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A Study of Proficiency in Basic Study Skills of Intermediate and Junior High School Students

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A STUDY OF PROFICIENCY IN BASIC STUDY SKILLS OF INTERMEDIATE AND JUNIOR HIGH SCHOOL STUDENTS

by

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TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF TABLES

Chapter I

INTRODUCTION AND STATEMENT OF PROBLEM

The purpose of this study is to measure accurately and reliably the proficiency of intermediate and junior high students in the basic study skills. The administrators and the teachers desire the information for the following reasons. The administration wants a survey of general school achievement at these levels in order to secure data for planning instructional and remedial programs. These educators believe that the data will facilitate planning the program of inservice improvement with the faculty. The statistics secured through this survey will present to the community and the school board a clear picture of the need for curriculum improvement and remedial programs. The teachers wish to identify the pupils who deviate widely from group averages and locate the areas of special difficulty. They desire to locate the individual differences in order that they may provide the indicated remedial instruction in reading, arithmetic, language or other basic skills. They wish, further, to use these data in selecting and adapting subject materials and procedures to the class groups concerned.

An exact knowledge of each pupil's competence in using each technique comprising the study skills, makes it possible for the teachers to organize the study of "subject matter" so that each and

every pupil may attain his highest level of achievement. Reliable measurement of the various skills needed for efficient study provides valid, diagnostic information which makes remedial training in work-study habits possible and proficient. A pupil who does not have adequate study skills and habits is handicapped, educationally and vocationally. Efficient study is a pre-requisite for success, regardless of the subject a pupil studies in school. Students need to study with a purpose in the process of acquiring work skills. Often it is the task of the teacher in the elementary grades to anticipate pupils' needs before the pupils themselves are aware of them. When defects are discovered in the curriculum, the teacher will need to motivate the students to carry on a remedial program. The questions, problems, and interests of the children should be utilized, and the pupils should be encouraged to suggest desirable activities. If the learning activity is related to the experienced needs of the pupils, genuine interest will develop. Since defects in areas of learning are often obvious, while the remedial units necessary to improve achievement are not, diagnostic tests have been devised to point out specific areas in which there can be improvement.

In many ways, teachers have always endeavored to measure the progress of their pupils toward the achievement of definite changes in the behavior of the pupils with whom he works. Teaching is concerned with the complete development of human beings. The main concern of the teacher is always: Is the child learning? If he is not learning, why not? What is the effect of this learning on the

individual as a member of his social group? What is the effect of this learning on the child's personality?

Teaching is guiding and aiding the development of uninformed human beings. Teachers are potential liberators of humanity from ignorance, fear, misunderstanding, conflict, wars, and famine. Horace Mann[1] declared that the object of the common school system is to give to every child a free, straight, solid pathway by which he can walk directly up from the ignorance of an infant to the knowledge of the primary duties of man.

The development of desirable habits and essential skills is a necessary part of the child's normal growth. As he matures, he develops a readiness and a need for varied skills, and his progress is often dependent upon them. This fact is applicable in his mental, emotional, and physical life. The child, for instance, who does not acquire certain basic study skills when he is ready for them is likely to be handicapped not only in school achievement, but also in personality growth as well. The acquisition of these basic skills and habits is an integral part of the school program. Howell[2] declared, "Children must be taught the techniques underlying

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1. National Education Association. Future Teachers of America (Tenth Yearbook). Washington, D. C.: The Association, 1950. p.110.

2. Howell, Wallace J. "Work-Study Skills of Children in Grades Four to Eight" Elementary School Journal, 51: 384-89 (November 1950).

work-study skill if more satisfactory scholastic achievement is to be attained. Many failures among school children can be attributed to poor and inefficient habits of study."

Too often teachers, administrators, and supervisors take it for granted that children, during the process of maturation, have acquired the skills essential for good habits of study. Therefore there has seldom, if ever, been included in the curriculum the techniques of how to study. Though such comments as "poor work habits," "inability to study," and so forth, often accompany reports to parents concerning the progress of the pupils or their failure to succeed, little has been done to discover the basic causes for such failure.

Gates[1] states, "Any effective program of developing good study habits must be planned in terms of the entire school." Good study habits are developed over a long period of time. This is due partly to the fact that different teachers stress different techniques and skills, and partly because there is no consistent and graded program for developing good study habits.

In the primary grades, there is emphasis upon teaching children the mechanics of reading, and in the upper grades reading is considered more as a tool in learning. As the demands upon children's

1. Gates, A. I. The Improvement of Reading: A Program of Diagnostic and Remedial Methods (Third Edition). New York: The Macmillan Company, 1947.

reading ability increase, they must learn to vary their techniques with the materials and the purposes for which they are studying. From the fourth grade on, much reading will be done in the "content" fields and will be organized around problems which children are trying to solve. If these problems are to be worked out successfully, children must learn to locate materials related to their problems; select, evaluate, and organize these materials; and remember pertinent facts.

One of the basic difficulties in teaching boys and girls how to study is that efficient study is not a distinct ability. Many different types of skills and many varied kinds of activities are included under the single heading of study, for there are as many kinds of studying as there are varieties of learning experiences. The ability to study effectively involves more than an understanding of the procedures to be followed in any given learning experience. It is only when these procedures become habits that are followed as a matter of course that an individual has really learned how to study.

Skill in the mastery of any study tool is acquired when the practice situation is similar to the final (life) situation in which the skill will be applied. Study is a complex activity, broader than the acquisition of simple, separate, sometimes unrelated, techniques.

Lyman[1] in his Mind at Work declares that studying is comprised

1. Lyman, R. L. The Mind at Work. New York: Scott, Foresman, and Company, 1924, pp. 16-17.

of three inter-related factors: reading, thinking, and utilizing. Studying means striving to understand, to recognize meanings presented, to consider these meanings, estimating their worth, and to tie up these meanings with something that is already in the student's own experience; and then planning how he can put that meaning to work in problems of his own.

Studying involves abilities, but it also involves attitudes. The student must see the purpose of the work he is doing, and to see the worthwhileness of the study or the meaning in the problem he is seeking to solve. To arouse in boys and girls a genuine interest in improving their ability to study, educators must help them to see the "why" of good study procedures. "The[1] teaching of skills and subjects must be looked upon as one of the means rather than the end of education. The end of education is a higher level of creative living for pupils and teachers. The teacher must see each pupil not only as he is, but in terms of what he may become. In a democracy, a school is a place for the richest possible living."

Few educators believe that the school's purpose in education is to prepare man for a "lone wolf" life. The ultimate aim of education is to prepare the individual for more than self-attainment,

1. Twelfth Yearbook, Newer Instructional Practices of Promise Washington D. C., N. E. A., 1939.

security, welfare, and power. Wilds[1] points out that educational leaders are emphasizing as never before that the formation of habits and skills, the inculcation of ideals, attitudes, and appreciations; and the acquisition and utilization of knowledge, are not ends in themselves, but only means to the greater end of preparing individuals to fit into the general social organization and to serve the general social welfare.

