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Description of a University Developmental Reading Center

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DESCRIPTION OF A UNIVERSITY DEVELOPMENTAL

READING CENTER

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PREFACE

The general scope of this descriptive study is to describe a single university developmental reading center. The reading center is located at Creighton University in Omaha, Nebraska. This university has approximately 4800 students enrolled in the College of Arts and Sciences. It is a four year accredited university. In addition to the College of Arts and Sciences, it has students enrolled in health science professional schools of Medicine, Dentistry, Pharmacy and Nursing. In addition to these schools are the schools of Law and Business.

The students enrolled in the Arts and Science division are primarily pre-health science or pre-law students. The reading program for this described setting must necessarily have as its aim the total spectrum of mature reading skills.

The study also supports the rationale for a reading center to be able to encompass a developmental program as well as a competency program in reading.

The objectives of the reading program as stated in the description are applicable to this university. All or part of these could serve as a base for other similar university developmental endeavors.

This program, as described, developed from the motivation and initiative of students to improve their reading skills.

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Chapter I

INTRODUCTION

The Developmental Reading Center was created to pro-
vide training necessary to cope with college reading require-
ments. The center is a response to the concerns of students,
instructors, and admission committees. Instructors stated
that many students enrolled in their courses could not read
effectively. The Admissions Committee in the Pre-Health
Science Division also documented that student performance
on the pre-professional examinations was below the national
average on the verbal section of the professional school
examinations. Students themselves, representing all class
levels of the university, asked how they could improve their
rate of reading, their retention of materials read, and en-
rich their vocabulary.

In 1974 a reading center was established to provide
an individualized approach for the development of reading
skills. For three years the center has offered regularly
scheduled classes, and individualized instruction upon in-
dependent requests and instructor referral.

While the center has been in operation, there appears
to be some confusion regarding the specific role of the
reading center: that is, the procedures used to refer stu-
dents, how their reading needs are to be assessed, how

instruction is to be initiated, and how evaluations are
to be processed. To reduce this confusion, avoid mis-
understandings, and increase the effectiveness of the cen-
ter, it is proposed to describe the functions of the cen-
ter, the objectives of the center, the curricular program,
the assessment program, the role of the staff members, and
the operational procedures of the center.

Statement of the Problem

The purpose of this study is to describe the objec-
tives, curricular programs, organization, assessment pro-
cedures, and administration of a University Developmental
Reading Center.

Importance of the Study

Reading instruction for college students receives
more attention now than in the past because of a number
of conditions. First, the increasing number of high school
graduates going to college has produced a more general need
for reading proficiency; second, the increasing demands on
adults to read effectively in order to adjust well and
happily in contemporary life have been recognized and have
led to a widespread interest in the improvement of reading
ability; and third, the rapidly expanding quantities of
written material required to be read in a multitude of pro-
fessions and jobs.

Students are realizing the need for effective rapid reading as they find themselves in larger college classes. In addition, the demand on reading ability made by college textbooks is greater than those of textbooks used in high school, especially in vocabulary. Phillip Shaw and Agatha Thompson point to the relatively greater difficulty of college textbooks and emphasize the difference between high school and college teaching methods as factors contributing to reading problems experienced by many college students:

> At the outset, the student reacts quite logically and correctly to the rise in reading difficulty of the college text as contrasted with the high school text. In the second place, he reacts to a real difference between high school and college teaching. Not only is he faced with a more difficult reading task, but he is expected to deal with it more independently.[1]

The presence of reading disabilities has become more conspicuous as enrollments in college have increased. The problem associated with difficult textbooks and the need for greater independence in studying on the part of the college student, as compared with the pupil in high school, has long been recognized.[2]

Few colleges have assumed responsibility for reading instruction as a developmental process; yet this need, too,

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[1]Phillip B. Shaw and Agatha Townsend, "Diagnosis of College Reading Problems by Use of Textbooks," The Reading Teacher, 14:30 (September, 1960).

[2]Ibid., p. 30.

is increasingly recognized. Shaw and Townsend point to the

position of developmental reading at the college level:

> As a new field, developmental reading on the
> higher level is on the defensive. Efforts to
> indoctrinate educators to believe that every
> college freshman can improve his reading pro-
> ficiency have been frustrated by the misun-
> derstanding that this developmental educat-
> ing is the same as "remedial" help. Pro-
> grams of both types are vital.[3]

The larger numbers of students and the gradual pene-

tration of the developmental reading philosophy at the col-

lege level have both contributed to an increased interest

in the extension of reading instruction. The demands for

efficient, flexible reading are numerous and varied in pre-

sent-day life. In this technological age it is necessary

to read rapidly yet with full comprehension.

The popularity of "speed reading" courses for adults

has become more evident. But rapid reading is not enough.

The adult and the college student need to be able to adjust

reading rates to various kinds of reading materials and pur-

poses. Newspapers require one type of reading; scientific

journals another; and study-type reading requires yet another

type of skill. Professional journals, common in industry and

in the professions, require special reading skills in addi-

tion to the general reading abilities which many adults have

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[3]Ibid., p. 46.

acquired.[4]

Those concerned about reading for the college student and the adult need to look beyond the factors of increased college enrollment and greater reading demands on adults today. Although these two factors are important, they are related to changes in our society, in our educational system and attitudes, and in our concepts of the nature and function of reading.

Limitations of the Study

Since this is a case study of a single reading center, the study is limited to the single university setting of which it is a part. Hopefully, the recommendations and conclusions derived from this study will provide other interested students with generalizations for further testing and decision making.

Procedures of the Study

This study will concentrate on the objectives, curricular, assessment procedures, organization, and administration of the University Developmental Reading Center. Specifically, this study will:

1. document the literature relevant to a University Reading;

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[4]William S. Gray, "How Well Do Adults Read?" in David H. Clift (Chairman), Adult Reading, Fifty-fifth yearbook of the National Society for the Study of Education, Part II (Chicago: University of Chicago Press, 1956), pp. 29-56.

2. identify the objectives of a developmental reading center;

3. describe the 1973-76 curricula program designed to achieve the objectives;

4. describe the 1973-76 organization and administration of the center;

5. describe the processes of student evaluation;

6. review the documentation, objectives, curricular programs, assessment procedures, organization, and administration for their logical contingencies;

7. develop recommendations and conclusions for further changes and decision making.

In addition, the combination of methods and materials that result in reading growth of many individuals and groups of different ages, abilities, and backgrounds will be recognized.

Reading assessment will include all activities meant to gather data about pupils or programs as well as the data leading to a clear statement of the present functioning of pupils. For purposes of this study, the Nelson-Denny Reading Test, Forms C and D, and student assessments of the program will be described.

Definition of Terms

Developmental Reading Program. This program focused on the average and above average reader who wished to concentrate on improving rate and flexibility in reading and efficiency in vocabulary comprehension.

<u>Reading</u> <u>Rate</u>. This is a numerical expression indicating the average number of words in a unit of time. Reading rate is expressed in words per minute.

<u>Reading</u> <u>Comprehension</u>. The expression reading comprehension ranges in meaning from the relatively simple process of word perception to the complex mental processes of analysis and evaluation.

<u>Vocabulary</u>. The term "vocabulary" should be defined as the words which can be recognized and comprehended in written and printed materials.

<u>Organization</u> <u>of</u> <u>the</u> <u>Study</u>

The study will consist of four chapters as follows:

I.   Introduction, Statement of the Problem, and Importance of the Study

II. Review of Related Literature

III. Description of the Administration, Organization, Program, Objectives and Assessment

IV. Summary, Conclusions and Recommendations.

Chapter II

SURVEY OF RELATED LITERATURE

The concept of teaching reading to college students
and adults came into American education about forty years
ago. Prior to 1922, the literature did not report a suc-
cessful study in which a reading course had been included
in a college curriculum.

In the years that followed, the annual yearbook of
the National Reading Conference has described programs
used in college and adult reading programs. Most of these
articles have explained methods and materials used to
achieve student improvement in reading. Different factors
of reading have been measured at the initiation and com-
pletion of these programs. A number of studies were de-
signed to ascertain the retention of gains in reading.

Since 1929, when the first survey was made, college
reading programs have seemingly grown in number and size.
This growth seems to parallel the size in the number of
institutions, the growth of interest in college reading,
the development of professional organization, the expand-
ing acceptance of programs, and the increasingly larger
amounts of reading required of college students. The rise
in available materials, equipment, and tests for college
reading programs has been equal to the need, if not more so.

Administration and faculty support has been evident and
positive.

