end of Fall Term, 1980, when compared to the grade-point averages of the subjects in Group B, at the end of Fall Term, 1981.

For purposes of this study, H₃ was established to determine if there were any differences in the academic achievement of the two groups. To accomplish this comparison, the grade-point averages of the subjects in Group A, who received treatment during the Fall Term, 1980, were compared to the grade-point averages of subjects in Group B, that received treatment during the Fall Term, 1981.

A Student's "t" test was used to analyze the grade-point average. The calculated "t" value was 1.268, which indicated that the critical "t" value of 2.056 was not reached. Therefore, the hypothesis that there is no significant difference between the subjects' grade-point average was retained. Refer to Table III.

A Student's "t" test was conducted to determine if differences existed in gain scores for the following six subskills:

- A. Main Ideas
- B. Significant facts
- C. General scientific principles
- D. Paragraph organization
- E. Critical evaluation
- F. Study-type reading

Table I. Analysis of Covariance six Paragraph Comprehension Subskills and Composite Scores for Treatment A and Treatment B.

	Mean		Composite Mean		Computed F	Tabular F α=.05,df=1,25	Ho Decision
	Treatment A (N=15)	Treatment B (N=13)	Treatments A & B (N=28)				
A. Main Ideas	2.267	2.231	2.250		.025	4.24	Not Significant
B. Significant Facts	3.000	2.461	2.750		1.077	4.24	Not Significant
C. Science Reading	2.867	1.846	3.393		1.910	4.24	Not Significant
D. Organization	3.000	3.007	3.036		.408	4.24	Not Significant
E. Critical Reading	2.267	2.846	2.536		1.767	4.24	Not Significant
F. Study-type Reading	2.800	2.846	2.821		.277	4.24	Not Significant

Table II. Analysis of Covariance Composite Post-test Scores for Treatment A and Treatment B.

Treatment A	Treatment B	Computed F	Tabular F $\alpha=.05$ df=1,25	H0 Decision
16.200	15.308	.830	4.24	Not Significant

Table III. Data Analysis for Grade-point Average Scores, Fall Term, 1980 and Fall Term, 1981.

Treatment A (N=15)	Treatment B (N=13)	Computed t	Tabular t $\alpha=.05$ df=25	H0 Decision
2.400	2.700	1.268	2.056	Not Significant

Table IV. Data Analysis for Changes of Subskill Measures.

Subskills	X Pre	X Post	Gain	Computed "t" for gain	Decision
Main Ideas A	2.143	2.250	0.107	0.495	Not Significant
Significant Facts B	2.231	2.750	0.429	1.644	Not Significant
Science Reading C	2.714	2.393	-0.321	-1.421	Not Significant
Read to Discover Organization D	2.107	3.036	0.929	4.583	*Significant
Critical Reading E	2.321	2.535	0.214	1.136	Not Significant
Study-type Reading F	1.928	2.821	0.893	2.288	*Significant
Composite Scores A-F	13.536	15.786	2.250	2.718	*Significant

*Critical "t" value was 2.060 with $\alpha = .05$ $df = 25$.

The critical "t" value for testing differences was set at the 0.5 alpha level where the degrees of freedom equals 25; the critical "t" value was 2.060. Gains were indicated for subskill tests D, Reading to discover organization, and F, Study-type reading. Further gain was implied in the composite score of the six paragraph comprehension subskills tested. Table IV indicates these gains.

Reading to discover an author's organizational pattern is a task that requires the reader to interpret the structure that the writer has created. In order to accomplish this task, the reader must identify the vital facts and arrange the subordinate facts and illustrative details according to their importance while engaging in the reading act. Additionally, the reader eliminates repetitions, definitions, examples, contrasts, etc., after they have served the purpose of making the meaning of the written message clear.

Study-type reading, more commonly known as "textbook reading," is the kind of reading that requires the most systematic approach in order to master the organizational patterns of an author, as set forth in textbooks. In textbook reading, the reader practices organizational skills when reading to grasp the authors' introductions, summaries, chapter bodies, etc. and further exercises these skills when organizing chapter headings, sub-headings, as well as main and sub-division of chapters. Above all, utilization of organizational skills; i.e., outlining, précis writing, and constructing synopses, enable the student to master a greater amount of material in less time, and serve as a helpful aid when studying for examinations (Raygor, 1969).

In summary, the test score gains for the two subskills, reading to discover organization and study-type reading suggested that there was an apparent significant transfer of skills, by the subjects in this study, from one situation to another. That is to say, the skill of discovering an author's organizational pattern is crucial to efficient study-type reading, but did not appear to help these subjects in content areas.

The slight gain indicated by the data, as reported in the composite score of the six paragraph comprehension skills may be viewed as a reflection of improvement in the subjects' performance, during one quarter of instruction.

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to compare the effect of instructor-designed reading materials and the effect of programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes.

To accomplish this purpose, two groups of first-term Oregon State University intercollegiate freshman student athletes were determined. Group A consisted of fifteen students who were randomly selected from a group of fifty-six students who scored below the 50th percentile rank on the MHBSS Reading Test, Form A, Part III, during the Fall Term, 1980. Group B consisted of thirteen students, randomly selected from a larger group of seventy-five students who scored below the 50th percentile rank on the MHBSS Reading Test, Form A, Part III, during the Fall Term, 1981.

Two instruments were employed in the collection of the data. These were 1) the MHBSS Reading Test, Forms A and B, Part III, Paragraph Comprehension section, and the registrar's reported grade-point average of the subjects selected for Group A at the end of Fall Term, 1980, and the subjects selected for Group B at the end of Fall Term, 1981.

The data generated from the use of the instruments were subjected to statistical tests to determine if there were significant differences at the five percent level of confidence for the following null hypotheses:

1. There is no significant difference between the posttest performances of the subjects in either Group A at the end of Fall Term, 1980, or Group B at the end of Fall Term, 1981, in the six paragraph comprehension subskills of the MHBSS Reading Test, Form B.
2. There is no significant difference between the total paragraph comprehension scores of subjects in Group A, who were instructed through the use of the MHBSS reading materials during Fall Term, 1980, when compared to the subjects of Group B, who were instructed through the use of instructor-designed materials during Fall Term, 1981.
3. There is no significant difference between grade-point averages of subjects in Group A at the end of Fall Term, 1980, when compared to the grade-point averages of the subjects in Group B, at the end of Fall Term, 1981.

The first two hypotheses were tested using the one-way analysis of covariance. The second statistical test used for hypotheses one and two was the student's "t" test. The student's "t" test was also used to test hypothesis three.

Analysis of the data from hypotheses one and two were sustained rather than rejected at the established five percent level of confidence. Analysis of the data from the first two hypotheses for the second statistical test indicated a significant gain for subskills D, Reading to Discover Organization, and, F, Study-type Reading, as well as a composite gain score. Analysis of the data from the third hypothesis failed to be rejected when the grade-point average of the subjects in Group A was compared to the grade-point average of the subjects in Group B.

Conclusions

The results of this study have provided positive evidence to support the need for a reading improvement course for intercollegiate freshman student athletes. Although the results of the study sustained the three null hypotheses, an analysis of gain scores indicated that further research should not be discounted without attention to the conclusions of the present study:

1. Gain scores in organizational skills and study-type reading do not necessarily aid in improving grade-point averages.
2. The freshman student athletes' grade-point averages did not reveal a significant difference that could be accounted for as a direct result of the two treatments utilized.
3. A reading improvement course is helpful to freshman student athletes in enhancing their overall basic reading skills during one quarter of instruction, as indicated by the composite gain score.

Recommendations

The purpose of this study was to compare the effect of instructor-designed reading materials and the effect of programmed reading materials on selected reading skills and academic achievement of intercollegiate freshman student athletes. No definitive conclusions were reached, however, the results of this study indicated that the treatments aided the student athletes in improving the selected comprehension skills set forth in paragraph reading. The results further suggest that gain in reading skills, i.e., organizational and study-type skills, does not necessarily aid in improving grade-point averages.

The following recommendations are suggested for further investigation:

1. Replication of the materials as outlined in this study for a greater number of freshman student athletes, and instruction given over a longer time span.
2. Development of content materials from subjects' textbooks designed to identify and teach other reading comprehension skills which may contribute to a higher grade-point average.
3. Investigation of the effect that materials used in this study would have on grade-point average and selected reading skills of freshman student athletes whose percentile rank scores are specified, i.e., zero to the 10th percentile, etc.
4. Investigation of the reading performance and grade-point averages of freshman student athletes' in the six comprehension skills emphasized in this study during an off-season of play.
5. Replication of this study utilizing a control group of regular college students.
6. Development of a study of athletes in a college reading program utilizing different criterion measures for success, e.g., external and internal motivation, study habits, the individual's attitude, and positive changes in attitude.
7. Development of a longitudinal study to monitor attrition, attitude, and grade-point average.

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APPENDICES

APPENDIX A

Analysis of Covariance Tables

Table V. Analysis of Covariance Table Pretest Scores.

Variable (Pre)	Sum	Mean	Standard Deviation	Variance	Number
1. Main Ideas	60.0000	2.1429	1.0789	1.1640	28
2. Significant Facts	65.0000	2.3214	1.0560	1.1151	28
3. Science Reading	76.0000	2.7143	1.2430	1.5450	28
4. Organization	59.0000	2.1071	1.2573	1.5807	28
5. Critical Reading	65.0000	2.3214	1.1239	1.2632	28
6. Study-type Reading	54.0000	1.9286	.8576	.7354	28
7. Composite Scores (1-6)	379.0000	13.5357	3.2258	10.4061	28

Table VI. Analysis of Covariance Table Posttest Scores.

Variable (Post)	Sum	Mean	Standard Deviation	Variance	Number
1. Main Ideas	63.0000	2.2500	1.1097	1.2315	28
2. Significant Facts	77.0000	2.7500	1.2946	1.6759	28
3. Science Reading	67.0000	2.3929	1.3968	1.9511	28
4. Organization	85.0000	3.0357	1.1049	1.2209	28
5. Critical Reading	71.0000	2.5357	1.1049	1.2209	28
6. Study-type Reading	79.0000	2.8214	1.4415	2.0780	28
7. Composite Scores (1-6)	442.0000	15.7857	4.2283	17.8783	28

Table VII. Analysis of Covariance Table Instructor-Designed Materials.

Variable Instructor-Designed Materials	Sum	Mean	Standard Deviation	Variance	Number
1. Main Ideas	29.0000	2.2308	1.1658	1.3590	13
2. Significant Facts	32.0000	2.4615	.7763	.6026	13
3. Science Reading	24.0000	1.8462	1.2810	1.6410	13
4. Organization	40.0000	3.0769	1.1875	1.4103	13
5. Critical Reading	37.0000	2.8462	.9871	.9744	13
6. Study-type Reading	37.0000	2.8462	1.6756	2.8077	13
7. Composite Scores (1-6)	199.0000	15.3077	3.7279	13.8974	13

Table VIII. Analysis of Covariance Table MHBSS Programmed Materials.

Variable Commercial Materials	Sum	Mean	Standard Deviation	Variance	Number
1. Main Ideas	34.000	2.2667	1.0998	1.2095	15
2. Significant Facts	45.0000	3.0000	1.6036	2.5714	15
3. Science Reading	43.0000	2.8667	1.3558	1.8381	15
4. Organization	45.0000	3.0000	1.0690	1.1429	15
5. Critical Reading	34.0000	2.2667	1.1629	1.3524	15
6. Study-type Reading	42.0000	2.8000	1.2649	1.6000	15
7. Composite Scores (1-6)	243.0000	16.2000	4.7087	22.1714	15

APPENDIX B

Readability of Programmed Materials

Raygor, Alton L. Reading for the Main Idea. New York: McGraw-Hill Book Company. 1969.

Table of Contents	Reading Level
Part I (1-9)	11
Part II (11-51)	9
First Progress Check (53-73)	College
Part III (75-95)	College
Second Progress Check (97-128)	College
Part 4 (129-153)	College

Raygor, Alton L. Reading for Significant Facts. New York: McGraw-Hill Book Company. 1970.

Table of Contents	Reading Level
Part 1. Recognition of Significant Facts (1-14)	10
Part 2. Understanding Significant Facts (15-46)	12
Part 3. Remembering Significant Facts (47-165)	College

Fisher, Joseph A. Reading to Discover Organization. New York: McGraw-Hill Book Company. 1969.

Table of Contents	Reading Level
Part 1. Recognizing Elements of Organization (1-18)	11
Part 2. Thought Reduction (19-36)	10
Part 3. Visualizing Organization (37-146)	College
Part 4. Summarizing and Expressing Meaning (147-173)	College

Harnadek, Anita E. Critical Reading Improvement. New York: McGraw-Hill Book Company. 1969.

Table of Contents	Reading Level
Chapter 1. Introduction (1-3)	8
Chapter 2. Considering the Source (4-6)	College
Chapter 3. Recognizing What is Said (7-16)	8
Chapter 4. Recognizing Some Common Fallacies in Thinking (17-24)	9
Chapter 5. Recognizing Assumptions and Implications (35-40)	11
Chapter 6. Recognizing Intent, Attitude, Tone, and Bias (41-67)	11
Chapter 7. Analyzing Arguments (68-87)	9
Chapter 8. Applying What You've Learned (88-205)	10

Pauk, Walter. How to Study in College. Second Edition. Boston:
Houghton Mifflin Company. 1974.