Knowledge, information, and skills are essential tools of learning and citizenship. No individual can serve either himself or others without them. The traditional three R's were taught as the direct aims of education. School leaders have found, however, that if the child cannot read, he is not likely to do well in geography, history, science, or social studies; if he has not mastered the fundamental ideas and processes of numbers, he is at a disadvantage in projects involving measuring, map-drawing and interpretation, or making things which must be measured. If he lacks language ability, he can make neither his needs nor his accomplishments known, nor can he profit adequately through communication with others.

Dewey[2] states that education is not preparation for life, but life itself.

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1. Wilds, Elmer Harrison. The Foundations Of Modern Education New York, Rinehart, 1947.
2. Dewey, John. Education Today. New York: Putnam, 1940.

Edwards and Richey,[1] Caswell and Campbell[2] corroborate Dewey's conviction through the concrete terms which they use in defining democracy and the basic requirements for democratic education. Educators agree that the youth of today are the nation of tomorrow, and that adequate education is a powerful potential for guidance. Many educators have agreed, furthermore, that democratic education is more than preparation for future living in society, it is also living, doing, being, now.

> The development of the individual is conditioned by his social environment; social integration and social progress depend upon the habits, skills, attitudes, and reasoning powers that have been developed in the individuals who make up society.[3]

Wood and Haefner[4] state that a recent and comprehensive check of the examinations of recruits for World War II revealed startling shortcomings in physical fitness, intellectual development, and emotional adjustment. The findings of the American Association of School Administrators[5] discloses the fact that during the period 1941-1945 approximately forty per cent of the rejections of the men of draft age was due to lack of physical or mental fitness. This committee feels

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1. Edwards, Newton, and Ritchey, Herman G. The School in the American Social Order. Boston: Houghton Mifflin, 1947.
2. Caswell and Campbell. Readings in Curriculum Development. New York: American Book Company.
3. Wilds, Elmer Harrison, op. cit.
4. Wood, Ben D. and Haefner, Ralph. Measuring and Guiding Individual Growth. New York: Silver Burdett, 1948.
5. American Association of School Administrators. The Expanding Role of Education. Washington, D. C.: N. E. A..

that the schools have a grave responsibility in these areas. These educational leaders declare that there is urgent need for further and more concentrated effort in these vital areas of school responsibility. It is true that statistics show that there has been improvement in these areas since World War I when twenty-five per cent of the inductees were found to be illiterate, and twenty-nine per cent were physically unfit. Nevertheless, the selective service examinations rejected some 5,000,000 young men for military service on account of physical, mental, or educational deficiencies--more than one in every three examined.[1]

Many leaders in educational administration, curriculum construction, and instructional research are voicing such questions as: Is it possible that the schools have failed their students in these areas of development? What more can schools do to detect and remedy obvious physical defects? What can be done to overcome the glaring deficiencies in reading and number skills? How can the curriculum be made to serve as a means to the personality development of the individual? Is it possible that the school has missed the symptoms of physical defects and personality maladjustments? Is it possible that education has not recognized the striking phenomenon of individual differences which exist in practically every area of human behavior: physical, intellectual, emotional, artistic, and social.

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1. Norton, John K. Unfinished Business in American Education. Washington D. C.: N. E. A., 1946.

Realizing the vital role which the school plays in the development and the future security of the nation, school men have redoubled their efforts to find the reasons for the "failure" of the American schools to meet the needs of the citizens.

The past thirty years have brought about the development of increasingly accurate instruments for measuring individual capacity and growth. During that period educaters became more and more conscious that there are striking individual differences among learners. Consequently, there has been improvement of methods of guiding human learners in the acquisition of knowledge, skills, and principles of interpretation. However, in spite of the research and improvements made by these educational leaders, schools, in the nation as a whole, have widely ignored the striking phenomenon of individual differences, and have not fully recognized and accepted guidance as an urgent educational responsibility.

Testing or measurement is important in the guidance of pupils for it reveals individual abilities, interests, and needs. Taking a patient's temperature and pulse is not the cure. The information brought to light by testing must be analyzed, diagnosed, and treatment prescribed. The testing program in Ohio reveals the fact that the guidance of the individual should start early and be continued systematically throughout the pupil's educational life. Botanists know that they cannot produce excellent fruit nor improve the foliage of a plant if they starve the roots. It is obvious, likewise, that

optimum development and achievement in high school and higher education of each individual will be affected by the ground work built in the elementary and junior high school years.

Modern secondary school students need all of the important study skills that were needed by students of former generations, plus many more that were not emphasized in those years. Formerly a student was required to do little more than glean the important facts from an assigned page. Now, however, he must not only pick out the principal facts of a selection but he must also be able to decide what passage in which book or books will probably be most helpful for his purpose. Then, having selected and read the material, he is required to interpret and to use what he has read. Because studying is one phase of learning, the definition of study skills must be broadened to keep pace with the expanding concept of what constitutes a learning activity.

The term learning does not always convey the same meaning to different persons. Some educators understand it to mean the forming of fixed habits and associations, others define it as the great variety of desirable changes which may be brought about in the individual. The teacher will not be content with guiding the child in the process of acquiring habits and information; he will go further and be concerned with changes that take place in the child's attitudes, interests, understandings, and beliefs; and in his behavior as an independent, resourceful individual after he is away from the

influence of the teacher and the school. Changing behavior is a complex process. Knowledge or information alone is not sufficient to guarantee desirable changes in the student's behavior. Changing behavior includes the development of attitudes, interests, and understandings; the mastery of skills and the development of effective habits. These learnings are not developed in isolation from each other. Every habitual response involves elements of all of them in varying degrees.

Wynne[1] believes that since learning is the process by means of which changes are made in human behavior, the two important questions which the teacher must attempt to answer are: (first) what are the particular changes which should be brought about in the behavior of the child? and (second) what methods, materials, and environmental conditions are most conducive to the consummation of these changes in the child's behavior? The responsibility of the teacher is to see that each child is improving his own ways of responding. His present behavior today should represent an improvement over his behavior of a month or a semester ago. The main concern of the teacher is whether the child is progressing as rapidly as his potentialities permit, toward the socially acceptable standards of the adult world. The school should guide the child in the refinement and extension of those desirable kinds of conduct that he has formed before coming to school and promote the development of other forms of behavior.

1. Wynne, John P. The Teacher and the Curriculum. New York: Prentice-Hall, 1947, p. 120.

Gould[1] and Yoakam corroborate Wynne's opinion when they say:

> The teacher begins with the innate capacities of the child, his experience in the home, and in the outside world; his physical, moral, and spiritual potentialities, and with him works to develop a person who can meet the problems of life in intelligent ways. The teacher is potentially the integrater of personalities, the counselor and guide to learners, the developer of citizens, and the servant of the state as guardian of the individual.

Activities, physical, mental, or emotional, ordinarily take place in response to a need of some sort. One wishing to go to a certain place to see a ball game; or to look at some property, or to hear a special music program, will make the necessary movements to accomplish his purpose. The mental activity called study is likewise brought forth in response to specific needs. Study normally takes place under the stimulus or spur of particular conditions--conditions which are unsatisfactory and are hindering the fulfillment of an individual's needs or purposes. Wynne's[2] findings substantiate the above convictions and his interpretation of children's interests as a factor in the learning process seems to be more in accord with recent developments in biology and psychology than the interpretation of some educators who believe that all educative activities develop out of the conscious purpose of the learner. He declares:

> Almost without exception today, biologists and psychologists are agreed that any organism on any level never does

1. Gould, George and Yoakam, Gerald Allan. The Teacher and His Work. New York: Ronald Press, 1947.
2. Wynne, John P. op. cit. p.25.