It is evident that some type of college reading
improvement programs has existed since before 1900. This
was far ahead of the invention of the pacer in 1930, the
development of the reading film in 1940, the mention of
controlled reading in 1938, and the founding of an organi-
zation for college reading in 1952.[5]

The research necessary to establish college read-
ing programs came originally from the classroom and labora-
tories of experimental and educational psychologists. The
actual teaching of such courses soon shifted, however, to
educators, English teachers, and the like, who were more
at ease with classroom management. These teachers of col-
lege reading courses borrowed some of the instruments found
in experimental psychology laboratories such as the
tachistoscope.

This beginning carried over to the phase of mass
instruction in developing student's reading skills. With-
out clearly understanding the values and limitations of the
ideas and instruments they had borrowed, educators carried

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[5]A.J. Loure, "Surveys of College Reading Improve-
ment Programs: 1929 - 1966," Junior College and Adult
Reading Programs - Expanding Fields, - ed. George B. Schick
Merrill M. May, Sixteenth Yearbook of the National Reading
Conference. (National Reading Conf: Milwaukee, Wisc.,
1967), pp. 69-71..

the college reading program into another phase. Training

in reading was extended to include drill in various read-

ing or study skills with intensive use of the common tools

of education as the workbook or text.[6]

Effective reading programs have been developed

under the aegis of departments of English, Education, and

Psychology or various student personnel services. In a

study by Huslin in 1975 there is still a wide range of de-

partment affiliations. Developmental reading instruction

was listed under twenty-one different departments with Edu-

cation, English and the Department of Reading as the de-

partments most often involved.[7]

From a report sent to college administrators col-

lected by Aukerman in 1974, several conclusions pertinent

to both college administrators and directors of College

Reading Programs is significant. College administra-

tors are committed to such programs and support their

continuance. They believe that the programs should be

financed by general funds, not by students who enroll in

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[6]Ralph C. Staiger, "Reading - An Innovation in the College Curriculum," What Colleges are Doing In Reading Improvement (Third Yearbook Southwest Reading Conference for Colleges and Universities. February, 1954), pp. 1-6.

[7]Ronald A. Huslin, "What's Happening in College and University Developmental Reading Programs; Report of a Recent Survey," Reading World Vol. XIV. No. 3, (March, 1975), p.206.

the program. Also they desire substantive data to show

effectiveness or weakness of the program as far as academic

gains for the students.[8]

It is important to understand the various skill com-

ponents of a university developmental reading program, there-

fore, in the survey of literature each of these skills will

be discussed in relation to a total program. The distinc-

tion between a developmental reading program and a compe-

tency based program is necessary so that the rationale for

establishing a developmental program will be understood.

The skill components of a developmental reading

program were researched through the literature. This is

relevant to the study in order to distinguish the concerns

and problems with respect to student reading problems.

Rate of Reading and Eye Movements

The training of the eye movements to improve read-

ing represents one of the major contentions in the field.

Numerous investigations to correlate the training of eye

movements to improvement in reading have resulted in

widely divergent conclusions. Research to determine the

relationships between the training of eye movements and

scholastic achievement, test scores, and intelligence

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[8]Robert C. Aukerman, "Viewpoints of the College
Reading Program from the Administrative Point of View,"
International Reading Assoc. Conference Proceedings,
(Vol 9, 1974), pp. 321-322.

has been in process for a number of years.

Tinker[9] concluded that eye movements are the re-
flection of the reader's performance and not the cause of
poor reading. Anderson[10] was in agreement with Tinker that
poor eye movements are not the cause but the symptoms of
reading disability. Eurich[11] found that eye movement records
are a fairly reliable indication of the reader's perfor-
mance, but he concluded that there is little relationship
between eye movement performance and both college grades
and scores on specific tests.

Rate of Reading as Related to Comprehension

Rate of reading is the unit of time used in re-
lation to the amount of material completed. Smith and
Dechant point out that no one actually reads faster than
their comprehension would permit. Generally the limiting
factor to rate improvement is the mind rather than the
vision.[12]

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[9]Miles Tinker, "The Study of Eye Movements in
Reading," Psychological Bulletin, 63 (March, 1946), 94.

[10]Irving H. Anderson, "Studies in Eye Movements of
Good and Poor Readers," Psychological Monographs, Vol. 48,
(1937), 9.

[11]Alvin C. Eurich, The Reading Ability of College
Students. (Minneapolis: The University of Minnesota Press,
1931), pp. 129-31.

[12]Henry P. Smith and Emerald Dechant, Psychology in
Teaching Reading (Englewood Cliffs, New Jersey: Prentice-
Hall, Inc. 1961), p. 222.

Early studies in reading were involved with this subject of rate of reading. Gray, in 1925, concluded this critical review:

> There is a positive correlation between speed and comprehension . . . and the correlation varies with such factors as the kind and difficulty of passages, the purposes in reading, and the measures of comprehension used in correlation studies.[13]

Tinker made an investigation with 600 University students in respect to rate as related to comprehension. He concluded that a high positive relationship exists between speed and comprehension when easy materials are read, but with more difficult materials, the relationship is lower.[14]

According to his conclusions, the type of reading material, the relative difficulty of the materials, and the type of response demanded on the test are the determining factors in the degree of relationship existing between speed and comprehension.

Learning to adjust rate of reading to the purpose of reading has relevance for this study. A number of reading experts have emphasized the significance of adjusting the rate of reading to the purpose of reading and

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[13]Walter S. Monroe, Editor, "Reading" Encyclopedia of Educational Research, (New York: The Macmillan Co., 1950), p. 980.

[14]Miles Tinker, "Speed Versus Comprehension in Reading as Affected by Level of Difficulty," Journal of Educational Psychology, Vol 30, (1939), 92.

suggested the necessity of learning this technique to read efficiently. Strang considered the lack of flexibility in adapting method of reading to material being read and purpose for which it is read as a major reading difficulty.[15] Spache emphasized that a changing rate in reading is imperative but that not all individuals can profit from training in rate change.[16]

Comprehension and Vocabulary

Harris points out that vocabulary is one of the most significant aspects of language development. Words are the labels we give to thoughts, ideas, concepts, and impressions.[17] Brown maintains that word power is thought power and therefore should be given more attention throughout both formal and informal education.[18]

The significance of the role of vocabulary development is evident to any student of reading; specifically within the developmental reading program and generally

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[15]Ruth Strang, The Improvement of Reading, (St. Louis: McGraw-Hill Book Co, 1961), pp. 162-63.

[16]George Spache, Toward Better Reading, (Champaign, Ill: Garrard Publ. Co., 1962), p.248.

[17]Albert J. Harris, "Development of Vocabulary - Language Development," in Readings on Reading Instruction, ed. Albert J. Harris (New York: David McKay Co., Inc., 1963), p. 236.

[18]James J. Brown, "Vocabulary and Key to Communication," in Readings on Reading Instruction, ed. Albert J. Harris (New York: David McKay Col, Inc., 1963), p. 262.

within the academic process.

Comprehension and Critical Reading

Any study of the reading needs of college students involves an emphasis on critical and creative reading. At the critical level of reading one is able to evaluate and judge information and the author's presentation of it.

In recent years this type of reading has been emphasized as the basis for developing critical faculties in analyzing and evaluating what is read. The transmission and reception of ideas and thoughts in communication may be strengthened through critical reading. The functions utilized in this process are apprehending, comprehending, reasoning and thinking.[19]

Evaluation of Programs

College reading programs state that although measurement of immediate gains is important, there is need for extended evaluation of college reading programs. Of 64 studies reported by Bliesmer only two dealt with retention of gains made in college reading improvement programs. A review of published literature since 1950 revealed only five studies dealing directly with the retention of gain.[20]

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[19]Monroe, op. cit., p. 965.

[20]Emery P. Bleismer. "1962 Review of Research in College Adult Reading," Twelve Yearbook of the National Reading Conference, Eds. Ralph Staiger and C. Y. Melton, (Milwaukee Wisconsin, 1963), pp. 230-248.

Among the methods used in appraising the permanent value of college reading improvement programs has been evaluation of (1) the change in academic achievements as measured by grade point averages, (2) the change in academic achievement as measured by achievement tests, (3) the change in attitude, and (4) the change in study habits.

The major investigations conducted since 1950 evaluating retention of gains made in college reading improvement programs have included studies of (1) college, adult, and military reading improvement programs; (2) developmental reading courses, speed reading courses, and study skills courses; (3) programs using a variety of testing devices; (4) programs varying in size from eighteen to 204 subjects. The reading skills measured in the courses evaluated included rate of reading, reading comprehension, and reading vocabulary.