Table of Contents	Reading Level
Preface to the Second Edition (vii-viii)	11
1. What did you come for? (3-10)	7
2. Keeping your Emotional Balance (11-17)	8
3. Control your Time (18-32)	8
4. The Ability to Concentrate (35-51)	9
5. Forgetting the Relentless Foe (52-60)	12
6. How to Build a Strong Memory (61-78)	10
7. Build a Precise Vocabulary (81-98)	9
8. Improve your General Reading Skills (99-121)	10
9. The Classroom Lecture: Take Good Notes (125-139)	10
10. Master your Textbook (140-152)	7
11. Textbooks: Marking and Note-taking (153-166)	8
12. How to Study for Exam (167-175)	10
13. How to Take Exams (176-185)	10
14. Writing Good Papers: The Art and Technique (186-202)	8
15. Research Papers: Additional Pointers (203-217)	10
16. How to Study Mathematics (221-235)	10
17. Studying Science: As a Scientist sees it (236-253)	College
18. How to Speak Effectively (254-262)	12
19. How to Master a Foreign Language (263-270)	8

APPENDIX C

Reading Progress Profile Sheet

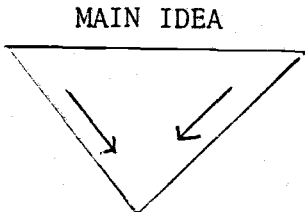
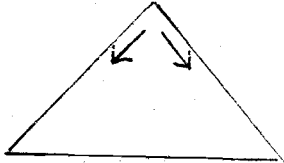
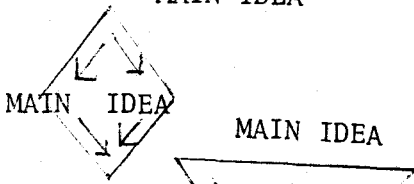
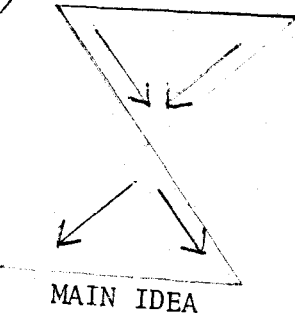
APPENDIX D

Skimming for the Main Ideas

SKIMMING FOR MAIN IDEAS

The process we call skimming is actually an extension of pre-viewing except that it is more thorough. Instead of glancing very quickly over the page we must pay closer attention to the ways in which paragraphs are organized in order that we can deduce the main ideas of each as we go along.

By examining for a moment the different ways in which a paragraph is organized we will gain many useful pointers to aid us in skimming or quickly finding the main ideas or concepts of a reading selection. Consider, then, the following diagrammatic representations of paragraph organization.

- 1)  The main idea is stated at the beginning of the paragraph. The rest of the paragraph is developed through details which merely support the main idea. (Deductive)
- 2)  The paragraph is built up through the use of details to a general statement of the main idea which appears at the end of the paragraph. (Inductive)
- 3)  A combination of the first two. The paragraph begins with a build-up of details to a general statement of the main idea and then is developed further through the use of more detail.
- 4)  Another variation of the first two. The paragraph begins with a statement of the main idea. It is then developed through detail, expanded through more detail, leading up to either a) a restatement of the main idea or b) the introduction of a second main idea.

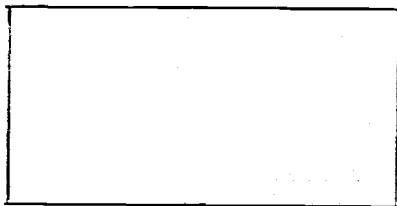
On the basis of these types of paragraph organization, it is fairly easy to recognize where, in most paragraphs, we will be able to find the main idea:

- 1) at the beginning of the paragraph
- 2) at the end of the paragraph
- 3) in the middle of the paragraph

When we're skimming, if we go quickly to these places -- first the beginning, then the end, and sometimes the middle of the paragraph, we can usually find the main idea very rapidly.

There is, however, a further type of paragraph organization which we diagrammatically represent in the following manner:

5)



This type of paragraph has no main idea.

If we stop to consider a paragraph with no main idea, it will usually be one of two kinds:

- 1) a descriptive paragraph
- 2) a sequence paragraph
- 3) an inference paragraph

Instead of looking to find a main idea, we should concentrate on another approach. In a descriptive paragraph, instead of looking for a main idea, we should be searching for two things in order to receive a general impression of what this particular paragraph is about:

- 1) what is being described
- 2) how is it being described

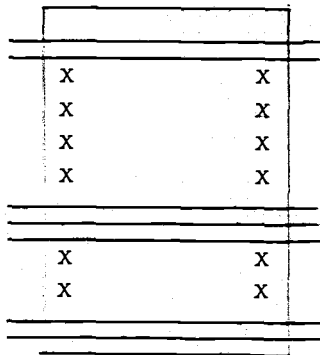
This can be accomplished very quickly by reading the first/last sentence of the paragraph and several of the adjectives in that paragraph.

In order to get a general impression of what a sequence paragraph is about, check the beginning of the sequence and the end of the sequence and fill in a few of the in-between steps.

The inference paragraph requires full reading and, perhaps, additional reflection. Usually, this type of paragraph is found in narrative material.

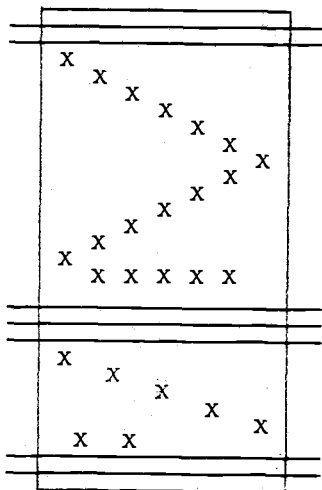
In addition to reading first and last sentences of each paragraph when skimming and examining descriptive and sequence paragraphs in the ways described, your eyes should be searching for the key or clue words and phrases in each paragraph. You will usually be able to spot these words by following one of the patterns diagrammed and described below:

1)



- a) read the first sentence of each paragraph
- b) on each line following in that paragraph, focus in two places in your search for key words
- c) read the last sentence of each paragraph.

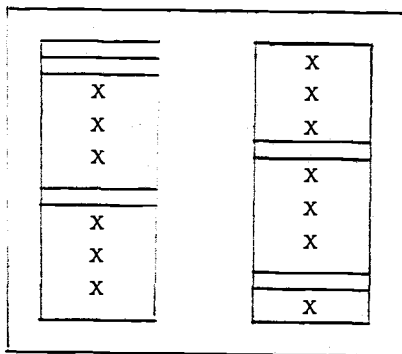
2)



- a) read the first sentence of each paragraph
- b) go through the rest of the paragraph in a zig-zag pattern, searching for key words and phrases
- c) read the last sentence of each paragraph.

Some books have a two-column page; each column is relatively narrow. Other examples of reading material in narrow columns can be found in newspapers and magazines.

3)



- a) read the first sentence of each paragraph
- b) focus in the center of the column on each line following as you search for important words
- c) read the last sentence of each paragraph

Skim the following selection, following these guides:

- 1) Overview and preview whenever possible
- 2) Read the first and last sentences of each paragraph
- 3) Go over the rest of the paragraph quickly, searching for key words and phrases.

THE BIG BOARD IN ACTION

Under an old buttonwood tree on Wall Street in downtown Manhattan, a group of merchants and auctioneers began meeting one day to conduct their business. That was over 175 years ago.

A visitor to New York City today will find only a sidewalk plaque to mark the spot where that famous buttonwood tree once stood. But a short walk away -- at the corner of Broad and Wall Streets -- stands one of Manhattan's most fascinating tourist attractions, and it had its beginnings under that tree. It is the New York Stock Exchange, the largest securities market in the world, and the very heartbeat of financial America.

From the Visitors' Gallery, the scene unfolding on the football-sized floor of the Stock Exchange appears chaotic. Movement is constant as 2,400 brokers, clerks, pages, messengers, and reporters scurry about transacting their business. High above, to the left and to the right, are giant annunciator boards, where flapping metal plates signal brokers that messages are awaiting them.

As each trading day begins -- with the peal of a brass gong at exactly 10:00 AM -- the hum of a thousand conversations swells from the floor. Writing, gesturing, shouting, the ever-moving clusters of humanity seem to form a pattern of aimless motion; yet the value of their commerce is measured in millions of dollars daily.

Five and one-half hours later -- when the gong sounds again to close the session -- the floor empties quickly and silence falls abruptly. Left behind is a half-ton of blue, red, yellow, and white memos and sales slips discarded during the hectic exchange of securities representing most of the nation's largest businesses.

What those twenty-four men did under the buttonwood tree over 175 years ago is exactly what the members of the New York Stock Exchange do today: they provided a central market place for the purchase and sale of securities where buyers and sellers could meet and decide what the buyers would pay and the sellers accept. . . Through use of the venerable two-way auction, stocks and bonds were then -- and are today -- bought and sold at prices that were "openly and fairly arrived at."

With the rapid growth in numbers of investors and in the number of shares of stock available for purchase and sale, activity on the floor of the Exchange often becomes frenzied. But it was not always so.

Brokers frequently speak of the slow trading days in the forties. On August 19, 1940, when war in Europe commanded attention and chilled investors' interest, only 130,000 shares were traded.

Average daily turnover on the "Big Board," as the Exchange is known, was a mere 455,000 shares in 1942, after the United States had

entered World War II. By way of contrast, in 1965, daily volume averaged 6.2 million shares.

In the depression days in the thirties, bored floor brokers reportedly set fire to piles of waste paper to watch the fire brigade of pages swing into action. Others were content to pass the listless hours by occasionally shaking talcum powder on each other's shoes and then squirting water from water pistols to turn the powder into paste.

Some old-timers on the floor recall dull days when brokers would practice drop-kicking a football into the Visitors' Gallery -- without endangering a soul. Still others whiled away the gloomy hours in the days when some blue chips had dropped below \$10 per share by telling stories, like the one about the specialist who received a call from his wife telling him his son wanted an electric train for Christmas. "The way things are going," he replied, "I'll soon be able to buy him the New York Central."

In recent times, the trading floor has become more austere, though a few traditions do remain to provide a brief respite. Galleryites will occasionally hear a lusty cheer from the floor as the tape reveals a stock hitting \$100 a share for the first time or when a large number of shares of a single stock are traded.

Less frequently, visitors may suddenly hear a countdown begin with 10, 9, 8, 7 . . . As the shouts reach zero, helium-filled balloons are released from behind the horseshoe-shaped trading posts, and all those on the floor halt abruptly to relieve the tension by cheering the gag and watching the balloons ascend to the five-story ceiling.

Today, the New York Stock Exchange is an efficient and smoothly run organization. It is governed by rules and regulations developed over years of thoughtful planning and deliberation. Though it is often described as one of the most misunderstood institutions in the world, the degree of its influence and the potential of its future expansion are almost staggering.

Trading volume, which averaged only 2.2 million shares per day 10 years ago, reached 6.2 million in 1965, and now averages over 10.1 million shares daily.

There are 20 million stockholders in the U.S. today, triple the number in 1952. The Exchange forecasts 30 million persons will be shareholders in 1975.

Peak days in 1975 could witness a volume of 30 million shares compared with the all-time record of 16 million shares on that mournful "Black Tuesday" in October of 1929.

Despite the rich history of the "Big Board" and the glowing predictions for its future, the New York Stock Exchange faces many

problems. It is possible that competitive pressures combined with increased taxation soon will force the opening of a second trading floor outside the state of New York. To those close to the Exchange, however, and to the tourist as well, this would only broaden the influence of and increase interest in the giant securities marketplace.

The New York Stock Exchange opens its doors to visitors from 10:00 AM to 3:30 PM each weekday. Conducted tours are provided by guides who describe in detail the clamorous scene on the trading floor. The Exchange, which ranks seventh in popularity among Manhattan's wealth of tourist attractions, also maintains an Exhibit Hall, where animated displays explain how the market functions.

You say you want a "hot tip" on the market? Take a chance on a visit to the New York Stock Exchange. It's educational, and it's fun. And it won't cost you a dime.

Answer the following questions on the selection you have just skimmed:

- 1) The Big Board is:
 - a. an electronic billboard
 - b. the New York Stock Exchange
 - c. on an old buttonwood tree
- 2) The scene on the floor of the Big Board seems to be:
 - a. calm
 - b. hurried
 - c. chaotic
- 3) The action at the Big Board lasts for:
 - a. five and one-half hours
 - b. six and one-half hours
 - c. eight hours
- 4) In the depression days of the thirties, the bored brokers occasionally set fire to piles of waste paper or:
 - a. staged amateur boxing matches
 - b. drop-kicked a football into the empty Visitors' Gallery
 - c. had battles with water pistols
- 5) The article indicated that in the future the influence of the Big Board will:
 - a. decrease
 - b. remain the same
 - c. increase

Skim the following selection for main ideas, then answer the questions at the end of the selection.

THE GREAT LAKES

Traffic growth on the St. Lawrence Seaway has focused a great deal of attention on the Great Lakes, America's "Five Little Oceans." People the world over are wondering: How were they formed? What are they like? How do they manage to carry the traffic they do during an eight-month steaming season? To find some of the answers, let us go back into the dim past, long, long before the dawn of history.

Formation of the Great Lakes

Geologically, the Great Lakes, as we know them today, are very young. Their gleaming blue-green waters date to the receding ice cap of some 11,000 years ago. Recent studies by scientists from the Universities of Michigan and Minnesota, however, are shedding light on the possibilities of an even earlier history. Bottom-core samples from Lake Michigan and Lake Superior are turning up evidence that their basins might have been created chiefly by ancient rivers. They were big rivers that probably flowed northward to Hudson Bay about 1,000,000 years ago when the area was dry land and well above sea level. The speculations are based on evaluations of glacial deposit cores, the lowest strata of which, in the case of Lake Michigan, were unlike anything previously encountered, hence were considered to be much older.