> things for nothing. All learning is the outcome of activities involved in the resolution of some lack, tension, stress, or strain. Without some such tension, lack of adjustment, or loss of balance, there is no learning. Any activity that contributes to the resolution of such a disturbed state of affairs is satisfying and significant. Every experience which arises from lack of adjustment may be designated as an organismic or experienced need. It is the initial stage in experiencing and learning. The movements directed to the adjustment required to re-establish an equilibrium or state of normalcy, when confronted with obstacles, may become conscious, intelligent, or purposeful in its inception. It may never become so in the case of young children. But it is present wherever learning, and significant living occur.

After one becomes conscious of the want of harmony between what is and what might be, his actual study of the problem will vary indefinitely. He may use several approaches and many techniques, yet there are certain principal factors common to both scientific investigation and to study in general.

First, there must be a specific purpose before an individual can expect his study to proceed intelligently. He must collect his data in reference to the particular issues at hand. Second, he must weigh these data, interpreting their meanings, and tie them up with the problem at hand. Likewise the scientist organizes his data, selecting those which are of first importance to his study and subordinating many others to these, and finally, discarding many more because of their insignificance. This technique, organization of facts collected, is also vitally important in study in school. Fourth, the student must be able to reserve judgement of the worth of statements until all the facts are in, and base the validity of the

statements on the evidence of the facts. Fifth, the scientist is greatly dependent upon his memory. So is everyone else, including the young student. The young student must be able to find supplementary materials, use the index and the dictionary; recognize meanings in word symbols as he reads; remember common rules of grammar, and certain basic number facts; how to read the illustrations in the text and in the supplementary materials--whether they be pictures, charts, graphs, or maps. He must be able to use the library--use the card catalogue, locate and use reference books. Furthermore, he must know how to spell and when to capitalize; he must know how to punctuate, and what constitutes good sentence structure. He needs the skills of outlining and the making of a bibliography. The learning of all these skills should be made as functional as possible. Memorization is required in such skills as learning the alphabet in order to use reference materials; learning the multiplication table in order to be independent in common functions of daily living--such as buying at a store, making and giving change, laying out a ball diamond, making an outdoor fireplace, planning a trip or picnic, and using one's allowance. This utilizing or making use of meanings is a sixth common factor in scientific and general study. A seventh factor in study is that there are two kinds of knowledge; first, facts that are true for all times such as: basic number facts, the sun "rises" in the East, the earth turns on its "axis"; and second, some facts or types of knowledge will be

materially supplemented or modified by future study and scientific investigation. The following example will illustrate this fact. There was a time when scientists believed that a molecule was the smallest particle of substance, but research proved that molecules are made up of particles called elements; that elements, or atoms, are divisible, and that the difference between various kinds of atoms was caused by the number and arrangement of the electrified particles in each kind of atom. Therefore, the student as well as the scientist, must temper his conclusions by considering which facts are proven for all time, and which facts are probabilities.

The educator, too, in his search for more functional and efficient methods of teaching students, has gathered much data, has organized these data, and has tried to draw accurate and scientific conclusions. The past thirty years have witnessed dramatic developments in instructional research, curriculum construction, and educational administration, but educators realize that there is yet much to be desired in the effectiveness of America's schools.

Many educators believe, and rightly so, that education is individual guidance. In the elementary and in the junior high schools teachers are trying to provide youngsters with understanding and masteries of the skills and information needed for getting along in a complex world. Therefore schools "set[1] up goals of education,

1. Wood, Ben D. and Haefner, Ralph. op. cit., p. 449.

such as health, personality adjustment, control of oral English, reading ability, mastery of simple numbers, understanding of the physical and social worlds." In order to accomplish these goals the pupils will need to be provided with numerous opportunities to gain small experiences which finally add up to working skills or usable understandings of the broad goals.

Highly reliable age scales have been constructed which show that the development of motor, social, and intellectual abilities is highly sequential in nature. "In general[1]...individuals differ greatly in the rate of development attained at maturity, also that the various traits of an individual develop at different rates and reach different levels at maturity."

Testing of pupil status in a given area of achievement is one means of avoiding the waste and discouragement involved in attempting to teach again what the learner already knows or attempting to teach him at a level far beyond his present attainment. Measurement of pupil status in achievement and the adjustment of instruction to status should be a continuing process in every classroom. For optimum development can only be achieved when both the teacher and the learner are aware of what the nature of the next educational experiences should be.

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1. Lindquist, E. F. Educational Measurement. Washington, D. C.: American Council on Education, 1951, p.34.

The role of measurement in the facilitation of learning is an important one. Both achievement tests and diagnostic tests have important functions to perform. The diagnostic type test is most useful in discovering specific deficiencies in learning or teaching. The diagnostic measurement of basic study skills proficiency of all the pupils in grades five through nine provides the superintendent, principals and teachers with objective information for the adjustment of the curriculum to the status of the pupil in order that he might develop most efficiently. The Iowa Every-Pupil Tests of Basic Skills, New Edition, Advanced Battery, Form "O" was selected as the measuring instrument. The following chapter describes the testing procedures, who gave them, how many students participated, levels and areas covered, and so forth.

Chapter II

PROCEDURE

The Iowa Every-Pupil Tests of Basic Skills, Advance Battery, Form "O" was given to 467 intermediate and junior high school pupils in a public school. This survey is limited to one school system, therefore these 467 students can not be considered a representative sampling of study skill proficiency in all intermediate and junior high schools. The study is justified, however, since it is being conducted to determine the existing proficiency and to identify the major areas in which remedial instruction is needed either by individual pupils or by the class as a whole. This information is necessary in order to provide the right teaching materials for the right child.

The Iowa Every-Pupil Tests of Basic Skills consist of separate tests in reading, work-study, language, and arithmetic skills and are intended to measure certain specific skills in these four areas. The tests cover the basic school skills with gratifying thoroughness. The silent reading comprehension consists of brief, non-fiction paragraphs, followed by from five to ten questions. The language skills test not only the customary language usage items, but also punctuation, capitalization, spelling, and sentence meaning. The arithmetic skills are concerned with fundamental knowledge and

vocabulary and includes distance judgment, time telling, story problems, understanding of the reasons behind basic computations, and fundamental operations. The work-study skills section is a valuable feature of this battery. This part tests the skills which are more complex than the recall of facts--the reading of maps, graphs, and charts; the use of reference materials, the index, and the dictionary.

Grade equivalents and percentile grade norms are based on four samples of approximately 50,000 pupils each in more than 350 school systems of whom about 140,000 were from Iowa graded public schools. The authors of this test battery recognize that courses of study vary in different sections of the country, therefore they state that the tests do not provide "standards" for individual pupils, classes, or schools, but give a comparison with the standard population.

This research is undertaken to ascertain the real facts concerning the existing conditions in this school of the pupils' proficiency in use of basic study skills. Many school men recognize that pupils vary among themselves and are interested in knowing the extent to which they deviate. The superintendent of the school participating in this investigation gave his wholehearted co-operation and made this study possible.