Of the studies reviewed, seventeen indicated a retention of gain in reading rate, while five studies reported a decline in rate. Only thirteen studies reviewed indicated gains in comprehension were retained, while four studies reported a loss in comprehension performance. Two studies reported increased vocabulary performance was

retained. Three reported a decline in vocabulary re-
tention.[21]

The results reported in the studies summarized
failed to establish any kind of relationship between re-
tention of gains and type of course, length of course,
materials used, or period of time between end of test
and retest.

Only a small percentage of the research in col-
lege reading improvement programs has been concerned with
measurement of permanency gain. It is evident that evalu-
ation procedures have tended to support immediate gains
as justification for a program rather than an extended
evaluation of college reading programs.[22]

Evaluation of reading programs found in a number
of reported studies from 1974 to 1976 appear to be evalu-
ations of the effectiveness of given reading and study
skills programs. The students enrolled in these courses
were listed as either freshmen in a four year college,
junior college or community college students, or remedial
students in competency programs. No studies were located
that were concerned with developmental reading programs
for upper classmen, non-remedial students or graduate

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[21]Phil L. Nacke, ed. Interaction: Research and
Practice for College-Adult Reading. Twenty-third Year-
book of the National Reading Conference, (Clemson, So.
Carolina National Reading Conference, 1973), pp. 23-88.

[22]Ibid., 64-65.

students in professional schools.

Some literature was located for the above mentioned population in journals prior to 1950. A program at the Syracuse University College of Medicine by Sheldon was established for freshmen and sophomores in medical school. These students after testing were below the median reading score of entering college freshmen. The students exhibited a slow reading rate, restricted vocabulary, lack of skill in following directions, and lack of skill in interpreting charts and diagrams.[23]

Watson reviewed a program in reading and study skills for law students enrolled at the John Marshall Law School. The program developed an extensive general vocabulary. Students used cases for skimming and then made notes from recall.[24]

Simpson at Carnegie Institute of Technology developed a reading program for freshmen engineering students.[25] Schwartz, while at the U. S. Naval School, started a program for beginning naval aviation students.

[23]William Sheldon, "An Evaluation of an Experimental Reading Program for Medical Students," Journal of Educational Psychology, Vol. 39 (May, 1948), 298-303.

[24]George L. Watson, "A Study Skills Program for Law Students," Journal of Experimental Education, Vol. 16 (1948), 196-202.

[25]R. G. Simpson, "The Reading Laboratory as a Service Unit in College," School and Society, Vol. 55 (1942), 621-623.

These students had completed two years of college.[26]

Whitehill and Rubin in 1969 set up a study to investi-
gate a traditional method of reading instruction in
comparison to an experimental program for 40 graduates
of the University of Wisconsin.[27]

Bryan investigated the relative effectiveness of
a developmental reading course in the College of Nursing
at the University of Kentucky in 1969. The findings of
this study were that a developmental reading course was
helpful to freshmen students in improving significantly
their reading rate and efficiency.[28]

The literature reviewed was selected as the most
relevant and pertinent in the field. Publication dates
range from 1931 to 1975. Only a few studies were found
in the survey defining programs for graduate or profes-
sional students.

The information in the literature from recog-
nized authorities in college and adult reading give cre-

[26]Marvin Schwartz, "Transfer of Reading Training
from Non-Technical to Technical Material," Journal of
Educational Psychology, XLVIII, (1957), 498-504.

[27]R. P. Whitehall and S. J. Rubin, "Effective-
ness of Instrumental and Traditional Methods of College
Reading Instruction," Journal of Experimental Education,
Vol. 39 (1971), 85-87.

[28]William A. Bryan, "A Study to Determine the
Relative Effectiveness of Developmental Reading Course
in the College of Nursing at the University of Kentucky,"
(Doctoral Dissertation, University of Wyoming, 1970).

dence to the organization of a developmental reading program. From this literature, goals and objectives of a developmental reading program can be formulated. The plan of such a program must include the physiological as well as the intellectual aspects of reading.

The original studies were quoted repeatedly throughout the current literature as the foremost authorities in their respective fields. Current literature refers primarily to studies with children of elementary school age.

Chapter III

THE ADMINISTRATION, ORGANIZATION, CURRICULA PROGRAM,
OBJECTIVES, AND ASSESSMENT

In the survey of related literature concerning the
development of college reading programs it was stated that
the majority of programs described explained methods or
materials used to achieve student improvement in reading.
This chapter describes a developmental reading program in
its entirety.

The University Developmental Reading center as des-
cribed in this chapter is located at Creighton University.
The approximate enrollment at this University comprises 4800
students. In addition to the College of Arts and Science,
Creighton has colleges of Business Administration and Nursing,
schools of Dentistry, Medicine, Law, and Pharmacy, and a Gradu-
ate school. This described center operates as a service to any
student enrolled in any class division or college on campus.

The rationale used for the implementation of this
program was based on the criteria that should be the foun-
dation of any sound reading program. A valid reading pro-
gram should contain the following salient points.[29]

    1. A reading program is directed by two closely
        related purposes. The personal and social
        development of the student enrolled, also the

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[29]Walter S. Monroe, op. cit., p. 981

various types of understandings, attitudes, and skills needed in achieving the broader ends sought through reading.

2. A developmental reading program is an all college program and involves the support and creative effort of all faculty members.

3. A reading program is continuous and moves forward progressively in harmony with the dominant characteristics, interest, and needs of students.

4. The program is flexible and can be readily adjusted at each level of advancement to the wide variations in the characteristics and needs of students.

5. A well planned program provides a quantity of varied material and a wide range of difficulty in suitable reading materials.

6. A stimulating learning environment in which reading can function effectively.

7. Included in the program would be provision for continuous appraisal of the effectiveness of the instructional program.

If the aspects of the above program are accepted, then the procedure to carry out such a program must be carefully planned. The important ingredient, of course, is the student who is involved in a developmental reading program. His attitude toward the improvement of his reading and his responsibility in following through on an appropriate individual program is the paramount concern.

Any difficulties interfering with a student's reading efficiency must be determined. Specific instructional tasks must be planned for each individual student. Special instruction and practice in readings must be arranged and planned.

Administration

The administration of the University implied certain definite beliefs concerning the initial establishment of the reading program for the students. They believed that every student should be able to improve his reading and study skills to an optimum level for him.

The administration also acknowledged that college reading tasks involve complex skills which may be developed through instruction and practice, in much the same way that writing and speaking are improved. Also that specialized attention to reading is desirable because of the wide range of reading ability demonstrated on reading tests.

In establishing criteria for a reading course for university students in a four year pre-professional setting, certain questions had to be answered. Could reading efficiency be improved sufficiently at the university level to justify a course? Did university students already read effectively? Should the course emphasize skills? Should any mechanical devices be employed? What type of instruction pattern should the course involve?

The developmental reading program initiated during the spring semester of 1974 was under the administration of the English department. The chairman of this department was responsible for budget allotment, laboratory facility, lab technicians and faculty. The Dean of the Arts college

supported the program. He acknowledged that students demonstrated a need for reinforcement in reading skills. Faculty members of the English department had made attempts to establish a program earlier but were not successful. Other members of the University faculty had stated that students in their particular classes were exhibiting reading problems.

A reading specialist was added to the staff to plan the instructional program. The decision was made to introduce the reading course as a lecture group session in conjunction with a lab setting for independent assigned tasks.

The pattern of administrative organization was to be kept as simple as possible, yet flexible, as well as allow for the cooperation of all concerned individuals. The specific features that comprise the structural framework of the program were to coincide with the philosophy, objectives, policies and procedures of the institution.

Organization

The course or courses would need to be designed to improve the reading efficiency of a wide spectrum of students. The major aim of the reading course would be to increase proficiency in reading by improving reading skills, stimulating greater interest in reading, and making the individual a more alert and responsive reader.

The evaluation of the various reading skills a university student needs to be a successful student were

studied. Chapter two surveyed the research on these skills.
The following skills were decided upon as being fundamental
for successful reading. The college student needs to be
able to ascertain the exact meaning of the author; to gain
facility in identifying and detecting the meaning of vocabu-
lary; to make adjustments in interpreting various types of
reading materials; to acquire growth in critical evaluation;
and to gain facility in locating, selecting, and using
appropriate materials. Moreover, the student needs to
develop the habit of reading for recreation, enjoyment, and
leisure.