According to Michigan's Professor James H. Zumberge, "The significance of this is that we found an extremely deep bedrock valley that must have existed before the older glacial deposits were laid down (perhaps up to a million years ago). This lends support to the concept that the major topographic features of the Great Lakes region were not formed by ice but were eroded by some ancient river system that existed in inter-glacial or pre-glacial times."

Until further studies are completed, no one can tell how long these rivers existed, if indeed they did exist. But we do know that terrestrial climate underwent vast changes, grew stormier, colder. With the change came an ice cap from the north, grinding, crushing, carrying all before it, overwhelming the land with an incredible thickness of ice. Its great weight depressed the land, lower in some places than in others, sinking less resistant parts, such as river valleys, to well below present sea level. The cap was around for some 90,000 years or more, melting a little bit, growing a little bit. But as it melted, it deposited evidence as if it were thinking about future scientists solving the puzzle of why America's Five Little Oceans with almost half the world's fresh water are where they are and how they were born.

The retreating ice cap released the depressed land, allowing it to rise as a scale platform rises when weight is removed from it. But here Mother Nature took a hand. In her own inimitable fashion,

she decided to make five little oceans, separate them into three groups, and put roadblocks between the groups as well as in their ultimate outlet to the sea, the St. Lawrence River. It was just as though she were setting up a test for man to see if he could eventually surmount the heartbreaking portages around rapids and falls to open them for world commerce. That he succeeded is now a matter of history.

The ice left behind a fantastically rich and fertile land. On it grew a vast, magnificent forest. Game came back from the south to the land and fish to the clean fresh water. It was a paradise where for several thousand years the American Indian roamed at will, lived a life of comparative ease with little or no worry about tomorrow.

The First Europeans

All was serene in this "forest primeval" until the middle of the 17th century. The year was 1665. Far to the east, near a little settlement on the banks of the St. Lawrence River, a venturesome Frenchman, Claude Allouez, portaged Lachine Rapids and set out with a canoe party up-river to see what he could claim for New France. To him and to his party goes credit for being the first Europeans to discover the Great Lakes. He was followed by Canadian voyageurs who hunted, fished, and trapped throughout the region, and who lived in peace with the Indians.

The white man followed in ever increasing numbers as the decades passed. He pushed back the natives, took over their hunting lands and put down the roots from which the bustling cities and towns lining the Great Lakes subsequently grew. The white man knew what a valuable asset these tremendous bodies of fresh water were and applied his talents toward developing them as arteries of commerce.

General Features

Unless one has seen America's Five Little Oceans, it's hard to visualize their magnitude. For example, from Duluth-Superior it's 2,350 steaming miles to the North Atlantic. It's slightly over 160 land miles across Lake Ontario, the smallest, at it's widest points. And flying high over Lake Michigan on a clear day, it's just possible to see both shores.

Starting at the western end of Lake Superior, deepest and probably the most picturesque of the five, and going "downbound," as the Lake Carriers call the eastward passage, it's a little over 390 miles to nature's first barrier. This is Sault St. Marie or St. Mary's Falls, locale of the world's busiest ship canal, the Soo.

A drop here of 24 feet leads to Lake Michigan or Lake Huron, with smooth sailing from the latter to Lake Erie, shallowest of the lakes, and seven feet lower than Huron. At Erie's eastern end is nature's second barrier, Niagara. Here ships "climb down" a 327-foot

mountain via Canada's Well and Canal to Lake Ontario at the head of the St Lawrence, it's a little over 1,000 miles to Cabot Strait and the Atlantic Ocean.

Except for the hilly, wooded shores of Superior, the Great Lakes lie in comparatively flat land. In some places it is just as flat as a table top. But what they lack in scenic splendor, they more than make up for in the mineral, industrial, and agricultural might that lines their shores. This is indeed the "heartland" of North America, a land and people that produce in super abundance.

For eight months a year, the Lake Carriers and Salties (deep-sea ships) steam the Lakes with cargoes to and from this wealthy heartland. Then in late November, frigid blasts from the Arctic sound a warning that soon the freeze-up will come. The word goes out to the Salties to "steam for home" and in early December to the Lake Carriers, "get to winter lay-up quarters." Then comes the freeze, making navigation virtually impossible. But when April returns and the ice disappears, the brisk lake commerce resumes, seeming to grow larger with each succeeding year.

Steaming the Great Lakes on one of the big Lake Carriers is quite an experience, particularly to a "blue water" mariner. Even the language is strange. He will go upstairs and downstairs, left and right, up front and down back, will steam land miles, might even hear a pilot say, "When you see Johnson's red house on the point, turn left and head for . . ."

Dangerous Weather Conditions

Weather is another and quite different experience. When it's clear over the Lakes during a navigating season and gentle westerly breezes blow, they are calm and pleasant. Actually, they are a small boatman's paradise, good for sailing, good for motorboats, very good for boatmen who like to cruise from port to port, lake to lake, with their families. Yet they can be treacherous, as all who use them, whether for pleasure or business, well know. Sudden squalls accompanied by the wierdest sort of swells are their hallmark. A requirement for all that use them is to recognize the symptoms and either head for the nearest port or get ready to ride out whatever is coming. What comes is frequently unbelievable, can last for just a few minutes or for days.

The worst recorded storm on the Great Lakes occurred in 1913. Its unprecedented violence swept the entire region, brought death to 235 seamen and sank 11 steamers and two barges. It began early on the morning of Saturday, November 8. Hitting Lake Superior first, it built up high waves as it progressed eastward, keeping most vessels in port. Then came a lull with diminishing seas. Several vessels left port and proceeded on their appointed missions. A few hours later the gale broke out again with increased violence forming, according to masters' later testimony, 35-foot seas that followed

each other in quick succession, three waves coming one after the other. They were considerably shorter than waves usually formed by ordinary Great Lakes gales. They had the height, force, and succession that subjected ships to incredible punishment. Masters also reported that wind and sea frequently came from opposite directions, adding to their misery. Unusual and unprecedented . . . yes! Will it happen again? Perhaps, but not likely for several decads or even centuries. But it could happen tomorrow or next week. This is the always unpredictable character of North America's weather.

Water Levels

Another and even more vexing problem than weather is water levels in the Great Lakes. With the exception of Lake Superior, whose level is controlled by the locks at Sault St. Marie, the others are down. During 1964 Lake Erie and Lake Ontario neared the low record set 30 years before, while Michigan and Huron reached their lowest levels since records were started in 1860. The impact on shipping was tremendous. The big bulk carriers were forced to take less than full loads, causing revenue losses amounting to millions of dollars.

Back in 1952 the situation was reversed. Levels that year were abnormally high, causing damage to shoreside property totaling some \$61,000,000. Experts agree that the answer to these periodic fluctuations are control projects on Lakes Michigan and Huron. The U.S. Army Corps of Engineers is conducting a study of the proposal in an effort to find a practical and not too costly solution.

From Duluth -- Superior eastward, from the Atlantic westward, the Lakes are busy waterways year after year: ore, limestone, grain, and general cargo eastward; ore, coal, and general cargo westward. Almost anytime a "shipwatcher" gets the chance to stand alongside one of the more confined channels or canals, he sees a fantastic parade of lake boats and deep-sea ships pass in a matter of just a few hours. The traffic is unbelievable, staggers the imagination. And what the ships are carrying below decks represents fabulous amounts of money, far beyond ordinary man's comprehension.

Answer the following questions on the story you have just skimmed:

1. Another name for the Great Lakes is:
 - a. Five Little Oceans
 - b. Early Rivers
 - c. Dangerous Europeans
2. According to the article, recent interest in the Great Lakes has been caused by:
 - a. traffic on the St. Lawrence Seaway
 - b. severe weather conditions
 - c. an early river system

3. In terms of geological time, the Great Lakes are:
 - a. very young
 - b. very old
 - c. cannot be dated
4. According to Professor Zumberge, the Great Lakes region was formed by:
 - a. an ancient river system
 - b. ice
 - c. hurricanes
5. The Great Lakes contain almost half of the world's:
 - a. fish
 - b. fresh water
 - c. glacial deposit cores
6. The deepest of the Great Lakes is:
 - a. Lake Superior
 - b. Lake Erie
 - c. Lake Ontario
7. The last part of the article deals with:
 - a. weather and water levels
 - b. the names of the lakes
 - c. the construction of the Seaway
8. In addition to weather problems, the Great Lakes are affected by changes in:
 - a. current
 - b. water temperatures
 - c. water levels
9. What sort of report would this selection be helpful for?
10. Would this article be helpful in writing a report on the topic "Fishing in the Great Lakes"? Give a reason for your answer.

APPENDIX E

Some Suggestions for more
Efficient Reading

SOME SUGGESTIONS FOR MORE EFFICIENT READING

Now that you have completed your self-analysis of reading habits, you should be interested in knowing why some responses are considered favorable and some unfavorable, and what can be done to improve whatever unsatisfactory habits have been revealed. The following material is prepared for use with Self-Analysis of Reading Habits. The instructor will check whatever responses of yours are considered unfavorable. It is suggested that you read the checked items with great care and also read any others you may wish to in order to derive a clearer understanding of the reading process. It is suggested that you save these suggestions and consult them frequently, both during the work in the Clinic and at later times in your college career.

Attitudes Toward Reading

1. Comprehension first, then speed. Many people have apparently gained the impression, especially in recent years, that the most important phase of reading is speed of reading. Actually, the most important phase of reading is understanding what you read, or comprehension. In fact, it may be said that unless you understand what you read, you are not reading at all, but merely looking at words. It is thus important to remember that the understanding of what you read is the single most important goal for which you should strive in all your reading.
2. Vary your speed. Reading everything at the same speed is both monotonous and inefficient. In fact, a fixed speed of reading is one of the characteristic earmarks of an ineffective reader. We should have a variety of speeds which we can bring into play as our materials demand. We should have a very rapid speed for skimming light, easy materials, an intermediate speed for moderately difficult materials, and a very slow speed for a careful analysis of the more difficult kinds of materials.
3. Don't be a word-caller. Those who read only as fast as they can pronounce the words to themselves are of necessity slow readers. This can be easily demonstrated by a competent reader who can read and comprehend material much faster than he can call out the words. Your real goal for much of the reading that you do should be a rate of reading much faster than the rate of which you pronounce words to yourself. Consequently, you should make every effort to discourage yourself of this habit of self-pronunciation as you read.
4. Find a purpose for reading. An effective reader knows why he reads. He decides either before or during the beginning stages of his reading exactly why he is reading, and what he expects to get out of it. This is an extremely important principle in reading, for it places the reader in control of the material which he is reading, rather than being controlled by the material itself. It will help you to determine your purpose for reading by asking yourself such

questions as: "Why did the instructor assign this material?" "What does he expect me to get out of it?" "Are there any questions at the end of the material which may help me direct my reading?" "Will this material help me answer any questions which have been raised in class?" Asking yourself such questions as these will give point to your reading and will make your reading more efficient. Remember that it is always easier to find what we want if we know what we want to find.

5. Look for the author's purpose. It is not only important to have your own purpose in reading, but it is also important to recognize the purpose which the author had in mind in writing this material for you to read. Authors write for various purposes, such as to inform, to persuade, to ridicule, to deceive, to flatter and the like. If you do not look for the author's purpose, you may be very badly fooled in attempting to understand what the author is saying. This is something you must watch for, particularly in materials which you will read in fields of the humanities and social sciences, where as you know, propaganda plays an important role. Authors in these fields are likewise frequently ironic and sarcastic, so that they often mean exactly the opposite of what they say. Awareness of this should help you to improve your understanding of such materials.

6. Think while you read. It is surprising how many people think of reading as an activity in which they thoroughly relax, loaf, and practically go to sleep. Effective reading is actually an active process in which you must be thoroughly awake and alert. Much reading, particularly of the type done in college, requires strenuous mental effort. Study-type reading, with which you will be particularly concerned, calls for a clear, active mind. You will be more alert and efficient in your reading or your studies if you sit erect in a straight backed chair at a desk. Keep away from that soft easy-chair or that bed if you are intent on study! If you school yourself to think hard while you read, your reading will tend to become more effective.

7. Reading can be improved. Few people read so well they cannot do something to improve their reading. For example, many readers can improve their speed of reading. Others who have difficulty in understanding thoroughly what they read can improve their techniques of comprehension. After all, effective reading is an art as well as a group of skills, for which in most cases we can set no definite limit of perfection. This is why the possibilities of improvement are so great.

8. Your attitude is all-important. If you have a healthy attitude toward improving your reading, and really intend to do something about it, then it is most certainly true that you have taken the most important single step toward actually improving your reading. People learn when they intend to learn, and people learn to read well when they have a firm conviction that they can do something constructive about bettering their reading habits. Therefore, a most important

decision that you have to make is that of being perfectly sure that you can and will improve your reading. If you have this conviction, the work of the Center will be relatively easy and should be successful. If not, our work may prove fruitless.