He discussed the project with his principals and teachers, outlining the need for such a survey and enlisted their support. The staff, working with the superintendent, outlined the duties and

responsibilities of each person. The superintendent, principals and teachers were given full responsibility for adminstering the tests and securing other desired information.

The tests were secured and administered during the first three weeks of December, 1950. The co-operation of the pupils was secured by various means; the principle factor, perhaps, was the assurance that the test scores were not to be used as a basis for grading, but would serve as a means of locating deficiencies and would, therefore, be a basis for new planning and work through which achievement would be more satisfactory.

The room teachers in grades five and six took charge of their own pupils. The junior high students were grouped by "homeroom" and the staff assisted in the testing procedure. The students in all grades filled in data requested on the test booklet. This data concerning each pupil was the usual information: pupil's name, sex, race, date of birth, name of school, town, teacher, grade, and date of testing. The teachers and the staff followed carefully the directions given in the manual for administering the tests. The completed tests were returned to the investigator for scoring and processing. The raw scores were converted to the grade norms given in the Examiner's Manual. These grade equivalents were carefully tabulated by sex and grades. The total scores achieved by a pupil in the separate tests were tabulated and arranged together. In other words, all scores made by "Pupil One" are placed on a horizontal line

across the page, thus enabling anyone interested to see at a glance the achievement of "Pupil One". The mean and standard deviation for the boys and for the girls in each grade were computed in order to determine how much each individual deviated in relation to the group norm, and also to determine the relative proficiency of the group as a whole. Educational leaders are becoming increasingly aware of the significant instructional problem which individual differences present. School men declare that approximately a third of the pupils in a given grade do as well on educational achievement batteries as the average of the pupils one grade above; and about a third do no better than that of the pupils one grade below. About 10 per cent deviate by two full grades above and below; and 2 or 3 per cent, by three full grades.

The normative-survey type of research has been utilized extensively as a research procedure and administrators are now becoming aware of its value in indicating current trends. The normative-survey research, of which this present study is an example, is conducted to ascertain the real facts regarding present conditions. Its significance is not limited to the present, for it can be used to afford descriptions of conditions at different periods of time. Comparison of data secured enables one to determine the direction of change or trends noted.

Administrators rate this method as practical, for it surveys conditions in natural situations. Since research of this type does

provide data of existing conditions, school men recognize it as furnishing practical data. This type of research does not furnish data for predicting future events. Studies made in the past may be compared with studies made in the present. The data thus obtained may not, in itself, have predictive qualities. This data placed in the hands of interested individuals will aid them in planning their programs. In this type of survey, it is important to make use of similar information secured by earlier studies, so as to interpret present findings in the light of changes and trends. Future growth can be guided when trends are noted. In survey testing programs, whenever possible one should make use of similar information secured by earlier studies in order to interpret present findings in the light of the indicated changes and trends.

Educators have been searching for many years for adequate answers to the problems concerned with efficient reading and other basic study skills. The following chapter reviews some of their findings and conclusions.

Chapter III

REVIEW OF RELATED LITERATURE

The ultimate purpose of analyses of students' strengths and weaknesses in their abilities to use the basic study skills is to serve as a basis for guiding future reading activities, work techniques, and to assist students to overcome their difficulties.

McCallister[1] calls attention to the problems of various reading activities. He says "It is generally recognized that the reading activities essential to effective study differ notably in various subjects. Each subject possesses a specific vocabulary which the reader must be able to use and understand. Further, each subject employs its own signs, symbols, maps, charts, graphs, tables, and other forms of thought representation. The purposes peculiar to each subject govern the reading activities."

The techniques of different subjects create needs for different form and applications of reading. For example, mathematical reading may require intensive interpretation of relatively short passages. Historical material must often be read with understanding of the continuity of relatively long passages. Reading in science may require application of directions to a laboratory experiment.

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1. McCallister, James M. Remedial and Corrective Instruction in Reading. New York: Appleton-Century Company, 1936.

McCallister goes on to point out that some pupils adjust readily to the different behaviors and skills required by these different reading activities and some do not. Pupils need both individual and group guidance in adjusting to the various demands made of them. He declares, "Provision should be made for remedial and corrective training for pupils who are seriously retarded and for co-operative effort on the part of teachers in guiding the reading activities in studying content subjects. Adequate training and guidance in reading will add much to the effectiveness of instruction in all subjects."

Extensive studies made by Broom[1] and by Durrell[2] reveal that there are deficiencies in certain technical abilities in the use of study aids. Broom lists typical pupil activities in which adequate reading or study skills are essential to successful learning. These activities are: (1) solving a problem in arithmetic; (2) preparing current events for presentation before a class; (3) interpreting a picture, a graph, a table, a diagram, or a chart; (4) finding answers to thought questions; (5) securing information in order to enrich class discussions; and (6) outlining or summarizing materials for study.

Durrel[3] recommends that students be taught certain technical abilities in the use of the study aids and reference materials. He

1. Broom, M. E., Developmental Reading in High School. New York: McGraw-Hill Company, Inc., 1942.
2. Durrell, Donald D., Improvement of Basic Reading Abilities. New York: World Book Company, Inc., 1942.
3. Ibid.

believes that instruction in the use of the dictionary will quickly overcome the slow and inaccurate habits of many pupils when assignments require the use of reference books, as in independent work and unit assignment. Reading in a restricted sense is a study tool. Durrell seems to have that thought in mind when he declares that the following general reading abilities are a good foundation for a balanced reading program. First, the pupil must read thoroughly and follow the material closely in order to provide the basis for a complete oral or written report, to give brief summary of major and minor points, to answer detailed questions, and to master ideas presented. Second, he must know how to skim for review purposes, be able to select material related to specific topics, and note general ideas. Third, the student must have developed associational and critical reading in which he combines his own experiences and purposes with materials he reads, criticizes the selection, finds illustrations of, or exceptions to, the author's statements, and suggests further activities in the subject.

These findings are corroborated by research made in this field by many other educational leaders. For instance, consider the statements of McKee[1] who declares that the following abilities and skills are necessary for successful achievement: (1) ability to comprehend material read; (2) locating material; (3) selecting and

1. McKee, Paul. Reading And Literature In The Elementary School. Boston: Houghton Mifflin Company, 1934, p. 72.

evaluating material; (4) organizing material; (5) deciding what part of the material read should be remembered and how to remember it. He emphasized that these skills and abilities should be performed quickly and accurately in the light of the problem in mind.

Harris[1] investigated the reading habits of students in order to help them increase their reading ability. His study reveals that the efficient reader must develop abilities which are more properly called study skills. He says that pupils do not know how to use their libraries and spend much needless time searching for materials. He states that learning to locate information is a basic skill which includes such phases as using the book index, using the card catalog, also knowledge of the kinds of information that can be found in the different reference books, thinking of relevant headings for topics, choosing the right books, and interpreting abbreviations commonly employed.