The initial plan for the course titled, Developmental
Reading, was based on the premise that college students read
at a level of efficiency below their potential reading level.
If this efficiency could be improved, the students would be
more successful in their college work. In addition, if
they developed the reading habit, they might add immeasur-
ably to their general knowledge. From the outset, it was
determined that the course would not be a speed-reading course.

The principal goals of the course were planned to im-
prove flexibility skills by improving phrase reading, and re-
ducing regressions. The instructional program would teach
students to adjust their reading rate to their purpose in
reading. The course would also demonstrate that there are
a variety of comprehension skills depending upon the reader's
purpose. Other comprehension skills which would also need

to be developed were judgment skills, critical analysis, interpretative skills, and problem solving. Vocabulary improvement would parallel the program, both in technical and general vocabulary. The end product of the course should be the development of a student's awareness of his reading needs and the reinforcement of his self confidence in improving his reading effectiveness. An added feature would be to develop an enjoyment in reading material other than textbooks.

Reading programs, as they are developed and are developing in American colleges and universities today, seem to fall into the following general categories:[30]

    I.   The English-reading class pattern. In this pattern English instructors assume the chief responsibility for improving reading skills, usually of enrolled freshman.

   II.   The communication arts pattern. In this pattern the improvement is an integral part of a basic course required of all students.

 III.   The orientation pattern. The orientation programs of some schools are quite extensive and detailed, including improvement of basic reading skills, use of the library, and study skills improvement.

  IV.   The laboratory pattern. In a number of colleges and universities the reading laboratory or center serves the needs of the school through both group and individual services.

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[30]Dorothy Kendall Bracken, "Organization and Administration of College Reading Program, The Fourth Yearbook of the Southwest Reading Conference for Colleges and Universities, (Fort Worth, Texas Christian University Press, 1955), p.78.

These categories have not changed in any significant way since the original description was written by Bracken.

The choice of the lab pattern of organization necessitated a choice for a facility. The facility chosen was a former law library. This was remodeled and equipped with furniture appropriate for individual and group instruction.

Materials for the lab included both supplementary work-texts and media equipment. (Appendix A) The media used is described in the aforementioned appendix.

The supplementary essay material used for independent pre-professional readings were located in wall placements. The materials were color coded by subject matter.

The explanation of the program as it developed is best explained in a chronological sequence. The first class was formed only by recommendation by the Dean's office. But after that first semester students were enrolled on their own initiative. The continuation of the program developed in the same way. Instead of automatic placement by the Dean's office the students were referred to the reading lab for an evaluation. This enabled the staff to place the student in the program most suited to him.

Students who were enrolled in these courses had average grades of B or above. The remedial student who was receiving grades below C did not enroll.

Program

The initial enrollment in the first reading course in 1974 was a total of 12 students. These students represented freshmen, sophomores, and juniors from the Nursing College and Arts and Sciences. There were also three foreign students from Korea, China and the Panama Canal Zone respectively. After the initial assessment test was administered, the range of reading level was a composite score of one percentile to the seventieth percentile. The text for the course was Increasing Reading Efficiency by Lyle Miller. The instructional material was not on the reading level of the majority of the students. At this point, it was necessary to construct materials for individual members of the class. The lectures were varied, yet an attempt was made to instruct the students in the basic reading and vocabulary skills necessary for them to become more proficient readers.

The course required the students to spend a minimum of two additional hours in the lab. The students were motivated and their post assessment scores showed an increase in their total reading composite.

The fall semester of 1974 and spring semester of 1975 student enrollment increased to three sections. Each section had approximately twenty-two students enrolled. These sections represented all classes in the school, freshmen through seniors.

All were voluntarily enrolled. The range of reading now represented a reading composite range from the thirty-fifth percentile to the eightieth percentile.

The instructional materials chosen for these classes varied again. Reading Skills by William Baker, Successful Reading by Norman Maxwell, Read, With Speed and Precision by Paul D. Leedy, and Words, Words, Words by Zuckerman. The materials for the lab were not sufficient for the varied reading needs of the students.

To make the lab setting more meaningful to the students, materials were gathered from a number of essays on every subject matter represented in the college course work on campus. These were devised as self-instructional materials on different reading levels. The range of reading levels considered even those students enrolled in professional schools.

The fall term of 1975 produced a large increase of students enrolled in the reading program. Class size was now raised to thirty-five students per section. The students again represented all the classes in the university, but added to these were three first year law students. The composite reading level range had also increased from the fortieth percentile to the ninetieth percentile.

Students were now enrolled for the purpose of gaining a more generalized vocabulary background and rapid reading skills. It was necessary at this point to add a portion of time to rapid efficient reading.

Texts chosen for this group were Why, What, and How to Read by Slater, Skimming and Scanning by Marilyn Maxwell and Vocabulary Builder by Barron. The materials in the lab were augmented by additional materials in supplementary reading more helpful to the pre-professional students in the health science colleges on campus. These schools are Dentistry, Medicine, Pharmacy and Nursing.

During this semester students asked for additional course work in more advanced reading skills. The administration agreed to the implementation of an additional course titled Reading Enrichment.

The spring semester of 1975, student enrollment again increased to three sections of Reading Development and one course of Reading Enrichment. Class size was held to thirty students per class. The composite reading score range had now increased from the fifty-second percentile to the ninety-fifth percentile. Students enrolled in this spring semester were primarily juniors and seniors.

The course of instruction for the Reading Enrichment class necessitated more advanced reading skills, especially questioning techniques, problem solving and critical analysis. The goal of these students was to enter a professional school.

Texts chosen were Improvement of Critical Reading by Harnadex, Efficient Reading by Brown and Vocabulary Builder by Barron.

The text materials were used to initiate the basic instructional program but were utilized more in additional practice by the students. A list of texts available for advanced college reading programs are listed in (Appendix B).

Reading texts offer a varied amount of reading, yet students who were practicing on a particular skill could not locate enough material. To eliminate this problem the contents of reading texts were listed by skills, subject matter, vocabulary, and rate exercises. A compiled index of these skills were listed on color coded cards for each subject discipline, such as economics, education, political science, history, psychology, natural sciences, sociology, and literature. The student was able to choose subject matter of interest to him or read additional material in subjects difficult for him to comprehend.

Objectives

The criteria for a valid reading program together with the ascertaining of the skills needed by college students was considered prior to the setting of student objectives for the program.

The format for these behavioral objectives follows those of Norman Gronlund.[30] Each one of these instructional

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[30]Norman E. Gronlund, Stating Behavioral Objectives for Classroom Instruction, (Toronto, Collier-Macmillan Canada, Ltd., 1970).

objectives are stated in terms of student performance. The

objectives are:

I. The student knows his present reading strengths and weaknesses, and his reading and study habits.

    A. In conference with the instructor, the student analyzes the results of his diagnostic tests.

    B. In conference with the instructor, the student outlines his reading and study pattern from the results of a questionnaire.

    C. The student and instructor outline a plan that he will follow independently in laboratory assignments.

II. The student understands the supportive activities that coincide with reading activities.

    A. The student surveys the material before reading.

    B. The student formulates questions that he will answer from the material he reads.

    C. The student uses a consistent system for marking his texts.

    D. The student uses his notations and marking system for review.

III. The student exhibits mastery of literal comprehension skills.

    A. The student locates specific facts or details.

    B. The student identifies the main idea.

    C. The student can use a scanning procedure for a specific purpose in reading.

    D. The student recalls important details.

    E. The student can summarize a reading article.

    F. The student can skim for specific information.

    G. The student can state in sequential order.

H. The student can outline main points from his reading.

IV. The student exhibits mastery of interpretive reading.

    A. The student states the main idea.

    B. The student predicts outcomes or alternatives from his reading.

    C. The student draws conclusions from his reading.

    D. The student identifies and evaluates the author's assumptions.

    E. The student identifies cause-effect relationships.

    F. The student can identify inferences from his reading.

V. The student understands how to develop his vocabulary.

    A. The student uses contextual clues to determine meaning.

    B. The student learns necessary structural analysis of words.

    C. The student uses the dictionary as a source book.

    D. The student studies words systematically and makes card file for unknown words.

VI. The student knows the relationship of his rate of reading to his purpose in reading and to the type of material he is reading.

    A. The student adjusts his rate of reading.

    B. The student exhibits his knowledge of words per minute.

    C. The student strives to improve his rate of reading on specific material.

The above mentioned objectives form the basic curriculum of the developmental reading course. The review of literature surveyed the various reading skills that form the base for the objectives of this program.

In addition to the above student objectives, an important area of instruction for the students was in reading to understand science. A high percentage of students enrolled in the Arts and Science College have expectations of entering one of the professional health science schools, Dentistry, Medicine, Pharmacy or Nursing.