9. Good comprehension is more important than good eye movements. You may have read somewhere that the eye movements of good readers tend to be rhythmical. To a certain extent this is true. On the other hand, it is possible to have rhythmical eye movements without having good comprehension. In other words, good comprehension is primarily the result of the work of the mind rather than of the eyes. The fact that a good reader has rhythmical eye movements simply means that he is comprehending smoothly and adequately in a regular and progressive fashion. His eye movements, therefore, reflect what is going on in his mind. While you will be encouraged to develop good eye movement habits, it is hoped, nevertheless, that you will remember that the single most important thing in reading is comprehension.
10. Vary your reading rate. The effective reader is a flexible reader. This means that his rate or speed will vary according to the reason for which he is reading. This type of reader is the exact opposite of the one who reads everything in a lock-step fashion. The reader with a flexible habit is in control of the reading process and makes necessary adjustments in order to achieve the fullest comprehension of the material which he reads. The ultimate goal of all reading, in one sense, should be the attainment of this flexible habit so that a person's purpose and subsequent understanding are at all times, the guiding principles of his reading.
11. Find a need for reading. In order to really improve your reading habits, you should have a definite and felt need for improving these habits. As in the case of your attitude toward reading, having a definite need for improving your reading will be extremely important in determining the kind of work you do in the Center and the success which you will experience here. In fact, unless you feel this need for improving your reading, there is little the Center will be able to accomplish for you.
12. Interest depends on you. One of the most common complaints about reading is, "I can't get interested in what I read." Interest is, of course, aroused in many and various ways, but in the long run, the nature and kinds of interests you have depend entirely on you. It is very important to remember that interests are something which are developed. There is nothing magical or instinctive about interests. Just as you have developed what personal interests you now have, it is also possible for you to develop other and new interests. Developing new and different interests is one of the primary purposes of a broad college education. Then, too, many things which are not interesting at first sight become interesting as you get further into a subject. No college instructor expects you to become interested in everything that you take. However, he does attempt to give you an

opportunity to broaden and intensify many interests. With the encouragement of the college and your own effort, it should be possible to become interested in many more things and to a greater extent than you may realize is possible. Effort on your part is all-important in achieving this goal.

13. You can concentrate. As is true of many of the topics which we have been discussing, the ability to concentrate is largely the result of definite effort. The ability to concentrate is an attitude which may be developed. Everyone can learn to concentrate to a greater or less degree. One of the important things in reading is to realize that good concentration is essential for maximum efficiency. If you find that you have difficulties in concentration, it may be helpful to consult your instructor in order to find out what is the cause of your lack of concentration. Steps can usually be taken to remedy the situation.

14. Intend to remember. This is another important attitude that affects your comprehension. To a very real degree, you remember what you want to remember. Consequently, if you enter the reading situation with a definite attempt to remember what you read, you will find that your comprehension will fast become more effective and will persist over a longer period of time.

15. Be critical. It is very easy for you to accept the ideas which you have learned in your reading uncritically. What this really means is that you may not be thinking very much about what you are reading, yet, if you are not thinking, you obviously cannot be critical of that which you read. Again, the best readers are critical readers who not only read to understand what the author is saying, but who keep their minds constantly alert and weigh what the author is saying in terms of their own experience. This very important ability is one of the more complex and difficult of reading skills, but if you are aware that this is a desirable goal in your reading, it will be one of the factors which will make you read more effectively.

16. Sit erect, but relaxed. An erect, but at the same time relaxed posture in reading, contributes to better reading. You usually do not tire in reading or in studying because your mind is weary, but because you are physically tired. Thus, if you have a good posture that is free from tension, you ordinarily can read or study longer and more effectively. Poor posture or undue tension from any cause will contribute to a physical tiredness, and as a result will make effective studying or reading, difficult. The cultivation of a good posture is basic to ease and efficiency in reading.

17. Sixteen inches is close enough. For the average person, a book should be held approximately 16 inches away from the eyes. If, for some reason you hold a book closer or farther away than that, be sure to have your vision checked.

18. Keep that head still. You have no doubt seen people who move their heads while they read. You may be one of these people. There is absolutely no necessity for any one moving his head while he reads, for that is simply a way to become quickly tired during the act of reading. The eyes can and should do all the movement that is necessary for effective reading.

19. No tongue-wagging allowed. Many people pronounce words to themselves and frequently use their lips as they read. Such readers are inevitably very slow readers, for they obviously will not be able to read any faster than they can pronounce words to themselves. You should make every effort to suppress this habit if you wish to read with sufficient speed silently.

20. No whispering or talking. Some people not only pronounce words to themselves, but even utter them aloud or whisper them while they are reading silently. Obviously such people are not reading silently, but orally. If you indulge in this habit, you should endeavor to break yourself of it, for it will likewise prevent your reading very rapidly. It may help to put a finger on your lips when you read, or even to chew gum.

21. You don't need a crutch. Some people have developed the habit of pointing to words along the line with finger or pencil as they read. You should not have to do this in efficient silent reading. Even if you are underlining certain passages as you read, you should first read the passage through and then do the underlining as you re-read.

22. Strive for rhythmical eye movements. In general, subject to the qualifications made in item 9, it is desirable to have rhythmical eye movements. This is a legitimate objective, particularly in your early training to improve speed of reading. As your reading efficiency increases, however, your concern and awareness of what your eyes do should disappear. In other words, every reader who has good comprehension should and will be primarily concerned with his comprehension and not with what his eyes do.

23. Know your words. Words are the building blocks of meaning. Since this is true, it is obvious that if you do not know the meaning of a critical word, your understanding of an entire sentence or thought will be incomplete. It is therefore particularly important that you pay attention to the precise meanings of words. You need to have a large stock of common words, and know the many different meanings each of these common words may have. You also need to develop a stock of technical meanings for words which you inevitably encounter in some of the courses in college. If you are deficient in your understanding of the meanings of common words, you will be referred to special techniques and materials for building up that word stockpile.

24. Watch for significant details. The ability to understand the literal sense meaning of a passage, or in other words, to identify its significant details, is absolutely basic in all reading. This ability is of course, closely related to vocabulary knowledge. In reading of this type, the important thing is to understand literally and specifically what the author is trying to say. Reading of this type is of a factual nature wherein close attention must be given to facts, figures, dates, special word meanings, and the like. It also requires close attention to the steps by which an argument is developed. In this sense it is something like seeking for evidence upon which the larger ideas or thoughts of a passage are based. It should be obvious that this type of reading provides a foundation upon which other more complex types of reading abilities may be developed.

25. Watch for the big ideas. Every well-written paragraph should have one thought or idea that is bigger and more important than other ideas presented in the paragraph. Every longer passage, article or book, likewise, has one or more ideas which are much larger and more significant than the many small ideas they contain. The main ideas or thoughts in a passage are broader and more general than the details upon which they are based. Looking at this another way, it may be said that the main idea is more important than the details of the passage, in the sense that all the details are subordinate to the main idea. A good outline helps to identify the main ideas and their subordinate parts or details. In addition to outlining, several suggestions are given for identifying the main idea on the sheet entitled General Instructions for the Use of Assignments.

26. Small details support big ideas. While reading for details and reading for main ideas may be considered two separate reading skills, it is nevertheless important in truly efficient reading to be able to relate significant details to the main ideas which they support. In fact, it may be said that the main idea is usually not thoroughly understood unless the details which contribute to that main idea are understood and their relationship to the main idea clearly seen. Consequently, while the practice for obtaining these two skills will be conducted separately at first, you will nevertheless be expected, ultimately to be able to read for main ideas and their supporting details at the same time. When a person is able to do this he may be said to have acquired the fundamentals of comprehension. In other words, he is able to understand what the author is actually saying in terms of the words he uses, the details, points or steps by which he develops an argument, and the main or general ideas which he is trying to get across to the reader. The reader is now ready to proceed to the more complicated task of interpretation.

Important Interpretative Skills

27. Beware of unsound inferences. In much of the reading which you do, particularly in the fields of the humanities and the social sciences, you will be expected to draw inferences as you read. This is a relatively difficult and complex skill which your instructors in these areas should help you develop. Inferences are likely conclusions which are based on evidence, but which frequently go several steps beyond actual evidence encountered in the reading. Unsound inferences are worthless. Check each possible inference by asking yourself "Does the bulk of the evidence indicate that this is a reasonable and likely conclusion?" As you may well imagine, the ability to draw sound inferences depends to a considerable extent upon your familiarity with the subject matter which you are reading.
28. Look for that outline. If the material which you are reading is well written, it should have a definite organization or outline. One of the most important reading skills is to learn to look for an identify the author's organization or outline. As you will notice later in item No. 32, one useful technique for discovering the organization of the author is to skim through the material in advance of your careful reading in order to note the general structure of the material. Similarly, you may employ your ability to detect main ideas as opposed to details in identifying the proper structure of the material which you read. This is especially true of longer passages, although, of course, when reading paragraphs or very short materials, you will find that every detail may have an important place in the organization of the author's thought. The same techniques that you use in outlining, namely, searching for significant main headings under which subordinate points may be placed, will help you grasp the organization of the author.
29. Find the author's viewpoint. Again, in much of the reading which you do in college, particularly in the humanities and social sciences, you will need to identify the intent and the point of view of the author. You will need to ask yourself such questions as "What is the author trying to accomplish?" or, "How does he look at the problem about which he is writing?" Keeping questions such as these in mind is extremely important in reading certain types of materials. Especially is this important in reading poetry and other material that is highly emotionally toned such as propaganda often encountered in the social sciences. Frequently, material of this type will require re-reading in order to identify the author's intent or point of view. Perhaps you read Gulliver's Travels as a child. However, if you re-read this now, you will find that Swift had quite a different intent in writing that book than merely to entertain children.
30. Look for the author's tone or attitude. Closely allied to the author's intent or point of view is the tone of his writing which represents the attitude or attitudes which affect his writing. For example, Mark Twain, with a humorist's point of view, developed a

humorous attitude toward the people and institutions about which he wrote. You should be especially alert when reading in the social sciences and in literature for evidence of the author's attitude. This will help you determine whether he is serious or frivolous, sympathetic or sarcastic, and the like, not only toward the subject on which he is writing, but also toward the reader. In the reading of poetry in particular, it is imperative to determine the author's tone or attitude. Literature, especially poetry, is filled with examples such as Mark Anthony's Funeral Oration in which understanding what the author says depends entirely upon an understanding of his attitude or tone.

31. Look for the feeling or mood expressed by the author. Frequently an author wishes to convey a particular feeling or mood. In the case of poetry, for example, often the most important thing you may be expected to derive from its reading is an understanding of the feeling or mood of the poet. In reading this type of material, you need to keep this question before you, "What kind of feeling or mood is the author trying to represent in what he has written?"

Special Reading Techniques

32. Know when and how to skim. Skimming is a special reading technique which, if used properly, contributes enormously to reading effectively. It is essentially a means of locating specific information quickly. Skimming may be used advantageously when you wish to locate something of a specific nature, such as a name, a date, or some particular fact. It may also be used as a study technique to gain a quick overview of the major heading or sections of a passage to be read. Skimming is thus an effective technique to be used only when your purpose dictates its use. You should have then, first of all, a definite purpose for skimming. You next need to learn how to use major headings and topics in a passage, and likewise where you are most likely to find the kinds of information for which you are looking. A relatively small amount of practice of this nature, in which you read under pressure or by timing yourself, ordinarily will develop efficient skimming techniques rapidly.

33. Don't skip that graph. Much of the material written, especially at the college level in the fields of the social sciences and sciences, has graphs, charts, maps, tables, and other kinds of graphic representations. Many people have a common tendency to skip such graphs when, as a matter of fact, these may be extremely useful learning devices to supplement their reading of the regular text. In many cases, because these devices are graphic or pictorial in nature they may convey an essential idea much more clearly than words. Again, many people who have never been taught how to read a graph properly tend to look upon them as mysterious things and develop a phobia against them. If you have any difficulty in reading and interpreting graphs, you will have an opportunity in the Center to

learn how graphs are made and to develop a technique for understanding and interpreting them.

34. Misread directions waste time. How often have you wasted precious minutes or even hours because you misread a direction? Directions are meant to be read carefully and in detail. You will find a special need for this type of reading in your courses in science. Reading directions is essentially the same as reading for details, except that in the reading of directions there is usually a sequence of steps which must be observed very carefully. Much time and effort may be saved by developing this specific reading skill.

35. Definitions are meant to be learned. In reading in practically any college course you will encounter definitions of important ideas. Whenever you find such a definition, you may be quite sure that the author intends you to learn and understand it thoroughly, as will no doubt your instructor. You should therefore be on the watch for such definitions of other important words which you do not understand. You will likewise need to understand the nature and structure of definitions. You will need to know how to recognize and use the denotation, or literal meaning of a word, and the connotation, or the meaning which the word suggests. While you may often use a dictionary to get your understanding of the denotation of words, you should learn to supply the connotation of a word in many cases by seeing how it is used the context of the sentence.

36. Understand before you solve a problem. Just as you often waste time by misreading directions, you may also waste time by attempting to solve problems which you do not thoroughly understand. There are definite techniques which you should learn to employ when you attempt to understand a problem through reading before attempting its solution. Mastery of these techniques should greatly improve your efficiency in this type of reading.

37. To learn, compare. In some college courses, you may be called upon to read from several sources and then to pool the information thus gathered. In order to do this, you must be able to read comparatively. This means being able to pull significant or related ideas out of several sources and then to reassemble them in ordered fashion. Reading comparatively, then, is essentially an emphasis upon two important skills which we have mentioned before; namely, determining the main ideas and putting them together in an organized pattern or outline.

Improving your Rate of Comprehension

(See also items 2, 3, 10, and 32 above)

38. Raise your speed limit. There are two major reasons why people tend to read slowly in most of their reading. First, because of some constitutional factor, such as a tendency to think and react slowly

and deliberately, and second, because of insufficient or improper training in the techniques of reading rapidly. By far the majority of cases belong to this second category. Most people can improve their rate of reading even though they usually read slowly. It is helpful to time yourself in your reading, deliberately forcing yourself to beat a certain time limit. It is important also to practice improving your rate of reading by reading extensively among easy materials. The Center will utilize these and other techniques for improving rate of reading.