Cross[2] reports that one problem constantly faced by teachers in junior high school is the provision of materials which deal with vital problems but which are written simply enough for the student at this level. The traditional textbook is being supplemented by outside reading materials. The demands made of the student in the upper grades and junior high school in reading are such that he must

1. Harris, Albert J. How to Increase Reading Ability. New York: Longmans, Green and Company, 1947, p. 49.
2. Cross, Neal M. "Social Change, General Education, and Reading." Reading in General Education. (Edited by William S. Gray) Washington, D. C.: American Council on Education, 1940.

be able to find the materials dealing with subjects in which he is interested, to use the card catalog, and other guides to reading such as the index of a book, use standard reference books; and then to determine the relevance of particular books, selections, and passages; adjust his rate of reading and methods of study to the purpose at hand. Cross believes the above skills are as important as the possession of a vocabulary, a vocabulary adequate enough to at least secure the general sense of what is read.

Horn[1] declares that the efficient reader is able to read in many fields--literature, mathematics, science, and social studies--he is able to adjust to various types of material, and to adapt his reading methods to his own purpose. In order to attain proficiency in reading many kinds of materials for many different purposes, a student must acquire a wide range of abilities and skills. By the time a student is ready for high school, he must be trained to use a number of abilities required for reading activities. These are: fact getting; locating material; aspects of reading ability involving reasoning, remembering what is read, applying what is read; creative reading; and oral reading. He stresses that the abilities which students must possess include the ability to locate dependable books and articles dealing with a particular problem at hand. Vitally important is the ability to select, appraise, and understand data

1. Horn, Ernest. Methods of Instruction in the Social Studies. New York: Charles Scribner's Sons, 1937, p. 154.

secured from a variety of references, and have the ability to retain, improve, and use what has been learned.

Morrison[1] reports that he found eighteen difficulties in reading among seventh grade students in an American History class. These reading difficulties are classified into five categories: (1) improper methods of attack, (2) inability to recognize relations, (3) deficiencies in vocabulary, (4) inaccuracy in interpretation, and (5) lack of clearness of directions.

Seven of the eighteen difficulties identified by this investigation were traced to improper methods of attack in reading. Some of the results of improper methods of attack are: (1) student overlooks points of major importance and secures understandings of only part of a passage and then makes snap judgments or faulty interpretations; (2) student fails to use given references and flounders in his attempt to locate information on an assigned problem or topic; (3) student uses material verbatim without making author's meaning his own; (5) student reads words without new concepts or extending his previous learning, and recites from past experience.

The chief purpose of the Committee on Reading in General Education[2] was to make an intensive, critical study of the present status, recent trends, and the current issues in reading....and to

1. Morrison, Henry C. The Practice of Teaching in the Secondary School. Chicago: University of Chicago Press, 1931.
2. Gray, William S. (Editor). Reading in General Education. Washington, D. C.: American Council on School Education, 1940, Preface viii.

identify problems that are in urgent need of further investigation. The data secured through the survey provide an impressive picture of the increasing demands made on the reader today, both in and out of school. "They show, for example, that as a result of recent social and educational developments the need is urgent for keener interpretation and more intelligent adjustment to all one hears, sees, and reads that has usually been required in the past. They amply justify the present deep concern about the reading throughout the period of general education and of developing at each level of advancement broader interests and greater efficiency in reading than prevails commonly today."[1]

The function of general education is to create, clarify, and communicate experience. Reading is a vital phase of such communication. However, words in themselves have no meaning--they are symbolic and the meaning or interpretation given to them, depends on the past experience of the reader.

The fact is widely recognized that far too little has been done in the past to extend systematically the meaning vocabularies of children. The study made by Gray[2] and Holmes reveals that this is particularly true in the content fields for many teachers make little or no specific effort to help pupils attach meanings to words. The deficiencies exhibited by many pupils indicate that some

1. Ibid.
2. Ibid.

systematic guidance is desirable in promoting vocabulary.

Thorndike[1] states that the student must add new abilities to those learned in the primary grades. These include increased vocabulary and constructions, and the organization of large units of thought. By the time he leaves grade nine he should know from 10,000 to 25,000 word meanings, a large fraction of which he will learn from reading, not hearing. By that time he should be familiar with all the reputable English constructions, many of which he may never have heard at all, words and constructions and their organization in sentences and larger units should be acquired grade by grade in time to be useful in the pupil's learning of geography, history, civics, and other content subjects. This does not mean that the special vocabulary of a subject should be learned ahead of that subject. On the contrary, words and constructions should be learned in association with, and in subordination to, facts and principles.

The opinion of Bond and Bond[2] concerning the teaching of reading in the content subjects is clearly indicated. They declare, "Since the necessary reading abilities must be developed where they are needed, it follows logically that reading instruction should be an integral part of the teaching of each content subject, and should be the responsibility of the teacher of that subject.

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1. Thorndike, Edward L. Improving the Ability to Read. New York: Bureau of Publications, Columbia University, 1935, pp. 1-2.
2. Bond, Eva and Bond, Guy L. Developmental Reading in High School. New York: Macmillan Company, 1941.

Their conclusions are corroborated by Strang[1] who says, "Practice and instruction in reading obtained in the particular field in which the content is to be mastered is superior to the practice gained in another field with the expectation that its benificial effects will be transferred."

Yoakam,[2] in a recent study of specialized skills needed in content subjects declares, "Unless specific attention is paid to reading problems involved in curricular fields, the child will fail to profit from the subject or the unit." He stresses the fact that the teacher in the curricular areas must assume the responsibility for the adequate use of fundamental skills already learned and for the development of new and special skills required, for these are vital factors of achievement in his field.

Numerous other studies have been made concerning the student's need and proficiency in the basic study skills. Many educators agree that the learner must form his own conceptions and understandings. One constructs new ideas or understandings by interpreting or combining the new with the old concepts. They agree pupils are greatly handicapped in gaining new concepts, unless they have achieved certain basic proficiency in reading, study skills, language, and number skills.

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1. Strang, Ruth, Problems in the Improvement of Reading in High School and College. Lancaster, Pa.: Science Press, 1938.
2. Yoakam, Gerald, "Essential Relationship Between Reading and the Subject Fields or Areas in the Curriculum." Journal of Educational Research, 39: 468.

Stroud[1] declares, "Without a number system man could no more engage in quantitative thinking than he could engage in conceptual and ratiocinative thinking without words. After all, number is a form of language. Moreover, that which cannot be counted, measured, and quantified is not amenable to scientific investigation. Hence we are indebted in no small degree to number system for our material advancement and much of our enlightenment."

Many school men are concerned about deficiencies in vocabulary and language usage. They recognize that proficiency in language, both oral and written, is increasingly important in society today. One needs to know correct sentence structure and language usage in daily conversations, in giving direction, in placing telephone calls, and many other activities. In addition to these, other skills such as capitalization, punctuation, and spelling are necessary for all written language in daily living.

One of the basic study skills is map reading. Through the use of maps, the pupil forms more adequate and more accurate concepts of the facts presented in his textbooks. Saale[2] states, "Maps can show almost any type of quantitative information.... They are used to indicate location, direction, distance, areas, land and water forms, rainfall, volumes of business, distribution of crops, geographical features, such as size and shape, present economic and

1. Stroud, James B., op. cit.
2. Saale, Charles, W. Instruction in the Use of Maps Needs to Be Increased. Chicago: Denoyer-Geppert Company, 1949.

social data, population distribution, trends through the periods of history." Since maps give such a variety of information about the earth and its people, students can very profitable use them. However, since they are of such varied types, students need definite instruction in their interpretation. Recent surveys[1] show that students have definite deficiencies in this area. Educators, administrators, and teachers recognize their responsibility when they attempt to find the difficulties of individuals and to provide experiences which will meet the needs of that individual, whether that student is accelerated or retarded.