The science student exhibited a need for general vocabulary skills, increased reading rate, and sophisticated problem solving skills. These objectives listed were used for this portion of the instructional program.

I. To provide students with insight into the kinds of thinking involved in scientific writing.

II. To understand supporting ideas in science by recognizing definitions in content and the use and function of the explanation, illustration, and comparison as the rhetorical means for clarifying ideas.

III. To gain meaning from graphs, charts, diagrams, and tables.

IV. To aid the student to face and solve problems related to science rather than to read and remember only specific answers.

V. To enable the student to develop the ability to organize and recognize written passages related to scientific readings.

Assessment

The Nelson-Denny Reading test, Forms C and D, which measures vocabulary, comprehension and rate was chosen as the instrument to assess the student's reading level. This is the only current available test that has norms established for four year college students. A pre and post test assessment was planned for the beginning and end of the semester of instruction.

A student questionnaire was also used so that each student could initially state his own reading needs and could evaluate at the end of the semester, if these needs had been met in the program.

The Nelson-Denny Reading test pre-assessment percentile score in these areas was used as a base for the individual prescriptive program designed for the enrolled students. Varied materials were used for lab assignments in order to give students aid in specific areas.

To satisfy the requirements for this course so that credit could be given, definite student expectations were stated. The primary criteria for grading were attendance, progress, and achievement. The attendance requirement was for both the lecturer and lab. Students were checked in and out of their lab time so that this was carefully monitored.

The decision by the administration and staff at the inception of the course that it should carry academic credit

was significant. Granting of credit for this type of course can be debated.

The attendance pattern by the students has been consistent both for group sessions and independent lab assignments. Attendance records in the lab indicate students doubled the minimum time required.

One must accept the premise that reading is a valid intellectual pursuit. Efficient reading is a prime requisite for advancement in a technological society. Developmental reading instruction is as legitimate as other subjects which receive credit, for example, speech, typewriting, shorthand, art, music, and composition.

Developmental reading programs have been accepted in many colleges and Universities for over forty years. It would be a greater inducement to students to take the course if credit were granted. By accepting the premise that reading is an intellectual pursuit, then status, prestige and recognition should be given to its placement in a University curriculum.

> Reading specialists have a continuing and paramount obligation to educate and inform the American public that improvement in reading requires much more than a stopwatch and a piece of printed material. Until we show that "eyeball calisthenics" is a poor substitute for seeking the organization of the author's thoughts, we aren't developing effective readers.[32]

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[32]Edward C. Bursk, "New Dimensions in Top Executive Reading." _Harvard Business Review_, XXXV (September-October), 1957, 93.

The type of instructional pattern involved both group lecture and independent reading activities. The description of this program differentiates it from a corrective or remedial organization.

The evaluation of this program, as it has been developed, has not been designed in a research pattern. Scores of each student per semester in both their pre assessment and post assessment tests have been tabulated. Patterns of growth in each of the specific areas, namely, reading rate, vocabulary, and comprehension have been studied for possible implications for an instructional program change. A contributing factor to the changes in percentile rank could be the high motivation and interest in improving reading that has been exhibited by the enrolled students.

Chapter IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study has attempted to gather together in an
orderly fashion all those facets necessary in developing a
developmental reading program for a university. Chapter I
has attempted to show the relationship of the purposes, and
rationale for the establishment of a university developmental
reading program that involves students from any class or pro-
fessional school. The literature concerned with the forma-
tion of reading centers and also the specific skills needed
to implement a developmental reading program were explored
in Chapter II.

As a result of this exploration of literature and
research, several significant factors evolved. The litera-
ture indicated that reading programs on the college level
have been in existence over forty years. Programs now in
existence are primarily corrective in nature and are located
in two-year community college settings. Few programs were
found in the literature that described a developmental read-
ing program involving students scoring above the fiftieth
percentile on a standardized reading test. The basic skills
needed for efficiency in reading were reviewed in the litera-
ture and are also found in the objectives for the described

developmental reading program. These skills were stated
from original research studies as they remain basically the
same in present studies.

The description of a reading program for four year
university students was written to clarify the misunderstand-
ing laymen have in regard to reading being only a remedial
course. The definition of the term developmental reading
is necessary if one is to understand the objectives as they
were written and performed by the students.

• The population of students as they were described
is the basis for the instructional program. The percentile
level of the student's reading is gained from the pre assess-
ment scores. These students could possibly achieve in col-
lege without a reading course. Their own assumption has been
that they do not read effectively and desire to improve their
reading skills regardless of a test score.

One who studies the students' scores could ascertain
the extremes between a developmental and a competency pro-
gram. A developmental program uses lengthy reading material
written on an advanced reading level. A student is required
to effectively use critical reading techniques in order to
master the questions proposed over the text. In a compe-
tency program the student reads short descriptive paragraphs
on their instructional level. The questions proposed are for
specific purposes, such as reading for main idea, locating
information, or for specific facts. It is possible then to

supply both types of reading materials for a central lab facility.

The description of the student population and the range of reading scores can be used to defend the position of the need for an advanced skills course in reading as part of the regular curriculum for students enrolled in a university.

Budgetary increase is apparent for corrective programs, but developmental programs will be able to utilize materials that may entail only copy expense, rather than the purchase of media or total programs to fit the needs of the students.

In this particular university, the assessed needs of pre-professional students requires a more advanced technical reading course. The curriculum for this type of program entails scientific readings for pre-health science students with analytical questioning techniques. It also must incorporate advanced technical readings necessary for the pre-law student. As the reading needs of these students must be kept current, the curriculum is in a constant state of change. It can only be repetitive in initial skill work, not in content material.

An additional component of this type of program is the motivation of the enrolled student. A student who enrolls in this type of reading program of his own volition to improve his own reading needs is distinctively different than

a student enrolled in a program involuntarily.

In studying a representation of data collected from each semester of the program one can note the range and improvement for specific students. Appendix C allows one to study data for both pre-test and post-test assessments collected for one semester. This data is arranged by grade classification so comparisons can be located by both intra-class or inter-class. For example, student B, a junior who had the lowest initial assessment scores raised his score eighteen percentile points in vocabulary, fifty-five percentile points in reading rate. This student was highly motivated and spent additional hours in the lab setting.

Student F, a freshman who scored at the twenty-first percentile in vocabulary, sixty-third percentile in comprehension, and sixty-sixth percentile in reading rate, digressed in the post assessment considerably. His attitude was negative and attendance erratic. Yet another student, a freshman, O, showed an increase of a plus thirty-eight in vocabulary, plus sixty in comprehension, and a plus eighty-five in reading rate. Noteworthy for this student was her attentiveness and organizational pattern of study. These assumptions concerning student F and Student O were gained from observations in both class and independent sessions. Attendance patterns in both sessions and caliber of assignments completed for the course added to the observation.

The sophomore class as a group shows an increase in all post tested skills. Contributing factors to this are varied. No one specific rationale can be presented.

The senior student A and the graduate student B demonstrated the same type of growth pattern. Noteworthy is the senior student B whose post assessment scores in vocabulary and comprehension dropped, yet his rate tested high, signifies a student who didn't understand flexible rate change and tried speed reading for results. The improper use of reading rate results in a comprehension loss for students.

Assessment of a college student's reading level with the instruments available is not satisfactory. The only testing instrument which measures growth in reading for four year college students is the test instrument used for this program, the Nelson Denny Reading Test. There are numerous testing instruments in reading available for elementary and secondary students. This allows for comparison in results of a reading program. Yet some form of evaluation to demonstrate strengths and weaknesses in a program is needed. It is also a necessary incentive for students, as well as an aid to an administrator.

Evaluations may facilitate learning for the students involved and give them a sense of direction. It may improve their self concept and provide a stimulus for additional improvement. Teachers also need an evaluation process to broaden their objectives or delineate objectives in

a program. For the administrator, evaluation may show the need for changes in curriculum, staff involvement, and budgetary allowance.

In the review of literature concerning descriptions of college reading programs most have been presented as a pre-post gains assessment pattern. No programs could be located describing a follow up done on students after they had been out of the program for a semester or longer.

Conclusions

The reading program at Creighton University as described in this study, experienced various difficulties in the operation of the center. These difficulties were concerned with grading systems, delimiting class size, and per pupil training. College policies hampered the individualizing of a program to the extent needed. The consideration of budget allowance for the reading program needed to resemble that of the sciences with an attached lab.