39. You can improve your rate of reading. As suggested in the preceding item, most people can read faster than they habitually do. This is an important conviction for you to have if you wish to improve your rate of reading.

Improving Study Habits

40. Use, don't neglect, your dictionary. Many people know how to use a dictionary, but seldom do. Others have never learned how to use the dictionary. Both knowing how to use a dictionary and actually doing it are important. An excessive reliance upon the dictionary in silent reading is not advisable by any means. On the contrary, you should use a dictionary only when you have exhausted every other means of determining the meaning of the word by its use in the sentence. It is suggested that you carefully note word meanings about which you are in doubt during your first reading and then look up such meanings as you find necessary during the re-examination of the text. Specific techniques of determining word meanings, pronunciation, and their use will be taught in the Center.

41. Word parts unlock word meanings. When you consider the fact that almost two-thirds of the words of the English language are derived from Latin words, it is obvious that some knowledge of Latin words and parts of words should help you to understand English words. Part of the work in vocabulary development will be to provide you with some of the basic roots, prefixes, and suffixes derived primarily from Latin or Greek which will help you unlock the meanings of large families of words.

42. Know how to use your library. It takes but little time and effort to develop a good working knowledge of the library and its many resources. This is a skill which may be developed cooperatively through the library and other courses as well as in the Reading Center.

43. Understanding comes through reflection. Much of the study-type reading you do will demand that you frequently pause to think and reflect upon the important ideas you encounter in your reading. Such reflection, if pertinent to the reading you are doing, should not be counted as a waste of time but as an aid to comprehension. This is merely another way of saying that reading is essentially a thinking process.

44. Clinch your understanding with examples. A sure way to master any information is to translate it into a familiar or personal example. This will tend to make your understanding much more concrete and thorough because you have incorporated it as part of your own thinking. This very important principle of learning was well illustrated by the homely anecdotes which Lincoln used to convey to his listeners the most abstract and difficult kind of ideas. You should endeavor to develop that same quality of mind which makes the new ideas about which you read a part of your own experience.

45. Self-recitation aids memory. Several studies have shown that students tend to remember material better if they recite important points to themselves. At the end of each selection you should say to yourself, "What has the author said?" Deliberate practice recalling what the author has said and reciting it to yourself is an extremely effective way to develop better comprehension.

46. Read, then apply. Application of ideas which you have read constitutes a further step in study-type reading. This gives you an opportunity to test your understanding of what you have read by seeing to what extent the idea is useful in explaining other things in your experience. Reading with the purpose of applying what you have read will enable you to see many possible applications of these ideas of which you may have hitherto been completely unaware.

47. Underlining aids organization. No one advocates the underlining of library books. But if the book which you are reading is your personal possession you will find that one of the most effective ways of seeing the outline of the author's thought is by underlining important ideas. Several articles on the purpose and technique of underlining are available in the Reading Clinic.

48. Good outlining means good organization. You are not ordinarily very long in college before you discover that it is almost impossible to take verbatim notes of what your instructor is saying unless, of course, you take stenographic notes. Consequently, most notes are partial notes which represent what you consider significant portions of what the instructor said. A most effective technique for taking notes is to take main ideas of the instructor together with important subordinate points under the main ideas. A further value of notes taken in outline form is that they represent an organized picture which will definitely aid you in your review. On the other hand, if your notes are a mere jumble of words without any organization, your attempt to review may end in hopeless confusion. These same observations apply to notes which you take upon your reading. Such notes will be most effective if they are organized in outline form.

49. Finish reading, then take notes. As was suggested in item 32, skimming is an important technique for gaining an overview of the paragraph or passage. Such an overview should give you an organized picture of the whole. This should commonly be your first step in reading study-type materials. Your second step should be to read

the material through carefully with particular emphasis on thorough comprehension. Then, and not until then, is it desirable that you take notes. The reason for this is simply that if you constantly interrupt your reading by taking notes, you will interrupt the flow of ideas and destroy the organized picture of what you are reading, which is so important in effective comprehension. Actually, if you delay note-taking on your reading until you have completed the two steps suggested here, you will have much more concise and effective notes.

APPENDIX F

Reading to Discover Organization

EXERCISE 43 - READING FOR ORGANIZATION

DIRECTIONS -- Read each paragraph carefully. Try to identify the main topic and the subtopics. Then fill in the outline blank. The topics are listed at the right in haphazard order.

PARAGRAPH 1.

The food provided for the prisoners was simple but wholesome. The morning meal consisted of thick gruel of ground corn. Since there were enough cattle, some were killed each week. Then the meat was roasted before an open fire or made into a stew with vegetables. At some seasons, they were given the wild fruits they loved.

OutlineHaphazard List

- | | |
|----------|---------------------------|
| 1. _____ | Gruel |
| a. _____ | Wild fruits in season |
| b. _____ | Roast beef |
| c. _____ | The food of the prisoners |
| d. _____ | Stew with vegetables |

PARAGRAPH 2.

A pleasant voice is essential for anyone wishing to become a radio announcer. But this is not the only requirement. The successful announcer needs dignity, confidence, and initiative. He needs also good judgement and a sense of humor.

OutlineHaphazard List

- | | |
|----------|---|
| 1. _____ | Good judgement |
| a. _____ | Sense of humor |
| b. _____ | Pleasant voice |
| c. _____ | Dignity |
| d. _____ | Requirements of successful
radio announcer |
| e. _____ | Poise |
| f. _____ | Initiative |

PARAGRAPH 3

The Swiss Government recognizes three official languages: French, German, and Italian. Another language, Romansch, combines these with a little Latin. But English is widely used and usually understood if it is spoken slowly, distinctly, and without slang.

<u>Outline</u>	<u>Haphazard List</u>
1. _____	English
a. _____	Romansch
1) _____	Languages used in Switzerland
2) _____	Officially recognized languages
3) _____	French
b. _____	German
c. _____	Italian

PARAGRAPH 4

It was a library. High pieces of furniture of black-violet ebony inlaid with brass supported on their shelves a great number of books uniformly bound. Light movable desks allowed one to rest one's book while reading. In the center stood an immense table covered with pamphlets. Electric light flooded everything.⁷

<u>Outline</u>	<u>Haphazard List</u>
1. _____	Bookshelves with many books
a. _____	Movable desks
b. _____	Table with pamphlets
c. _____	The library
d. _____	Electric lighting

PARAGRAPH 5

There are four kinds of poisonous snakes in the United States. Pit vipers are the rattlesnakes, copperheads and cottonmouth

⁷ Jules Verne, Twenty Thousand Leagues Under the Sea, New York; Boston Books, Inc., 1869, p. 65.

moccasins. The pit viper is so named for the pit on each side of the head between the eye and the nostril. The fourth poisonous reptile is the coral snake.

Outline

Haphazard List

- | | |
|----------|------------------------------|
| 1. _____ | Rattlesnakes |
| a. _____ | Coral snakes |
| 1) _____ | Pit vipers |
| 2) _____ | Poisonous snakes of the U.S. |
| 3) _____ | Cottonmouth moccasins |
| b. _____ | Copperheads |

PARAGRAPH 6

The passengers on the "Radnor" corresponded with her freight. In her cabin were Santa Fe traders, gamblers, speculators and adventurers of various descriptions, and her steerage was crowded with Oregon emigrants, "mountain men," and a party of Kansas Indians, who had been on a visit to St. Louis.⁸

Outline

Haphazard List

- | | |
|----------|-----------------------------|
| 1. _____ | Santa Fe traders |
| a. _____ | Kansas Indians |
| 1) _____ | Steerage passengers |
| 2) _____ | Cabin passengers |
| 3) _____ | Oregon emigrants |
| 4) _____ | "Mountain men" |
| b. _____ | Passengers on the "Radnour" |
| 1) _____ | Speculators |
| 2) _____ | Adventurers |
| 3) _____ | Gamblers |

⁸ Francis Parkman, The Oregon Trail, New York: Boston Books, Inc., 1849, pp. 1-2.

PARAGRAPH 7

Every crime has a victim, and the experienced and successful confidence man looks for "likely" victims. He looks for persons willing to gamble spare money on the chance of "getting something for nothing." Old age or infirmity are a special advantage; the victim is less likely to live long enough to be a prosecuting witness.⁹

OutlineHaphazard List

- | | |
|----------|----------------------------------|
| 1. _____ | Persons willing to gamble |
| a. _____ | Aged and infirm persons |
| b. _____ | Likely victims of confidence men |

PARAGRAPH 8

Of all parts of the world of the same latitude, Europe enjoys the coolest summers, the warmest winters. The climate is profoundly affected by the Gulf Stream drift. It gives Liverpool a milder climate than that of Washington, a thousand miles farther south, and keeps the harbors of Norway ice-free. The westerly winds bring abundant rains to most regions, and, as a result, Europe is the only continent without extensive deserts.¹⁰

OutlineHaphazard List

- | | |
|----------|----------------------------|
| 1. _____ | Rainfall: usually abundant |
| a. _____ | Temperatures: mild |
| b. _____ | The climate of Europe |

PARAGRAPH 9

Putting your trust in a ladder depends, for the most part, on following certain safety rules. First, make sure that the ladder has no broken or cracked parts. Then, set the ladder firmly in place so that it won't slip or shift under your weight. Firemen and others who climb ladders every day know the importance of using both hands when they climb: it's safer, surer, faster. So face the ladder and use both hands. Finally, when you have finished using the ladder, put it in a special rack or store it out of the way.¹¹

⁹ E. and F. Mead, Man Among Men, Englewood Cliffs, NJ, Prentice-Hall, Inc., 1965, p. 198.

¹⁰ Authority: Hutton Webster, Modern European History, Boston: D.C. Heath & Co., 1925, p. 2.

¹¹ Safety Tips for Young Workers, Washington, DC: U.S. Government Printing Office, 1965.

Outline

1. _____
- a. _____
- b. _____
- c. _____
- d. _____

Haphazard List

- Check for unsound parts
- Safety rules for using ladders
- Store the ladder away after use
- Set the ladder firmly
- Face the ladder and use both hands

PARAGRAPH 10

Why do married women work? The reasons are many and by no means the same for all. Some women work because of financial need; the husband may be disabled. Where there is no such need, the wife's earnings may still help the family to raise the standard of living. Some women work because household duties bore them, or because of a strong desire for adult associates. Others work because they want to make use of their education and training.¹²

Outline

1. _____
- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

Haphazard List

- Boredom with household duties
- Desire for adult associates
- Desire to use education and training
- Financial need
- Desire to raise the family standard of living
- Reasons why married women work

¹²G. F. J. Lehner and E. Kube, The Dynamics of Personal Adjustment, 2nd ed., p. 285.

APPENDIX G

To an Athlete Dying Young

2 • To an Athlete Dying Young

A. E. HOUSMAN

The glory of youth and achievement—and its sudden loss—are the subjects of A. E. Housman's famous poem. Even in death the young athlete has something of which he can be proud, and Housman tries to make us aware of what it means to die a champion.

The time you won your town the race
We chaired you through the market-place;
Man and boy stood cheering by,
And home we brought you shoulder-high.

To-day, the road all runners come,
Shoulder-high we bring you home,
And set you at your threshold down,
Townsmen of a stiller town.

Smart lad, to slip betimes away
From fields where glory does not stay,
And early though the laurel grows
It withers quicker than the rose.

Eyes the shady night has shut
Cannot see the record cut,

Assignment. After reading the above poem, answer the questions on the following pages.

Completion: Select the proper word, phrase, or clause to complete the sentence.

1. _____ When Housman says of the athlete, "Today . . . we bring you home," he means: (a) home to his house near the marketplace. (b) home to the threshold of his childhood house. (c) home to his town. (d) home to his grave. (e) home from his victory race.
2. _____ Houseman says "shady night" instead of death because: (a) none of us likes to think about death. (b) it really is shady night. (c) the term makes death seem more gentle. (d) sleep has always been a metaphor for death. (e) laurel withers quickly in bright light.
3. _____ An "early-laurelled head" is: (a) one destined to die young. (b) usually that of a boy. (c) often overlooked in our haste. (d) one given honors young. (e) associated with runners.
4. _____ One of the athlete's compensations for dying so young is that: (a) the townspeople are close enough to come to his funeral. (b) he can never be anything less than a hero to the town. (c) he never had to lose an important race. (d) he could be the townsman of a stiller town. (e) he does not have to look forward to dying when he is older.
5. _____ The "fields where glory does not stay" are: (a) the world we all live in. (b) the world of young athletes. (c) the fields where the town ran its race. (d) the fields of those who "wore their honors out." (e) the field of runner the athlete defeated.

Vocabulary: Choose the word or phrase which best defines the vocabulary item.

1. _____ stiller: (a) even now, (b) more calm, (c) he who steers, (d) duller, (e) quieter.
2. _____ laurel: (a) symbol of glory, (b) ivy, (c) symbol of death, (d) a household plant, (e) cooking herb.
3. _____ the rout: (a) all of us, (b) the rabble, (c) the victory, (d) the race, (e) those left behind.
4. _____ wither: (a) where, (b) fade, (c) last on and on, (d) gasp, (e) honor.
5. _____ the sill of shade: (a) where darkness starts, (b) doorway of gloom, (c) entrance of fate, (d) edge of death, (e) everlasting honor.