Likewise, this study was made to discover the problems of the individual in the basic study skills. The need for efficient study habits and some of the basic factors of study were discussed in chapter one. Testing procedures were described in chapter two. This chapter has presented a sampling of research made for curriculum improvement to aid individual achievement. The findings of this study will be discussed in chapter four.

1. Holy, T. C. A Study of Public Elementary and Secondary Education in Oregon. Salem, Oregon: State Board of Education, 1950; Howell, Wallace J. "Work Study Skills of Children in Grades IV to VIII", Elementary School Journal, 50: 384-389, 1950; Hunnicutt, C. W. "Study Skills Start Early", Education, 68: 620, 1948.

Chapter IV

ORGANIZATION AND INTERPRETATION OF DATA

The scores obtained from administering the various tests of the Iowa Every Pupil Test of Basic Skills were converted to grade norms and arranged into tabular forms. These tables include:

Table I: Frequency Distribution of Reading Scores According to Grade Levels

Table II: Item Analysis of Reading--Fifth Grade

Table III: Item Analysis of Reading--Sixth Grade

Table IV: Item Analysis of Reading--Seventh Grade

Table V: Item Analysis of Reading--Eighth Grade

Table VI: Item Analysis of Reading--Ninth Grade

Table VII: Frequency Distribution of Scores of the Work Study Skills According to Grade Levels

Table VIII: Item Analysis of Work Study Skills--Fifth Grade

Table IX: Item Analysis of Work Study Skills--Sixth Grade

Table X: Item Analysis of Work Study Skills--Seventh Grade

Table XI: Item Analysis of Work Study Skills--Eighth Grade

Table XII: Item Analysis of Work Study Skills--Ninth Grade

Table XIII: Frequency Distribution of Language Skills According to Grade Levels.

Table XIV: Item Analysis of Language Scores--Fifth Grade

The first six tables contain data concerning reading scores obtained from the test. Table I shows the frequency distribution and overlapping of reading scores according to the grades used in this study. Tables II through VI indicate the range, the mean, and the standard deviation for Grades V through Grade IX. The information in these tables is further broken down according to sex for each grade. As a means of a rather complete analysis these tables show the range of scores attained by sex. The range is a simple statistical measure which illustrates the spread or variation between the lowest and the highest score in reading at the fifth grade level. Similarly, the mean has been computed for purposes of further

statistical analysis. The mean is a form of expressing the average score attained. This is a more accurate procedure of locating an individual's position in a group than the range. There is another measure of variability which is important and useful in identifying a student's status. This measure is the standard deviation or sigma; it locates a student in relation to the mean. One standard deviation, plus or minus, from the means includes 68.26 percent of the scores in a normal achievement curve. Sigma scores are also presented by sex.

Table VII points out the frequency distribution and overlapping of scores attained in Grades Five through Nine on the Work-Study Skills section of the survey test used for this study. Tables VIII through XII are constructed in the same manner as Tables II through VI, but show the comparison for the Work-Study Skills by the various grades.

Tables XIII and XIX illustrate frequency distribution and overlapping of scores attained in the language and in the arithmetic sections respectively. The range, the mean, and the standard deviation are shown in Tables XIV through XVIII, and Tables XX through XXIV for language and arithmetic respectively.

The subsequent table illustrates the frequency distribution of the reading scores. The writer will discuss only the significant points included in the various tables. The reader should consult the tables for more detailed information.

Table I

FREQUENCY DISTRIBUTION OF READING SCORES

ACCORDING TO GRADE LEVELS

Grade Equivalents	Fifth	Sixth	Seventh	Eighth	Ninth
108-110*		2	3	4	10
105-107				3	3
102-104				1	7
99-101		2		6	2
96-98			3	6	3
93-95		1	4	2	3
90-92				4	3
87-89		2	2	2	10
84-86	1	1	5	5	5
81-83		1	4	2	3
78-80		1	6	6	2
75-77	1	2	4	3	4
72-74	1	1	4	4	11
69-71	1	4	6	10	6
66-68	3	4	4	4	2
63-65	9	4	5	6	2
60-62	4	6	9		2
57-59	9	6	3	6	5
54-56	7	6	3	5	1
51-53	13	5	6	5	2
48-50	8	6	4	5	1
45-47	7	1	4	4	
42-44	6	4	4	1	2
39-41	8	5	2	1	
36-38	6	3	5		
33-35	4	1	1		
30-32	4	1			
27-29	1				
24-26	1				
21-23					
18-20	1				
Mean	49.99	60.24	66.66	74.50	82.86

*Scores have been converted into grade equivalents. Hence a score of 110 should be read -- eleven years and no months. All scores should be interpreted in this manner.

Interpretation of Table I

Frequency Distribution of Reading Scores According to Grade Levels

A close inspection of Table I reveals considerable overlapping of reading scores from grade to grade. The amount of overlapping increased as the grade level increased. The range in the reading scores was from one year and eight months to eight years and six months;[1] the range for the Sixth Grade was from three years to eleven years. For the Seventh Grade level the range was from three years and three months to eleven years. The ranges for the Eighth and Ninth Grades respectively were from three years and nine months to eleven years, and from four years and two months to eleven years. Approximately 25, 30, 33, and 35 percent of the pupils in Grades Five, Six, Seven, and Eight respectively obtained a grade equivalent equal to the average of the pupils in the grade above. In Grades Six, Seven, Eight, and Nine, approximately 30, 33, 35, 36 percent of the students attained a score equal to or less than the average of the pupils in the grade below. The amount of overlapping as is shown in Table I is representative of the normal amount of grade overlapping for reading scores in survey testing of this nature. Normally a third of the pupils in a given grade do as well on educational achievement batteries as the average of the students one grade above, and about one third do no better than that of the pupils

1. Year as used in this context refers to the corresponding grade level. This same connotation is used throughout the study.

one grade below. About ten percent deviate by as much as two full grades either way, and about two or three percent deviate by as much as three full grades in either way.

The mean reading scores for Fifth Grade was five years and no months. This mean was four months below the expected norm. For the Sixth Grade the mean score was six years and no months, and the Seventh Grade fell seven months below the Iowa norm with a score of 6.7. The Eighth and Ninth Grades moved further from the norm with means of seven years and five months, and eight years and three months. There were two students in the Sixth Grade, three in the Seventh, and four in the Eighth that attained a score as high as that attained in the Ninth Grade.

The wide range in each of the grades will make it mandatory to avoid using a single reading textbook. Materials and textbooks will be needed commensurate with the abilities of all the students. Individual analysis of the difficulties of those students falling so far below the norm will need to be completed to ascertain the type of help they should receive.

The next series of tables, Tables II through IV, give the range, the mean, and the standard deviation according to sex for each grade used in this survey. The scores have been converted into grade equivalents. The score 23 is to be interpreted as two years and three months. All scores should be interpreted in this manner. In all cases the reader should form the habit of referring to the table for the complete statistical interpretations.