College administrators, however, tend to regard a reading program the same as any academic program. These difficulties are also cited in various programs described in the literature. Qualified reading specialists as staff are essential.[33]

From the beginning of the program, informal evaluation methods have been used for each semester. The super-

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[33]Huslin, op. cit., pp. 202-205.

vision of this reading program was closely regulated by the reading coordinator. Attendance of all students enrolled was monitored weekly. No grades for the course were given for less than the required number of lab hours. These totaled twenty-eight independent hours per student a semester course. Added to this was also attendance in the group sessions totaling fifteen hours per semester. Required assignments were evaluated periodically by the staff.

The seven listed findings are particularly relevant to the study. These concern the various components of the reading program. They are significant results to one who is organizing a similar program. Some of these findings are listed below:

1. The reading programs improve the rate of reading and comprehension as measured by a standardized test of virtually all students who take the course. The lowest improvement has been noted in the scores of foreign students.

2. The reading programs contribute to the improvement of vocabulary as shown in the data in Appendix C.

3. The regular attendance in both the class session and lab has a definite effect on improvement in the skills in reading tested. This result is probably due to the skills component and repetitive practice required for the course.

4. The evaluations from students at the end of the program show a positive attitude toward reading and the reading course work.

5. The chief values of reading pacers, films, and other mechanical devices are in the provision they make for understanding rate and increasing motivation for students.

6. The student must be aware of his progress throughout the semester.

7. The reading program should include a systematic vocabulary improvement program.

The student's abilities must be assessed and a program organized to fulfill their unique needs. The establishment of the reading program should include the following considerations; a sound philosophy and objectives, a professional staff, a well equipped reading facility, and a balanced curriculum. If the program has these qualities, it should result in the student's achievement in college reading tasks.

Recommendations

As a result of this study, the following recommendations are suggested to the administration and faculty in regard to further implementation of reading programs in a university. These recommendations could be adapted to any university setting. The criteria for the establishment of a similar program necessitates evaluating the assessed needs in reading instruction for their student population.

1. It is recommended that a university develop a program in reading instruction to fit the needs of their own

student population.

2. It is recommended that a university should develop its own testing instruments from texts used in college classes, as reading tests now in circulation do not adequately test reading rate on various types of curriculum. The Nelson Denny Reading test assesses reading rate for one minute over a reading passage selected from literature.

3. It is recommended that the university should develop its own reading norms for their student population to better appraise the reading level of their students. The increase of mature students enrolled in reading courses warrants this recommendation.

4. It is recommended that the reading profession develop more precise evaluation procedures.

5. It is recommended that reading assessment scores be compared to the student's grade point average to show effectiveness of a reading program on the overall curriculum of the university.

6. It is recommended that follow-up research studies be designed to compare the student's progress in reading to his initial test assessment in reading.

7. It is recommended that as a result of this study both a competency program in reading and a course or courses in reading for mature readers can be established in a university.

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APPENDIXES

APPENDIX A

MEDIA EQUIPMENT

MEDIA EQUIPMENT

Reading Pacers

A reading pacer is a device which forces the reader to perceive the material at a rate predetermined by the reader. A rod, shutter or beam of light moves down the page of print and the reader must keep with the machine in order to read.

Pacers have two major advantages over other types of machines:

1. They can be used with any type of material, including textbooks.

2. They can be used for work in rate flexibility as well as rate development. The lab has the following pacers available:

SRA Accelerator

A. Reading frame
B. Shutter
C. Shutter-return knob
D. Accelerator window
E. Speed-control pointer
F. Calibrated speed scale
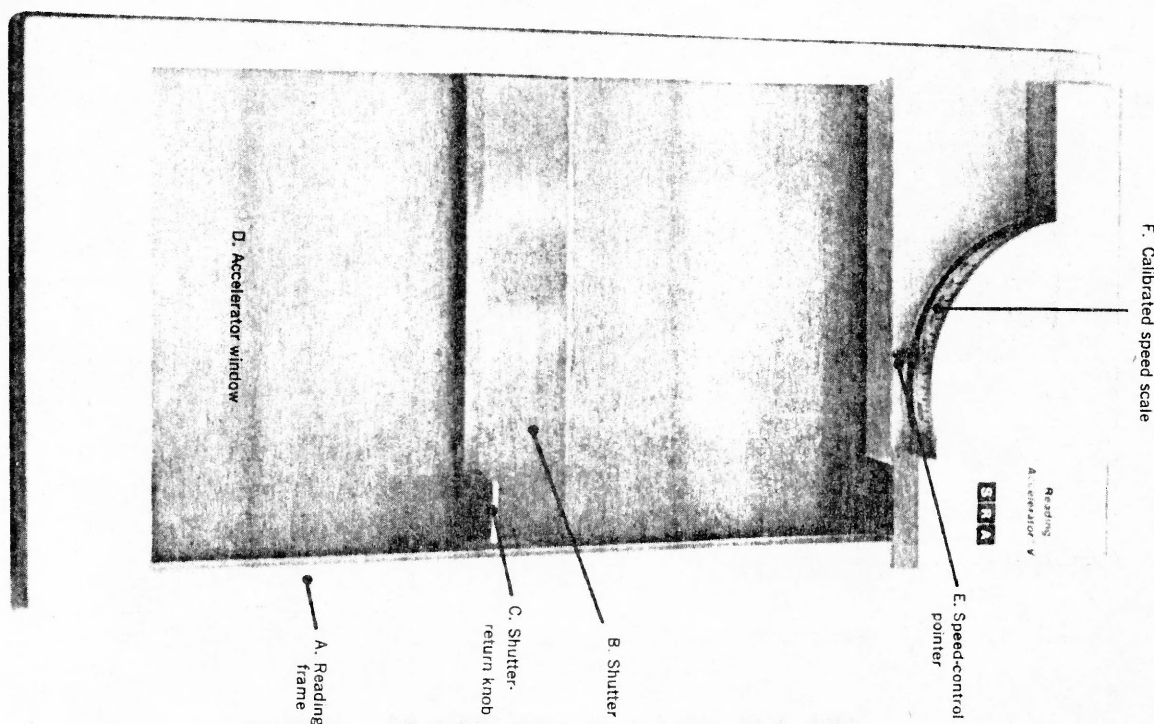
The Reading Accelerator is a non-electrical pacer.
The opaque shutter, which prevents regressions, moves down
the page of print at a pre-set rate that is determined by
a reading rate calculator (a type of slide rule device).
The accelerator is lightweight and easily portable.

Shadowscope Reading Pacer

The Shadowscope is an electric device involving a
horizontal beam of light which moves over the page and is
projected. The intensity of light can be controlled.
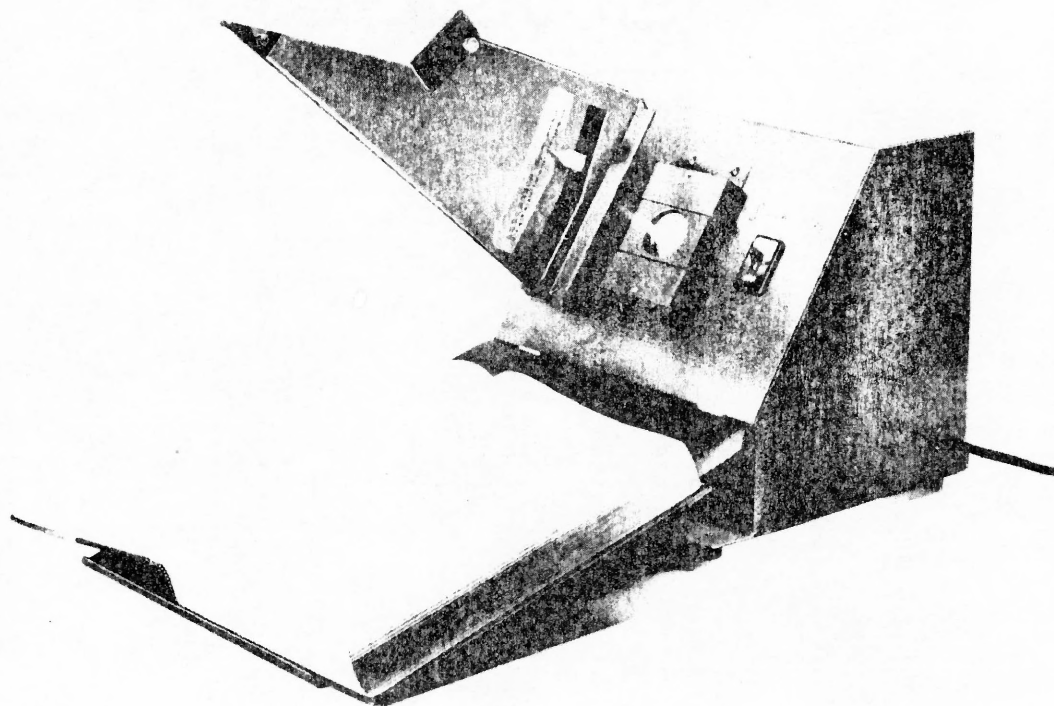
The EDL Skimmer