6. _____ renown: (a) notoriety, (b) knowledge, (c) fate, (d) fame, (e) health.
7. _____ fleet: (a) ships, (b) detain, (c) speedy, (d) queasy, (e) run away.
8. _____ threshold: (a) beginning, (b) entrance, (c) opportunity, (d) deliverance, (e) doorjamb.
9. _____ garland: (a) odor, (b) flowers, (c) wreath, (d) collection, (e) trophy.
10. _____ briefer: (a) liefer, (b) sooner, (c) quicker, (d) scantier, (e) sizer.

APPENDIX H

Selected Reading Passages

Physician 1891-1952

Louis T. Wright

Louis Tompkins Wright, a pioneer in the field of medicine, was born July 23, 1891 in La Grange, Georgia. He completed all of his early training at Clark University in Atlanta and received his Bachelor's degree in 1911. He was inspired by his stepfather, a physician, to pursue a career in medicine. He was admitted to Harvard Medical school and graduated in 1915, cum laude and fourth in his class.

Despite the fact that he was an honor graduate, Wright was denied permission to intern at any of the Boston hospitals, because he was black. He did his internship at Freedmen's Hospital in Washington, D.C. and, while there, published the first original report based on research done at that hospital. The report described his work which demonstrated that the Schick Test for determining whether a person is susceptible to diphtheria was valid in black people.

When he completed his internship, Dr. Wright took the medical examination for licensing in New York, Maryland, and Georgia. He made high scores in all three -- in Georgia he made one of the highest scores ever recorded in that state. He returned to Atlanta and practiced there until 1917, when he entered the U.S. Army as a first lieutenant in the Medical Corps.

Dr. Wright was stationed in the Vosges sector of France and was eventually placed in charge of the base hospital. While in the service, he introduced the intradermal method of vaccination for smallpox. He diluted the vaccine virus with a saline solution and injected it into rather than through the skin. This method, which eliminated undesirable side effects encountered with the "scratch," was adopted by the U.S. Army Medical Corps.

After his discharge from the Army, Wright opened an office in New York City for the practice of surgery. He specialized in surgery associated with head injuries and fractures. Regarded as an authority in that area, he was requested to write the chapter on "Head injuries" for the eleventh edition of Treatment of Fractures, Charles Scudder (editor), 1938. In the chapter, he successfully challenged traditional theories on the treatment of such cases. He devised a blade plate for the surgical treatment of fractures involving the knee joint and a brace for neck fractures.

In 1919, he was appointed clinical assistant visiting surgeon at Harlem Hospital. He was the first black physician appointed to the staff of a municipal hospital in New York. Although the appointment

was at the lowest rung of the professional ladder, four physicians resigned in protest. Nevertheless, Dr. Wright stayed on and the following year he became a permanent member of the surgical staff. In 1943 he became director of surgery, and five years later, president of the medical board.

He scored another first in 1928 when he became the first black police surgeon in the history of New York City. This appointment came after he passed a competitive civil service examination. Because of his outstanding work, he was admitted to the American College of Surgeons in 1934. He became a diplomat of the American Board of Surgery in 1939.

Dr. Wright was an authority on the treatment of lymphogranuloma venereum, a venereal disease caused by a virus. He experimented with the antibiotic Aureomycin in the treatment of some of his patients and achieved successful results. He was the first physician in the world to test the antibiotic on human beings. His findings were published in the Journal of the American Medical Association in 1948. He also conducted research on the use of Terramycin and published his findings in eight separate papers.

In 1948 he entered the field of cancer research. He secured grants from the Damon Runyon Fund and the National Cancer Institute to establish the Harlem Hospital Cancer Research Foundation. Here he studied the effectiveness of chemicals that attack and destroy cancer cells. He published fifteen papers on his chemotherapy research. In 1949, he became a Fellow of the New York Surgical Society and in 1950, a Fellow of the International College of Surgeons.

Throughout his career, Dr. Wright carried on a relentless fight against racial discrimination, especially in the medical profession. He was chairman of the board of directors of the NAACP and was responsible for establishing the organization's National Medical Committee. He wrote an article for The Crisis in 1935 in which he challenged the statement that blacks had more syphilis, more tuberculosis, and more cancer than whites. In 1940 he was awarded the Spingarn Medal for his contribution to medical science and his life long fight for racial equality.

Frederick McKinley Jones

Inventor 1892-1961

Frederick McKinley Jones was born in Cincinnati, Ohio. Orphaned at nine years old, he went to live in a foster home in Kentucky. He received only four months of formal education, and thereafter educated himself through the study of books on engineering, mechanics, and related subjects. His ambition was to become a first class mechanic.

His first opportunity to utilize his mechanical ability came when he took a job as a helper in a Cincinnati garage. While working there he designed, built and drove several high powered racing cars. After three years he became foreman of the shop. In 1912 Jones moves to Hallock, Minnesota and secured employment on a farm where he was placed in charge of the tractors and other farm machinery. He continued to build racing cars and participated in dirt-track racing until 1925.

Jones later shifted his interest to the construction of radio sets, and sold many of them to local residents. Through his efforts the town's first radio station was established. He also developed a device which made it possible for Hallock's movie theater to convert from silent films to films with sound. At that time, the sound was on separate records which were synchronized with the film track. Jones invented a simple and inexpensive device for converting silent films projectors to sound-on-film projectors. His invention proved to be just as efficient as the more elaborate sound equipment which cost thousands of dollars.

In 1930 Jones became an engineer with the firm of Cinema Supplies of Minneapolis. For this company he developed a method of transferring sound from turntables to soundtracks in motion picture projection. His system was eventually employed in motion picture theaters in many mid-western cities including Chicago. In 1939 he patented a machine for movie box-offices designed to dispense tickets

and change.

Jones helped to organize U.S. Thermo King Corporation of Minneapolis, a company which manufactured refrigeration equipment. He was vice-president of engineering and served in that capacity until his death. The company's original product was an automatic refrigeration unit powered by a gasoline engine for use on motor trucks. Jones developed this system in response to a request by a local trucking firm for a means to prevent the spoilage of food in transit. One of the first to work on transport refrigeration, Jones received patent No. 2,475,841 for his refrigerated truck on July 12, 1949. On that same day he secured patents for a starter generator and a system operated by a starter generator for cooling a gas engine. He adapted his equipment to ships and received a patent for his refrigerated boxcar in 1954. In 1957 he patented a method for preserving perishables on a refrigerated boxcar. Other applications of his method included the transport of specialized fuels for rockets and guided missiles.

During World War I Jones served in France as an electrician in the wiring of camps and as an instructor in electricity. He designed equipment used by the armed forces during the Second World War, utilizing units manufactured by his company. His equipment preserved food and medicine and also provided air conditioning for a field hospital in the South Pacific. His design became the standard for all Army and Marine field kitchen refrigerators.

Recognized as a leader in his field, Jones was a member of the American Society of Refrigerating Engineers and held over 40 patents on refrigeration equipment. Like other inventors, he was spurred by necessity to develop devices to minimize daily toil, conserve energy and resources and increase productivity. His contributions enhanced the efficiency of the industry of which he was a part and won him a place among the ranks of hundreds of other hidden contributors to the inventive genius of America.

Concert Artist 1887- Roland Hayes

Roland Hayes, the son of tenant farmers, was born in Curryville, Georgia on June 3, 1887. His father died when he was twelve, so he spent most of his boyhood days working on the farm to help his mother support the family. Occasionally he attended the poor country school provided for black children. When he was about fifteen years old it was agreed that he and his brothers would go to Chattanooga, Tennessee to work and attend school. Roland found a job in a machine shop, and because the family needed the money so desperately, he decided that he would not give up his job when the time came to go to school.

Although he sang while he worked, and recognized his own talent, no one paid much attention to his voice. He met a young man who was studying music at Oberlin College who took an interest in him and wanted to give him lessons. Roland was reluctant to accept the offer and his mother was adamantly opposed to the idea. Neither of them had been exposed to black musicians other than vaudeville performers. This was not the kind of life Mrs. Hayes wanted for her son. One day Roland went with his friend to a home where he was privileged to hear a recording of Caruso. This proved to be the turning point for him - he had heard good music and decided that he, too, would become a singer.

Despite his mother's objections, he made up his mind to go to Oberlin. His meager funds soon ran out and he found himself stranded in Nashville. He did not give up, however. Instead, he enrolled in the preparatory department of Fisk University; for in spite of his age, he had not gone beyond the sixth grade. He remained there for four years and supported himself by doing housework and singing for local organizations.

In 1911, he went to Boston to do a concert with the Fisk Jubilee Singers. After the tour was over, he decided to remain in Boston. He took a job as a messenger while completing his musical training under the guidance of Arthur J. Hubbard. By 1917, his fine tenor voice was ready for the concert stage. Acting as his own manager, he sent out 2,000 letters to Boston citizens asking them to become subscribers for a concert he was planning. Within a month he had raised enough money to rent Boston Symphony Hall. His recital was sensational and received excellent reviews from music critics, but little attention from the American public. He was inspired, however, to

travel. He continued to give concerts wherever he could and saved enough money to go to Europe.

Hayes went to London in 1921, and shortly after arriving, was commanded to give a performance at Buckingham Palace for King George V and Queen Mary. This established him in the music world, and from then on he enjoyed repeated success in Paris, Vienna, and throughout the Continent. His repertoire included spirituals, German Lieder, and French, Italian, and English folk songs.

When he returned to the United States in 1922, those who had previously rejected him now awaited him with open arms. He returned to Boston and gave a recital at Symphony Hall where he made his debut. Critics acclaimed him as the greatest tenor of the era. From then on his career was a succession of concert tours. He sang with symphony orchestras in Paris, Amsterdam, Vienna, and Berlin, and with the Boston, Philadelphia, Detroit, and New York Symphonies. In 1925, he gave a command performance before Queen Mother Maria Christina of Spain.

Hayes continued his vocal studies long after he had achieved fame so that he could give of his best to the music world. At the age of seventy, he was still making concert and lecture tours and recordings. In 1962 he was honored by dignitaries in London, Rome, and New York on the occasion of his 75th birthday. Throughout his life he has been guided by his "Purpose" -- the creation of beauty and the encouragement of his race to create all the beauty in its power.

APPENDIX I

Determining Inference Exercises

DETERMINING INFERENCE

So far in this book you have tried to find the main idea of each reading. You have also read to understand and recall exact details. Now you will learn another skill: reading for inferences. It's a slightly higher level skill than the other two, or perhaps we should say "lower," since you must read **BENEATH** the surface.

An inference is an idea that the speakers or writers do not state openly, but intend you to understand anyway. Through their words, they **IMPLY** (or suggest) something. From their words, you **INFER** something (or draw a conclusion). Sometimes the inference is obvious. In fact, the act of speaking or writing seldom avoids inference completely. Very seldom are we presented with surface facts only; almost automatically, we look behind, under, or ahead of the simple facts. We practice inference constantly in our daily lives. The healthy human mind cannot exist without making inferences from facts and evidence.

For example, the factual statement, "There's the bus" usually implies something. Perhaps you must hurry to gather up your belongings and take out the exact change. Perhaps, if you have waited on the bus for over an hour, the words "At last!" are implied. Or the chance that you may make your dental appointment after all may be implied.

Actually, the first reading skill - finding the main idea - may have already involved you in some inferring. If the writers have not clearly stated their main idea in so many words, so that you have had to find a single overall topic for a cluster of details, you have practiced inference.

Seeing implications or inferences might be called "reading between the lines." But be careful not to read too much into the words. If Sandra says to Steve, "There's the bus," and he answers, "Do you think I'm blind?" or "Why don't you want to talk with me?" he may be guilty of inferring too much from the evidence of her simple statement. (Of course, if he has met Sandra before, his inference may be based on a lot of good solid evidence!)

Inferences can be extremely simple, drawn from simple facts. For instance, common sense tells us that "Dogs barking all night" implies "Many sleepless neighbors," which leads to "Many irate neighbors," which can logically lead to phone calls, letters to the editor, and perhaps police action.

At other times, inference can require close careful reading and examination of all the evidence. Examples of subtle inference might be found in a political speech, a housing contract, the text of a new law, or the entire style, setting, and character development of a novel.

Whether a simple or complex task, the ability to draw inferences is based first on a correct literal comprehension of the words, and second on the careful interpretation of the literal meaning. The trained reader does not immediately leap to "Well. My opinion has always been that . . .," or "My imagination is really taking off from here," without first determining: "This is what the author INTENDED for me to infer."

Follow these steps cautiously in the following descriptive narrative:

In the living room, the grandmother sat in her usual chair. She looked down at her lap while one hand absently stroked the other. The mother pressed the drip-dry men's shirts, one after the other and hung them on hangers. Every few minutes she glanced at the wall clock, with a worried twitch of her eyebrows. Davey, the 10-year-old, ran into the room and turned on the television. But the mother pushed past him, snapped it off, and gritted between her teeth, "You can't have that boob tube on tonight!" He opened his mouth in surprise, then turned, and ran out slamming the door. Once again, the iron thumped, the shirt hangers clanked. To the two women, the hands of the clock seemed to be paralyzed.

1. What is the main idea or topic of this paragraph?
2. What are some of the stated details, and how are they organized?
3. What are some of the simple unstated facts?
Example: The wearer of the shirts - the father? - is not home.
4. What deeper inferences can you make about this situation?