Table II

ITEM ANALYSIS OF READING SCORES -- FIFTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Comp.*	52	43	23-70	23-89	47.97	52.28	11.73	15.03
Voc.	52	43	33-69	37-79	47.67	54.69	12.52	10.63
Tot.	52	43	19-65	25-84	47.27	53.23	14.93	12.87

*Comprehension
Vocabulary
Total Reading

Table III

ITEM ANALYSIS OF READING SCORES -- SIXTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Comp.*	38	31	29-100	33-105	60.73	58.87	17.41	12.59
Voc.	38	31	37-101	35-107	60.44	60.32	15.37	17.53
Tot.	38	31	36-100	30-109	60.58	59.84	19.35	19.46

*Comprehension
Vocabulary
Total Reading

Table IV

ITEM ANALYSIS OF READING SCORES -- SEVENTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Comp.*	50	41	24-106	37-112	61.92	69.02	19.04	15.00
Voc.	50	41	34-110	34-107	63.34	73.80	13.20	18.73
Tot.	50	41	33-110	36-110	62.58	71.63	17.83	18.21

*Comprehension
Vocabulary
Total Reading

Table V

ITEM ANALYSIS OF READING SCORES -- EIGHTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Comp.*	46	49	40-110	31-108	72.82	74.53	20.49	18.04
Voc.	46	49	35-107	39-115	70.97	77.92	20.42	19.15
Tot.	46	49	44-110	40-110	72.61	76.28	19.71	18.78

*Comprehension
Vocabulary
Total Reading

Table VI

ITEM ANALYSIS OF READING SCORES — NINTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Comp.*	41	48	42-112	30-114	79.39	82.68	16.25	18.30
Voc.	41	48	46-112	40-115	82.56	83.91	16.85	16.80
Tot.	41	48	44-110	42-110	81.95	83.85	17.58	17.78

*Comprehension
Vocabulary
Total Reading

Conclusions of Tables II Through VI

In the attainment of Fifth Grade reading scores, the girls as a group received a higher average score than did the boys in both reading comprehension and vocabulary. The boys' total average reading score was four years and seven months and for the girls it was five years and three months. But in the Sixth Grade the boys were superior to the girls in total reading score, and then again in the Seventh Grade the girls were superior to the boys. The girls attained a total reading score of seven years and two months and the boys received a score of six years and three months. Similar superior results were found for the girls in both the Eighth and Ninth Grade levels.

For further analysis the reader is referred to the specific tables.

The following table shows the frequency distribution of the Work-Study Skills test.

Table VII

FREQUENCY DISTRIBUTION OF WORK-STUDY SKILLS

Grade Equivalents	Fifth	Sixth	Seventh	Eighth	Ninth
108-110*					
105-107		1			
102-104					2
99-101			1	3	4
96-98				4	5
93-95			2	1	5
90-92				1	3
87-89		1		1	2
84-86		1		4	5
81-83		1	2	6	2
78-80		1	1	3	3
75-77		1	1	4	5
72-74			3	6	7
69-71	1		3	11	7
66-68	1	4	12	6	4
63-65	2	9	7	5	9
60-62	3	4	5	6	7
57-59	4	6	14	11	5
54-56	6	9	10	8	11
51-53	6	4	3	3	2
48-50	10	8	13	3	1
45-47	20	6	6	3	1
42-44	18	1	4	5	
39-41	12	5	3		
36-38	7	3	3	2	
33-35	3	1	1	1	
30-32	1	1			
27-29	1		1		
Mean	46.39	55.77	57.81	67.37	73.11

*Scores have been converted into grade equivalents. Hence a score of 110 should be read — eleven years and no months. All scores should be interpreted in this manner.

Interpretation of Table VII

Frequency Distribution of Scores of the Work-Study Skills According to Grade Levels

The scores for the Work-Study Skills showed considerable overlapping from grade to grade. One student in Grade Six attained a score higher than any student in the Seventh, Eighth, or Ninth Grade. Similarly there were students in the Sixth, Seventh, and Eighth Grade who received scores equal to, or almost equal to, the lowest score in the Fifth Grade. The range of the Fifth Grade scores was from two years and seven months to seven years and one month; for the Sixth Grade, the range was from three years to ten years and seven months. The range for the Seventh Grade was from two years and seven months to ten years and one month; the Eighth Graders ranged from three years and three months to the same accomplishment of the highest student in the Seventh Grade. The spread in the Ninth Grade was from four years and five months to ten years and four months.

The mean scores were four years and six months, five years and six months, five years and eight months, six years and seven months, and seven years and three months for the students of the Fifth, Sixth, Seventh, Eighth, and Ninth Grades respectively.

It is interesting to note that the mean score for reading in the Fifth Grade was five years and no months while the mean score for the Work-Study Skills was four years and six months. Similarly the mean scores for the Sixth, Seventh, Eighth, and Ninth reading of

accomplishments were higher than the mean scores of the Work-Study Skills. This difference may be accountable due to the fact that the reading test consisted only of a section on comprehension and a section on vocabulary while the Work-Study Skills test consisted of knowledge in map reading, use of reference, use of the index, use of the dictionary, and the reading of graphs.

Tables VIII through XII show a further breakdown of each of the skills included in the Work-Study Skills section. The range, the mean, and the standard deviation are presented according to sex for each grade.

Table VIII

ITEM ANALYSIS OF WORK-STUDY SKILLS — FIFTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maps	51	44	30-63	30-75	46.02	50.06	8.49	9.73
Ref.*	51	44	10-75	10-80	45.98	44.43	15.09	19.00
Index	51	44	10-64	10-76	40.14	48.36	14.89	15.05
Dict.*	51	44	26.74	26.84	42.90	52.75	19.01	12.55
Graphs	51	44	25.65	30.79	47.55	51.20	10.82	11.17
Total	51	44	27-63	30-69	43.43	49.58	5.52	9.15

*Reference Dictionary

Table IX

ITEM ANALYSIS OF WORK-STUDY SKILLS — SIXTH GRADE

Skills	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maps	37	30	23-103	30-108	54.67	53.76	14.50	12.67
Ref.*	37	30	10-95	10-95	55.51	57.73	19.72	16.13
Index	37	30	10-95	10-98	56.43	59.33	15.99	21.00
Dict.*	37	30	35-79	30-108	52.35	58.43	10.85	17.67
Graphs	37	30	34-103	34-103	55.97	57.86	15.97	14.43
Total	37	30	35-88	31-106	54.78	57.00	13.16	13.07

*Reference
Dictionary

Table X

ITEM ANALYSIS OF WORK-STUDY SKILLS -- SEVENTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maps	52	43	30-110	34-108	58.83	61.67	16.50	15.28
Ref.*	52	43	10-95	43-90	58.42	63.18	20.00	12.78
Index	52	43	10-84	21-98	54.38	62.25	13.42	18.09
Dict.*	52	43	10-79	26-108	50.40	56.35	8.04	17.06
Graphs	52	43	34-93	37-98	56.77	62.81	15.80	12.91
Total	52	43	29-93	41-101	55.27	60.83	15.15	12.18