The EDL Skimmer allows the student to improve his
ability in skimming and scanning. Skimming is the process of

quickly passing over an entire selection to get a general impression of it, while scanning deals not with the entire content, but searches rapidly through the material for a specific purpose. The Skimmer provides an aid for the student attempting to break away from his normal reading habit.
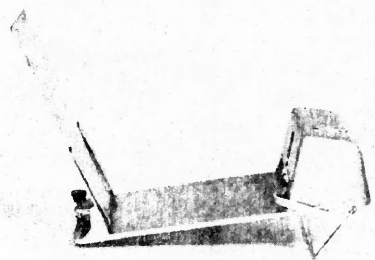
The Skimmer's beam of light travels down the center fold of a book at a constant rate of at least 30 seconds per page (or 800-1000 words per minute). The moving light has no control over the reader but provides a reminder of the lapse of time. Using the light as a gauge also helps the student avoid reading too fast and considerably reducing his comprehension. A timing dial allows the beam of light to be set at a rate of less than 30 seconds per page.
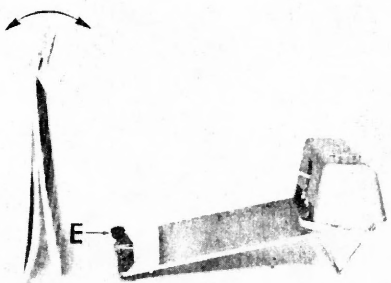
The AUR Reading Rateometer

The Rateometer allows the student to pace his reading smoothly and to gradually increase his reading rate. The device encourages the student to read in phrases or groups of words and prevents backtracking. Ideally, it improves con-

centration and comprehension. A sliding scale on the head
of the machine allows the person to adjust the rate at
which the T-bar moves down the page of print. To set the
scale, 1) count the words in a two-inch vertical column of
print. Set the slider on the upper scale to correspond with
this number. 2) Find the appropriate rate in words per min-
ute on the middle rate scale and match it up under the word
count indicator. 3) Slide the T-bar in the appropriate posi-
tion so that the lines leading from the T-Bar corresponds
with the arrow on the scale. An extendable base adjusts to
books of various thickness.
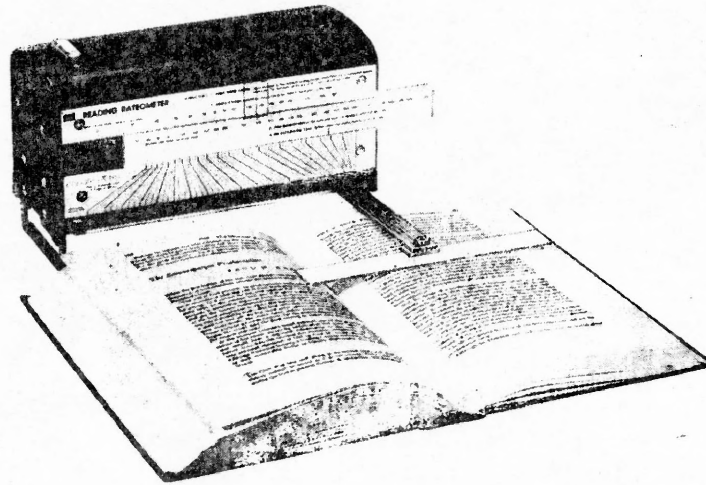
Projection Machines

These machines differ from pacers because filmstrips,
tapes, etc. are projected on a screen at a predetermined rate.
These materials provide the reader with an ongoing assess-
ment of rate improvement since the materials are generally
at comparable reading levels within a series and include com-
parable comprehensive questions. The lab has the following

projection machines available:

Controlled Reader

With the controlled reader, reading materials are
projected on a small screen in a left-to-right manner and
at a predetermined rate to develop a wide range of visual
functional and interpretive skills. A moving shutter can be
used to encourage left-to-right perception and improve vis-
ual mobility and coordination. Written quizzes for com-
prehension accompany the filmstrips. The Controlled Reader
Jr. is for individual use while the Controlled Reader Sr.
can be used either individually or with a group. By using
automatic speeds, reading scores are projected at a rate of
60 to 1000 words per minute. In our lab we have a total of
125 filmstrips at different levels of difficulty.
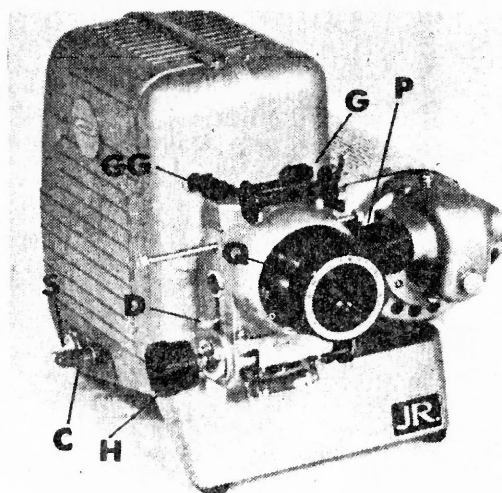
Controlled Reader Jr.

The Guided Reader and Audio Re-reading

The Guided Reader operates on much the same principle
as the Controlled Reader, however, there is a slight differ-

ence in determining the desired rate setting for this machine
To determine the correct setting multiply the number of words
per line as listed on the film, by the rate desired (i.e. 40)
to obtain the number of words per minute. Match this number
with the scale on the Reader to find the correct letter set-
ting. The Guided Reader corresponds with the audio Re-read-
ing cassette library. This program allows the student to
"read and listen" and is provided to assist the audio-oriented
student in bettering his comprehension of the content while
improving his silent reading rate. This program is an ex-
cellent aid for the foreign student. It can improve the
fluency of the student as he hears the printed word spoken
aloud. As with the Controlled Reader program the films and
cassettes are accompanied by written material which is found
in the Guided Reading Study Guide Book. Written comprehen-
sion quizzes also accompany the book.

Tachistoscopic Methods

The tachistoscopic techniques provide a multimedia pro-
gram for improving perceptual accuracy especially in the
fields of word recognition, spelling, vocabulary, and arith-
metic. The program involves two teaching devices. Use of
Tachistoscopic training results in a higher level of student
concentration, develops habits of more aggressive and accur-
ate seeing, helps reduce the number of fixations while in-
creasing the span of recognition. It helps shorten read-
ing duration and at the same time increases visual memory.

Thus, a general improvement of learning potential in all areas is attained.

Tach-X

The Tach-X is a specially designed 35mm filmstrip projector which operates in conjunction with a library of tachistoscopic filmstrips. During Tach-X training, the projected image first appears out of focus on the screen while the student concentrates on a point near the left of the material to be exposed, thus facilitating left-to-right eye movement as the image is exposed for a predetermined period of from 1/100 to 1½ seconds. As the image snaps out of focus the student checks the accuracy of his response. Thus, his work is immediately reinforced.
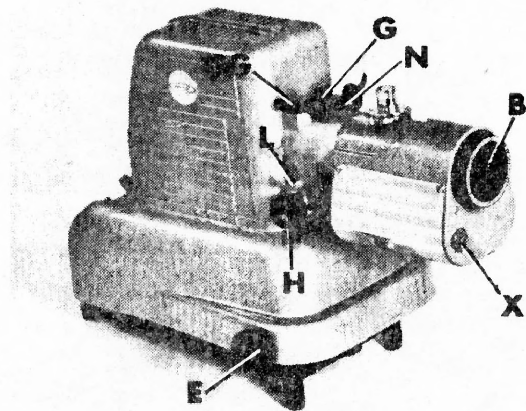
Flash-X