ANSWERS

1. The MAIN IDEA seems to be the setting of a mood in a scene. Here, the mood is one of nervous waiting by two women.
2. STATED DETAILS: Three people are mentioned: a mother who is ironing silently, a grandmother who is sitting silently, and a 10-year-old who is not allowed to watch his usual TV program. The mother watches the clock anxiously. And so on. (The details are arranged in a chronological time sequence.)
3. UNSTATED DETAILS: The two women share the same feeling of anxiety. The mother seems irritated by the 10-year-old's behavior. He must usually watch TV since he seems surprised at being scolded.
4. DEEPER INFERENCES: Someone - the father? - is late coming home. Something is about to happen, which the women know about and expect but the 10-year-old doesn't. Tension is expressed.

APPENDIX J

SQ3R Method of Study Exercises

SQ3R/How the Pros Study-Read

1. Survey-Question
2. Read
3. Recite
4. Review

The two readings in this Lesson are different from others in this book in two ways: they are not timed, and they are to be “studied.” That is, they were chosen to give you practice in a proven method of studying a textbook: “SQ3R.”

Most untrained students begin a reading assignment in a textbook “cold.” By that we mean they begin reading the first word of the unit and continue passively, until they reach the last word-- with no system. Without questioning, without much interest. Result: they often end without any idea of what they read! So they re-read. Or they go back and-- again passively-- mark nearly everything. (We have all seen these “yellow pages”; every line has been highlighted.) And still they can’t recite the content in any organized way. Usually they complain, “I just can’t get into this subject,” or “I study but I can’t remember any of it.”

If this sounds like you, then try the SQ3R method. It forces you to study actively, to test yourself, to “recite” the material immediately in your own words. Why recite? Because you haven’t learned anything unless you can tell it to yourself, or to others, in your own words.

Much of what you practiced in Lessons 2 and 3 (Finding the Main Idea) and Lessons 4 and 5 (Retaining Details) will be useful in the SQ3R method of study-reading. The first step-- SQ for Survey-Question-- will bring to light the topic and the main ideas. The second Step-- R for Read-- will reinforce those main ideas and fill in the supporting details. Later in the book, in Lessons 8 and 9, you may notice that the skill of “skimming” is similar to the Survey step here. However, the SQ3R method asks you to skim more systematically and extensively.

Before you begin any study-reading, set your goals. Select a study unit that you know you can *read and absorb* in the time available. A unit should be any clearly marked section of your book, such as one chapter or the pages between two large headings. You must allow time to “recite,” or test yourself, in this study period. (If you have no goal, you are not ready for SQ3R or any other method of study-reading. Take a break, and try again later!)

Now for SQ3R itself. Learn the steps, and practice them on the two readings in this Lesson. But you will be a pro-- a professional student-- only if you learn to use the method with your other course work. Naturally, you should use common sense in adapting it to fit various fields and kinds of textbooks. What does the SQ3R method consist of? There are four steps.

Step 1. S=Survey
Q=Question

Some experts call this first step pre-reading, preview, or overview. Whatever you call it, it means to read selectively, to think, to question, to arouse your mind and make it receptive. Follow the author's method of writing and "start with the large" before you "fill in the small." Consider carefully the table of contents, the title or chapter heading, the author, source, illustrations, sub-headings, any system of print or numbering used by the writer. Then read every word of the introduction or first paragraph. Read the first one or two sentences of every following section or paragraph. Read every word of the summary or last paragraph.

Then stop to think. In 70 to 90 percent of typical informative prose, as in an article or textbook, you will now know all of the general content: the writer's topic, main idea, and important supporting ideas. Do you also know many details? If you do, you were not selective enough! Don't read details until later.

While you are Surveying, Question. Typical questions for a learning unit would be: What does the title or topic mean? How many subdivisions are there? How do these develop the writer's main idea? How much of this do I know already? How does this knowledge fit into the course? Into my life? At the very least, turn the title and subheadings themselves into questions. If you wish, you can write these down on notebook paper as first-stage general notes. But leave room for important details which you will fill in from memory.

Step 2. R=Read

Now go back to the beginning of your learning unit again. Read every word this time, carefully—from the title or section heading to the end. You are now reading and thinking about the main ideas, the framework, for the second time. (Most of us need this reinforcement.) And you are also reading the details and filling in the framework. But try always to keep the two levels of information separate in your head. If you wish, take notes, but do not look at the reading when you do. Remember, passively marking and copying a textbook makes you think you are learning when you aren't.

Step 3. R=Recite

How you recite depends on the subject matter, your needs, and your study abilities. (Let's hope you don't leave this step until you are asked to recite on a final exam.) You can mentally go over what you have read—that is, you can recite to yourself. You can tell someone else. You may have to take a quiz immediately, as you do in this book—that is, you recite in the comprehension questions. In most cases, you will recite by taking notes. If you do take notes, be sure to

1. avoid looking at the textbook—write down the ideas in your own words;
2. show graphically, by indenting or diagramming, the difference between "umbrella" or general ideas and the supporting details.

Exercise 71/Long Reading

APPLY THE SQ3R METHOD TO THE NEXT LONG READING.

Step 1. S-Q = SURVEY-QUESTION

Survey the title, author, and subheadings. What questions do they raise? What is the topic of the article? _____

Survey the four subheadings again and copy them in the space below. Then read the first sentence or two following each subheading. Finally, read all of the closing sentence. What further questions are raised in your mind as you Survey?

Now think over the main points and the organization of the article. What kind of pattern do the four subheadings make? How do they explain the topic of the article? From your Survey, and without referring to the article, write a brief summary of the contents (3 to 4 sentences). _____

Step 2. R = READ

Now go back to the reading selection and read as directed.

Exercise 71/Long Reading

length: 585

Study-read the following selection carefully, using the SQ3R method. Wait for a signal from your instructor before you begin reading.

WHAT IS A BLACK HOLE?
ISAAC ASIMOV

Ordinary Stars

- [1] To understand what a black hole is, let's begin with an ordinary star like our sun. The sun is 866,000 miles in diameter and has 330,000 times as much mass as the earth. Allowing for that mass and the distance from its surface to its center, anything on the surface of the

sun would be subjected to a tremendous gravitational pull. That pull would be roughly 28 times greater than the earth's surface gravity.

- [2] The sun, like ordinary stars, keeps its usual size. It does this through the balance between an enormously high central temperature, which tends to expand the sun's substance, and through the enormous gravitational pull, which tends to contract it and pull it together.

White Dwarfs

- [3] At some stage in the lifetime of the ordinary star, its internal temperature may fall. Then the gravitational pull takes over. The star begins to collapse and in the process the atomic structure within it breaks down. In place of atoms, there are individual electrons, protons, and neutrons. The star collapses to the point where the electrons repulse each other, thus preventing any further collapse.
- [4] The star is then a "white dwarf." A star like our sun, if it collapsed to a white dwarf, would squeeze all its mass into a smaller sphere. It would have a diameter of only 10,000 miles. Its surface gravity would be much greater than now, since it is subjected to the same amount of mass but at a distance much closer to the center of the sun. The surface gravity would be 210,000 times that of the earth.

Neutron Star

- [5] Under certain conditions, the gravitational pull becomes too strong for even the electron-repulsion to resist it. The star contracts again. Electrons and protons are forced to combine to form neutrons. The star shrinks to the point where all the neutrons are in contact with each other. The neutron structure then resists further contraction, and we have a "neutron star." Such a star could contain all the mass of our sun in a small sphere only 10 miles across. Its surface gravity would then be 240 billion times that of the earth.

Black Hole

- [6] Under certain conditions, gravitation can overcome even the resistance of neutron structure. In that case, there is nothing further that can resist collapse. The star can shrink to zero volume, and the surface gravity can rise toward the infinite.
- [7] Based on Einstein's theory of relativity, light emitted by a star loses some energy as it rises against the star's gravitational field. The more intense the field, the greater the energy that is lost. This has been checked by observation in the heavens and in laboratory experiments.
- [8] The light emitted by an ordinary star like the sun loses very little energy. The light emitted by a white dwarf loses more. And the light

emitted by a neutron star loses still more. As the neutron star collapses further, there comes a point at which light rising from the surface loses *all* its energy. The light cannot escape from the surface of the star.

- [9] An object that is more compressed than a neutron star has the most intense gravitational field. Light, radio waves, or any element that approaches it is trapped by it and can never get out again. It is as though the trapped element had fallen into an infinitely deep hole and never stopped falling. What's more, as I've just explained, even light cannot escape from the surface. The compressed object appears black. This is why scientists call these objects "black holes."
- [10] Astronomers are now seeking for some evidence of the actual existence of black holes, here and there in the universe.

Total Reading Time _____

Step 3. R = RECITE

Immediately answer the questions below without referring to the selection.

- ① Choose the statement that best expresses the main idea.
 - (a) After an ordinary star has gone through the stages of white dwarf and neutron star, it may collapse into an object called a "black hole."
 - (b) Present theories explain how a black hole may turn into an ordinary star.
 - (c) A neutron star could contain all of our sun in a small sphere only ten miles in diameter.
 - (d) As a star collapses, the atoms within it begin to break down.
- △ 2. A planet like our earth could become a black hole in the distant future. T F
3. Our sun is an ordinary star at present. T F
4. Our sun keeps a steady size because its internal heat and its surface gravity balance each other out. T F
5. It is possible for the internal heat of an ordinary star to fail. T F
6. As a star begins to cool and shrink, its mass becomes denser and its surface gravity becomes stronger. T F
7. The compressed object is called a "black hole" because its intense gravity prevents light and radio waves from escaping. T F
8. Scientists have already pinpointed the location of several black holes in the universe. T F

Step 4. R = REVIEW

Check your answers with the key on the bottom of the next page. If any were wrong, review the article to find the correct answers.

Turn to the Rate Chart in the Appendix to get your words per minute for this selection. Finally, record your scores below and on the progress chart in the Appendix.

Words per Minute _____

% Comprehension _____

SCANNING PRACTICE

1. Gravity on the surface of the sun is now 28 times more than earth's. What would the surface gravity of the sun be if it collapsed to a white dwarf? _____
2. What happens to light waves that reach a black hole? _____

Note: The key to these extra scanning questions (and to those in the following Long Readings) is on the bottom of the next page. They need not be included in the comprehension score.

Percentage Chart for Comprehension Check

Errors	0	1	2	3	4	5	6	7	8
% Right	100	88	75	63	50	38	25	13	0

APPLY THE SQ3R METHOD TO THE NEXT LONG READING!

Step 1. S-Q = SURVEY-QUESTION

Survey the title, author, and subheadings. What questions do they raise? What is the topic of the article? _____

Survey the subheadings again and copy them below. Then read all of the introduction, the first sentence or two of each paragraph, and all of the last paragraph in the article. Be sure not to read any other material. What further questions are raised in your mind as you Survey?

Now think over the main points and the organization of the article. From your

Survey, and without referring to the article, write a brief summary of the contents (3 to 4 sentences). _____

Step 2. R = READ

Now go back to the reading selection and read as directed.

Exercise 7J/Long Reading

length: 1202

Study-read the following selection carefully, using the SQ3R method. Wait for a signal from your instructor before you begin reading.

THE DAY THE DAM BURST
DIETRICK E. THOMSEN

- [1] What do eastern Washington and northern Mars have in common?
Evidence of super-colossal flooding!

Introduction

- [2] Geology used to be a narrow science. While physicists and chemists were proposing laws that applied to distant stars as well as to our planet earth, geologists studied only the rocks and soil of the earth. Now geology is branching out. Space probes and manned space visits have brought the moon and other planets within reach. As a result, scientists are beginning to study the geology of these other planets.
- [3] Geologists are finding that there are both similarities and differences between the earth and the other planets. Not only do they compare planets, but they also use the history of one planet to help explain the history of another. One example of this new process is the comparison now being made between a unique feature of the earth's geology, the so-called "Channeled Scablands" of eastern Washington, and certain features of the planet Mars. On Mars these prominent features are called "valles."

The "Channeled Scablands" of Washington

- [4] The Scablands occupy about 15,000 square miles of the state. They are a region of bare black rock cut up with channels, rock basins, and old cascade ledges. The land shows giant ripple marks and ragged buttes. Immense gravel bars are present.
- [5] In the early 1920's, J. Harlen Bretz, a geologist at the University of Chicago, gave the Scablands their name. He suggested that their unusual appearance—which looks like the giant effects of violent erosion—resulted from a stupendous flood that occurred about

20,000 years ago. In the years since Bretz made his suggestion, there was much argument over it. Not all scientists agreed with his theory. But now, a photo taken by an earth satellite has confirmed the flow patterns he thought existed in the Scablands. The photo is such good testimony that U. S. Geological Survey has put out a press release and a pamphlet for the public to read, which takes Bretz' explanation for granted.

The Spokane Flood

- [6] Of course, the flood occurred long before there was a city of Spokane, or a Washington state. However, it is usually called "The Spokane Flood." It was possibly the greatest flood the world has ever seen. It did not rise slowly from the rain-soaked earth, as did the Biblical deluge that floated Noah's Ark. Rather, it was a flashflood of super-colossal size. In just two days it drained an ancient lake that covered 3,000 square miles of what is now Montana.
- [7] What caused the giant prehistoric flood?
- [8] Before the flood, the Scablands had been a basin or valley with a floor of rock. The basin is tipped or tilted, running from high in the northeast to low in the southwest. It slopes at the rate of about 25 feet per mile.
- [9] About 100,000 years ago, during one of the glacial periods, the continental ice sheet extended solidly to a point just north of the Scablands basin. Tongues of ice reached out from the sheet into valleys south of the main ice front. They dammed up rivers and made glacial lakes. The biggest and most important ice dam blocked the Clark Fork River until it made the ancient lake in Montana. The lake is called "Lake Missoula" because the site of the present-day town would have been 950 feet under its waters.
- [10] The water rose and rose behind this large ice dam until the surface came to 4,125 feet above sea level, or a depth of 2,000 feet at the dam. This is twice the maximum depth of Lake Superior. The ancient lake contained an estimated 500 cubic miles of water, or about half the volume of present-day Lake Michigan. Finally the water reached the top of the ice dam and began to flow over it. Running water erodes ice very quickly. So once the water had cut a sizable channel in the ice, the dam suddenly gave way.
- [11] The water burst out in a gigantic surge. The maximum rate of flow is estimated at 9.5 cubic miles per hour. This is ten times the combined flow of all the present-day rivers of the world! The water went past at 60 times the rate of the Amazon river. The water rushed in several stupendous streams across the great basin, now called the Scablands. It created the giant erosion features that are seen there — huge ripples, rock pools, dry waterfalls. The flood probably came across the basin in a series of surges. The crest, or greatest depth, may have lasted at

most for a day or two at most points. On its way to the ocean, the water made a couple of temporary lakes as it caused rivers to back up. Then it finally reached the sea.

[12] Did any humans see this fantastic flood?

[13] So far, the earliest traces of man in the region go back only to 10,000 years ago, or 8,000 B.C. This is many thousands of years after the flood. But 8,000 B.C. is by no means the earliest date for humans on the North American continent. So it is still possible that human beings did witness the flood. If they did, they would have had to be lucky enough to be standing on the safety of a mountain top in the Bitterroot range.

Similar Flooding on Mars?

- [14] Events similar to the Spokane Flood are now proposed to have taken place on Mars. In an issue of *Icarus*, two scientists, Victor R. Baker of the University of Texas and Daniel J. Milton of the U. S. Geological Survey, argue this point. They feel that gigantic floods occurred in the history of the Martian "valles" called Kasei, Ares, Tiu, Simud and Mangala.
- [15] Their reasoning is based on photos of the Martian channels taken by Mariner 9 from orbit around Mars. These photos look very similar to the ones of the Scablands by earth satellites. The scientists agree that some of the Martian features, when looked at separately, could be the result of wind erosion. But taken together, the photos look strangely like the Scablands.
- [16] If glacial damming and river water caused the Washington flood, what caused the erosion marks on Mars? There is little or no water on Mars now. But that does not necessarily mean that there never was any water. Nor does it mean that there had to be a Martian atmosphere in which it rained for thousands or millions of years. The water could have come from the inside of the planet, just as the earth's water originally did, and it could have lasted on the surface only a short time. The "valles" in question all run generally north from the equator.
- [17] Two questions remain to be answered. Were the valles scoured simultaneously by a single outburst, as in Washington? Or was flooding in any single channel a single or repeated event?
- [18] Baker and Milton answer the question this way. "Scabland-type erosion takes place when very deep swift water acts upon closely jointed bedrock. If the comparison to the Channeled Scablands is correct, we can also describe what happened on Mars. Floods involving water discharges of millions of cubic meters per second, but perhaps lasting no more than a few days, have occurred on Mars."

Total Reading Time _____

Step 3. R=RECITE

Immediately answer the questions below without referring to the selection.

- ① Choose the statement that best expresses the main idea.
 - (a) No one knows what caused the gigantic erosion on Mars and in Washington state.
 - (b) Scientists have proved beyond a doubt that the "valles" on Mars were caused by gigantic flooding.
 - (c) Satellite photos of both the Scablands and Mars indicate that both areas may have had massive floods in the past.
 - (d) Human beings may have watched the "Spokane Flood" that created the Scablands.
- △ 2. We know more at present about the ancient flood in Washington than we do about the seemingly flooded area on Mars. T F
3. Through space exploration, geologists are able to study the geology of other planets as well as that of the earth. T F
4. The Scablands are unique; it is the only area of its kind on earth. T F
5. Both Washington and Mars show evidence of erosion caused by solid ice. T F
6. The "Spokane Flood" occurred about one million years ago. T F
- △ 7. We have found traces of man in the Spokane region dating from 8,000 B.C. This proves that
 - (a) man first arrived there at that date.
 - (b) the region was heavily populated.
 - (c) the first "Americans" were Indians.
 - (d) humans were living there 10,000 years ago.
8. The scientists Baker and Milton insist that no flooding could have occurred on Mars. T F

Step 4. R=REVIEW

Check your answers with the key on the bottom of the next page. If any are wrong, review the article to find the correct answers. Turn to the Rate Chart in the Appendix to get your words per minute for this selection. Finally, record your scores below and on the progress chart in the Appendix.

Words per Minute _____

% Comprehension _____

Step 2. R = Read

Read to answer the questions raised above, from beginning to end of the unit. Stop occasionally to think and mentally organize.

Step 3. R = Recite

In the following spaces, take notes (preferably in a rough outline form) on what you have read, without referring to the text.

Step 4. R = Review

Review the learning unit to check your notes. Add, stress, or change items if needed. If you wish, also mark in your textbook those portions that now seem especially important.

APPENDIX K

"Pivotal Words"

The Pivotal Words Way

No words are so helpful while reading as the prepositions and conjunctions that guide your mind along the pathways of the author's ideas. A word like *furthermore* says, "Keep going!" *However* says, "Easy!" Master these words and phrases and you will almost immediately become a better reader, for they will whisper directions in your inner ear.

Additive words. These say, "Here's more of the same coming up. It's just as important as what we have already said."

also	further	moreover
and	furthermore	too
besides	in addition	

Equivalent words. They say, "It does what I have just said, but it does this too."

as well as	at the same time	similarly
equally important	likewise	

Amplification words. The author is saying, "I want to be sure that you understand my idea; so here's a specific instance."

for example (e.g.)	specifically	as
for instance	such as	like

Alternative words. These point up, "Sometimes there is a choice; other times there isn't."

either/or	other than
neither/nor	otherwise

Repetitive words. They say, "I said it once, but I'm going to say it again in case you missed it the first time."

again	in other words
to repeat	that is (i.e.)

Contrast and change words. "So far I've given you only one side of the story; now let's take a look at the other side."

but	on the contrary	still
conversely	on the other hand	though
despite	instead of	yet
however	rather than	regardless
nevertheless	even though	whereas
in spite of	notwithstanding	

Cause and effect words. "All this has happened; now I'll tell you why."

accordingly	since	then
because	so	thus
consequently	hence	therefore
for this reason		

Qualifying words. These say, "Here is what we can expect. These are the conditions we are working under."

if	although	unless
providing	whenever	

Concession words. They say, "Okay! We agree on this much."

accepting the data	granted that	of course
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Emphasizing words. They say, "Wake up and take notice!"

above all	more important	indeed
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Order words. The author is saying, "You keep your mind on reading; I'll keep the numbers straight."

finally	second	then
first	next	last

Time words. "Let's keep the record straight on who said what and especially when."

afterwards	meanwhile	now
before	subsequently	presently
formerly	ultimately	previously
later		

Summarizing words. These say, "We've said many things so far. Let's stop here and pull them together."

for these reasons	in brief
in conclusion	to sum up

APPENDIX L

Reading for Organization

EXERCISE 43 - READING FOR ORGANIZATION

DIRECTIONS -- Read each paragraph carefully. Try to identify the main topic and the subtopics. Then fill in the outline blank. The topics are listed at the right in haphazard order.

PARAGRAPH 1.

The food provided for the prisoners was simple but wholesome. The morning meal consisted of thick gruel of ground corn. Since there were enough cattle, some were killed each week. Then the meat was roasted before an open fire or made into a stew with vegetables. At some seasons, they were given the wild fruits they loved.

OutlineHaphazard List

- | | |
|----------|---------------------------|
| 1. _____ | Gruel |
| a. _____ | Wild fruits in season |
| b. _____ | Roast beef |
| c. _____ | The food of the prisoners |
| d. _____ | Stew with vegetables |

PARAGRAPH 2.

A pleasant voice is essential for anyone wishing to become a radio announcer. But this is not the only requirement. The successful announcer needs dignity, confidence, and initiative. He needs also good judgement and a sense of humor.

OutlineHaphazard List

- | | |
|----------|---|
| 1. _____ | Good judgement |
| a. _____ | Sense of humor |
| b. _____ | Pleasant voice |
| c. _____ | Dignity |
| d. _____ | Requirements of successful
radio announcer |
| e. _____ | Poise |
| f. _____ | Initiative |

PARAGRAPH 3

The Swiss Government recognizes three official languages: French, German, and Italian. Another language, Romansch, combines these with a little Latin. But English is widely used and usually understood if it is spoken slowly, distinctly, and without slang.

<u>Outline</u>	<u>Haphazard List</u>
1. _____	English
a. _____	Romansch
1) _____	Languages used in Switzerland
2) _____	Officially recognized languages
3) _____	French
b. _____	German
c. _____	Italian

PARAGRAPH 4

It was a library. High pieces of furniture of black-violet ebony inlaid with brass supported on their shelves a great number of books uniformly bound. Light movable desks allowed one to rest one's book while reading. In the center stood an immense table covered with pamphlets. Electric light flooded everything.⁷

<u>Outline</u>	<u>Haphazard List</u>
1. _____	Bookshelves with many books
a. _____	Movable desks
b. _____	Table with pamphlets
c. _____	The library
d. _____	Electric lighting

PARAGRAPH 5

There are four kinds of poisonous snakes in the United States. Pit vipers are the rattlesnakes, copperheads and cottonmouth

⁷ Jules Verne, Twenty Thousand Leagues Under the Sea, New York: Boston Books, Inc., 1869, p. 65.

moccasins. The pit viper is so named for the pit on each side of the head between the eye and the nostril. The fourth poisonous reptile is the coral snale.

OutlineHaphazard List

- | | |
|----------|------------------------------|
| 1. _____ | Rattlesnakes |
| a. _____ | Coral snakes |
| 1) _____ | Pit vipers |
| 2) _____ | Poisonous snakes of the U.S. |
| 3) _____ | Cottonmouth moccasins |
| b. _____ | Copperheads |

PARAGRAPH 6

The passengers on the "Radnor" corresponded with her freight. In her cabin were Santa Fe traders, gamblers, speculators and adventurers of various descriptions, and her steerage was crowded with Oregon emigrants, "mountain men," and a party of Kansas Indians, who had been on a visit to St. Louis.⁸

OutlineHaphazard List

- | | |
|----------|-----------------------------|
| 1. _____ | Santa Fe traders |
| a. _____ | Kansas Indians |
| 1) _____ | Steerage passengers |
| 2) _____ | Cabin passengers |
| 3) _____ | Oregon emigrants |
| 4) _____ | "Mountain men" |
| b. _____ | Passengers on the "Radnour" |
| 1) _____ | Speculators |
| 2) _____ | Adventurers |
| 3) _____ | Gamblers |

⁸ Francis Parkman, The Oregon Trail, New York: Boston Books, Inc., 1849, pp. 1-2.

PARAGRAPH 7

Every crime has a victim, and the experienced and successful confidence man looks for "likely" victims. He looks for persons willing to gamble spare money on the chance of "getting something for nothing." Old age or infirmity are a special advantage; the victim is less likely to live long enough to be a prosecuting witness.⁹

OutlineHaphazard List

- | | |
|----------|----------------------------------|
| 1. _____ | Persons willing to gamble |
| a. _____ | Aged and infirm persons |
| b. _____ | Likely victims of confidence men |

PARAGRAPH 8

Of all parts of the world of the same latitude, Europe enjoys the coolest summers, the warmest winters. The climate is profoundly affected by the Gulf Stream drift. It gives Liverpool a milder climate than that of Washington, a thousand miles farther south, and keeps the harbors of Norway ice-free. The westerly winds bring abundant rains to most regions, and, as a result, Europe is the only continent without extensive deserts.¹⁰

OutlineHaphazard List

- | | |
|----------|----------------------------|
| 1. _____ | Rainfall: usually abundant |
| a. _____ | Temperatures: mild |
| b. _____ | The climate of Europe |

PARAGRAPH 9

Putting your trust in a ladder depends, for the most part, on following certain safety rules. First, make sure that the ladder has no broken or cracked parts. Then, set the ladder firmly in place so that it won't slip or shift under your weight. Firemen and others who climb ladders every day know the importance of using both hands when they climb: it's safer, surer, faster. So face the ladder and use both hands. Finally, when you have finished using the ladder, put it in a special rack or store it out of the way.¹¹

⁹E. and F. Mead, Man Among Men, Englewood Cliffs, NJ, Prentice-Hall, Inc., 1965, p. 198.

¹⁰Authority: Hutton Webster, Modern European History, Boston: D.C. Heath & Co., 1925, p. 2.

¹¹Safety Tips for Young Workers, Washington, DC: U.S. Government Printing Office, 1965.

Outline

1. _____
- a. _____
- b. _____
- c. _____
- d. _____

Haphazard List

- Check for unsound parts
- Safety rules for using ladders
- Store the ladder away after use
- Set the ladder firmly
- Face the ladder and use both hands

PARAGRAPH 10

Why do married women work? The reasons are many and by no means the same for all. Some women work because of financial need; the husband may be disabled. Where there is no such need, the wife's earnings may still help the family to raise the standard of living. Some women work because household duties bore them, or because of a strong desire for adult associates. Others work because they want to make use of their education and training.¹²

Outline

1. _____
- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

Haphazard List

- Boredom with household duties
- Desire for adult associates
- Desire to use education and training
- Financial need
- Desire to raise the family standard of living
- Reasons why married women work

¹²G. F. J. Lehner and E. Kube, The Dynamics of Personal Adjustment, 2nd ed., p. 285.