A hand-held tachistoscope, the Flash-X, also aides in individual perceptual training. It is combined with a library of discs and follows much the same procedure as the Tach-X

camera. The Flash-X has an exposure time of 1/25 of a second.
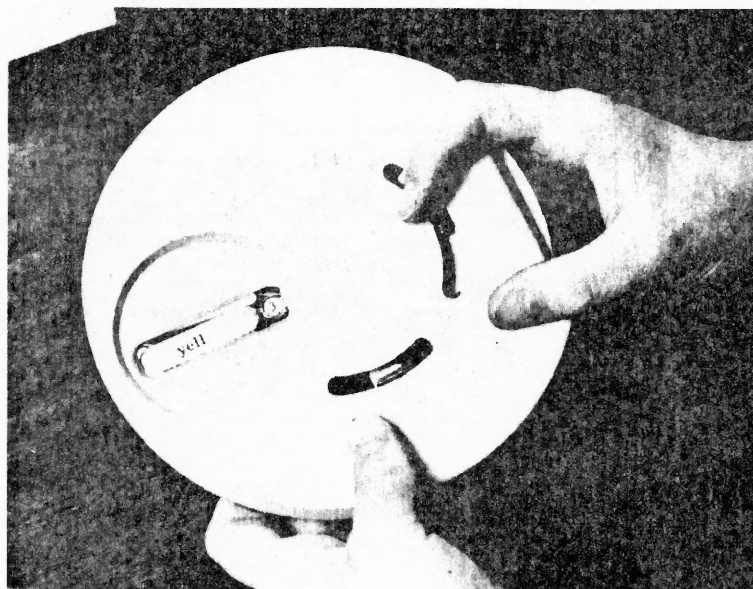
Tachometer 500

The Tachometer is designed to show all types of filmed word lists, stories and essays at speeds ranging from 60 to over 2,000 words per minute. This instrument is both an automatic and semi-automatic tachistoscope. Reading films are available for this machine.
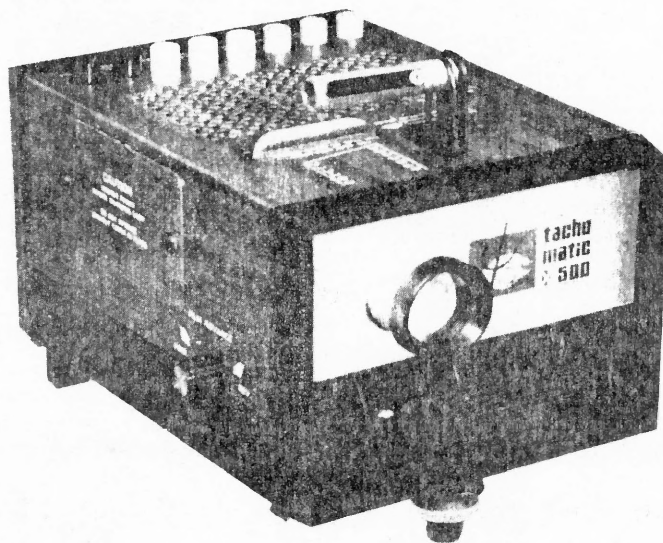
APPENDIX B

READING TEXTBOOKS

READING TEXTBOOKS

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    Providence, Rhode Island: Jamestown Publishers,
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    College Word Study: Building a Writing Vocabulary.
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Hutchinson, Helene D. Horizons: Readings and
     Communication Activities for Vocational-
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APPENDIX C

TEST DATA

L		Pre-Test January, 1976						Post-Test May, 1976						Difference					
		Voc		Comp		Read-rate		Voc		Comp		Read-rate		Voc		Comp		Read-rate	
		%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE
Grad	A	99	15.0	60	14.0			99	15.0	59	15.0			--	--	-1	+1		
	B	92	15.0	50	14.7			98	15.0	98	15.0			+6	--	+49	+.3		
	C	76	15.0	71	15.0	73	15.1	99	15.0	51	14.7	83	15.1	+23	--	-20	-.3	+10	--
Senior	A	83	15.0	57	15.0	57	14.3	97	15.0	98	15.0	97	15.1	+14	--	+41	--	+40	+.8
	B	56	15.0	71	15.0	47	13.4	46	15.0	37	14.0	97	15.1	-10	--	-34	-1.0	+50	+1.7
	C	67	15.0	71	15.0	57	14.6	1	8.6	1	6.0	98	15.2	-66	-6.4	-70	-9.0	+41	+.5
Junior	A	91	15.0	83	15.0	54	13.8	89	15.0	73	15.0	97	15.1	-2	--	-10	--	+43	+1.3
	B	13	13.1	44	14.1	17	8.6	31	14.6	99	15.0	82	15.1	+.8	+1.5	+55	+.9	+55	+6.5
	C	71	15.0	74	15.0			68	15.0	98	15.0			-3	--	+24	--		
	D	82	15.0	71	15.0			64	15.0	44	14.4			-18	--	-27	-.6		

Freshmen	Pre-Test January, 1976						Post-Test May, 1976						Difference					
	Voc		Comp		Read-rate		Voc		Comp		Read-rate		Voc		Comp		Read-rate	
	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE
A	61	14.5	77	14.7	54	14.6	68	14.9	60	13.7	94	15.1	+7	+.4	-17	-1.0	+40	+.5
B	63	14.6	86	15.0	76	15.3	82	15.0	79	14.7	93	15.1	+19	+.4	-7	-.3	+17	-.2
C	84	15.0	96	15.0	62	15.3	96	15.0	99	15.0	97	15.1	+15	-	+3	-	+35	-.2
D	51	14.0	28	11.5	54	14.6	81	15.0	99	15.0	89	15.1	+30	+1.0	+71	+3.5	+35	+.5
E	72	15.0	54	13.5	38	12.3	85	15.0	91	15.0	97	15.1	+13	-	+37	+1.5	+59	+2.8
F	21	11.4	63	12.8	66	15.3	12	10.1	8	12.2	92	15.1	-9	-1.3	-55	-.6	+26	-.2
G	58	14.4	72	14.4	62	15.3	80	15.0	75	14.7	91	15.1	+21	+.6	+3	+.3	+28	-.2
H	87	15.0	82	15.0	12	7.0	99	15.0	46	13.1	61	15.1	+12	-	-36	-1.9	+49	+8.1
I	41	13.5	14	9.3	17	8.4	24	11.9	60	13.7	57	15.1	-17	-1.6	+46	+4.4	+40	+6.7
J	34	12.9	35	14.4	6	6.0	29	12.5	14	13.1	82	15.1	-5	-.4	-21	-1.3	+76	+9.1
K	97	15.0	82	15.0	38	12.3	99	15.0	91	15.0	89	15.1	+2	-	+9	-	+51	+2.8
L	57	14.3	77	14.7	43	13.0	77	15.0	53	13.4	91	15.1	+20	+.7	-24	-1.3	+48	+2.1
M	61	14.5	66	14.1	49	13.8	64	14.7	95	15.0	87	15.1	+3	+.2	+29	+.9	+38	+1.3
N	67	14.8	72	14.4	54	14.6	80	15.0	46	13.1	95	15.1	+13	+.2	-26	-1.3	+41	+.5
O	49	13.9	35	12.2	14	7.7	87	15.0	95	15.0	99	15.1	+38	+1.1	+60	+2.8	+85	+7.4
P	46	13.8	28	11.5	58	15.3	80	15.0	73	14.4	80	15.1	+34	+1.2	+45	+2.9	+22	-.2

Sophomore	Pre-Test January, 1976						Post-Test May, 1976						Difference					
	Voc		Comp		Read-rate		Voc		Comp		Read-rate		Voc		Comp		Read-rate	
	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE	%	GE
A	41	14.4	69	14.7	66	15.0	89	15.0	95	15.0	92	15.1	+48	+.6	+26	+.3	+26	+.1
B	57	15.0	49	13.2	39	12.1	92	15.0	41	13.4	88	15.1	+35	–	–8	+.2	+49	+3.0
C	94	15.0	85	15.0			98	15.0	95	15.0			+4	–	+10	–		
D	63	15.0	57	13.7	25	8.9	82	15.0	62	14.4	93	15.1	+19	–	+5	+.7	+67	+6.2
E	67	15.0	67	15.0	56	15.1	97	15.0	41	13.4	92	15.1	+30	–	–26	–1.4	+36	–
F	41	14.3	54	14.0	26	9.1	59	14.5	17	9.8	70	15.1	+18	+.2	–37	–4.1	+44	+6.0
G	37	14.2	25	12.2	20	9.1	36	14.2	62	14.4	95	15.1	–1	–	+37	+22	+75	+6.0
H	49	14.8	19	8.7	29	11.3	55	15.0	24	11.9	87	15.1	+6	+.2	+5	+3.2	+68	+3.8
I	81	15.0	73	15.0	46	13.8	99	15.0	86	15.0	96	15.1	+18	–	+13	–	+50	+1.3