*Reference
Dictionary

Table XI

ITEM ANALYSIS OF WORK-STUDY SKILLS — EIGHTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maps	49	48	48-108	42-100	65.73	64.04	20.34	14.57
Ref.*	49	48	22-95	32-100	67.10	67.77	16.71	16.59
Index	49	48	10-101	10-101	57.53	68.02	18.10	18.15
Dict.*	49	48	32-108	35-108	63.41	72.16	18.84	18.11
Graphs	49	48	34-112	34-116	67.34	72.37	17.12	16.93
Total	49	48	35-100	42-100	63.90	70.91	15.53	10.94

*Reference
Dictionary

Table XII

ITEM ANALYSIS OF WORK-STUDY SKILLS -- NINTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Maps	41	49	44-114	38-100	73.31	66.48	21.07	15.26
Ref.*	41	49	32-95	22-101	72.75	69.65	14.92	10.72
Index	41	49	38-118	32-106	65.63	72.00	18.36	17.24
Dict.*	41	49	44-101	38-108	72.82	77.30	23.09	18.52
Graphs	41	49	44-101	34-107	77.85	74.00	13.06	17.00
Total	41	49	46-103	50-101	73.34	72.91	15.94	13.02

*Reference
Dictionary

Conclusions of Tables VIII Through XII

At the Fifth Grade level the boys had the advantage in scores attained in the use of references. This was the only skill in this section of the test in which the boys were superior to the girls. The girls were superior in map reading, the use of the index, the use of the dictionary, and reading of graphs.

The Sixth Grade boys were superior in map reading; the girls had the advantage in the use of references, the use of the dictionary, and the reading of graphs.

The girls were superior in all the sub-tests of the Work-Study Skills in the Seventh Grade.

At the Eighth Grade level the boys had an advantage in only one skill, which was map reading, and at the Ninth Grade level the boys again were superior in map reading, and also had the advantage in the use of references and the reading of graphs.

Table XIII

FREQUENCY DISTRIBUTION OF LANGUAGE SCORES

Grade Equivalents	Fifth	Sixth	Seventh	Eighth	Ninth
105-107				5	4
102-104			3	2	5
99-101				1	1
96-98				3	3
93-95		1	1	4	3
90-92			2	1	7
87-89			1	3	2
84-86			1	6	4
81-83			2	5	3
78-80	1	2		3	8
75-77			3	5	3
72-74	1	2	4	6	7
69-71		1	5	5	5
66-68	1	1	7	5	5
63-65	6	6	3	10	6
60-62	4	4	11	2	5
57-59	10	8	11	7	3
54-56	9	5	6	5	6
51-53	12	7	12	6	4
48-50	3	3	4	4	5
45-47	9	8	4	2	1
42-44	13	6	3	3	1
39-41	11	3	4	1	5
36-38	7	8	2	3	
33-35	5	4	1		
30-32	2				
27-29	3		2		
24-26	1			1	
21-23					
18-20					
15-17	1				
Mean	47.48	52.41	60.78	66.81	74.81

*Scores have been converted into grade equivalents. Hence a score of 110 should be read -- eleven years and no months. All scores should be interpreted in this manner.

Interpretation of Table XIII

Frequency of Language Skills According to Grade Levels

The distribution of scores in language indicate that for the Fifth Grade there was a spread from one year and five months to eight years and no months. The range for the Sixth Grade was three years and six months to nine years and five months; Seventh Grade had a range from two years and seven months to ten years and seven months. The dispersion of the Eighth grade students was two years and four months to ten years and seven months. The range for the Ninth Grade was three years and nine months to ten years and seven months. It was interesting to note that one Seventh Grader and five Eighth Graders attained a score equal to the highest score to any one in the Ninth Grade. This table again demonstrates the tremendous amount of overlapping from grade-to-grade. This particular pattern is not unique since all research dealing with similar achievement testing has discovered similar distributions.

The mean scores were four years seven months for the Fifth Grade; five years and two months for the Sixth Grade; six years and one month for the Seventh Grade; six years and seven months for the Eighth Grade and seven years and five months for the Ninth Grade.

The reader will be interested in a comparison of the mean grade equivalents for each of the grades for the reading scores, work-study skills, and language scores.

Attained Mean Scores

	Fifth	Sixth	Seventh	Eighth	Ninth
Reading	5.0	6.0	6.7	7.5	8.3
Work Skills	4.6	5.6	5.8	6.7	7.2
Language	4.7	5.2	6.1	6.7	7.5

Tables XIV through XVIII give a more detailed comparison of the language scores attained by the various grades.

Table XIV

ITEM ANALYSIS OF LANGUAGE SCORES — FIFTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Punct.*	54	47	10-73	14-88	42.00	52.97	14.57	15.95
Cap.	54	47	10-62	14-74	41.91	51.36	14.33	14.71
Use.	54	47	10-82	21-96	42.76	56.70	15.43	18.06
Sp.	54	47	32-65	37.82	44.22	53.42	8.68	10.25
Tot.	54	47	15-60	36-78	42.76	52.91	11.37	9.62

*Punctuation, Capitalization, Usage, Spelling, Total Language

Table XV

ITEM ANALYSIS OF LANGUAGE SCORES — SIXTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Punct.*	40	28	17-82	25-90	49.17	57.14	15.76	12.95
Cap.	40	28	10-67	12-100	44.18	58.04	15.43	17.77
Use.	40	28	30-94	19-100	56.36	58.96	16.80	21.10
Sp.	40	28	32-77	33-89	52.75	55.68	17.70	10.45
Tot.	40	28	30-80	36-93	50.15	55.64	10.83	12.70

*Punctuation, Capitalization, Usage, Spelling, Total Language

Table XVI

ITEM ANALYSIS OF LANGUAGE SCORES — SEVENTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Punct.*	54	44	15-96	10-104	55.31	66.06	16.32	14.06
Cap.	54	44	11-98	23-100	53.98	65.00	15.70	22.85
Use.	54	44	25-104	40-114	62.36	71.02	18.04	19.00
Sp.	54	44	33-92	36-101	58.16	66.36	11.70	15.56
Total	54	44	29-87	33-105	56.37	66.20	13.33	17.02

*Punctuation, Capitalization, Usage, Spelling, Total Language

Table XVII

ITEM ANALYSIS OF LANGUAGE SCORES -- EIGHTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Punct.*	50	48	14-105	28-109	63.78	74.81	23.04	17.91
Cap.	50	48	11-105	12-101	62.58	68.54	21.18	20.04
Use.	50	48	18-111	36-116	69.10	77.39	20.38	17.80
Sp.	50	48	34-103	39-102	65.20	77.35	17.95	17.05
Tot.	50	48	26-107	37-106	64.58	75.41	19.94	20.22

*Punctuation, Capitalization, Usage, Spelling, Total Language

Table XVIII

ITEM ANALYSIS OF LANGUAGE SCORES — NINTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Punct.*	42	50	28-110	37-104	67.76	75.92	20.73	18.62
Cap.	42	50	27-102	30-103	65.78	74.80	22.63	17.58
Use.	42	50	44-101	39-107	74.40	79.28	13.39	17.71
Sp.	42	50	37-103	50-107	73.69	79.8	17.60	15.69
Tot.			41-107	50-106	69.97	78.52	17.49	16.39

*Punctuation, Capitalization, Usage, Spelling, Total Language

Conclusions of Tables XIV through XVIII

The girls were superior to the boys at the Fifth Grade level in punctuation, capitalization, usage, and spelling. The results at this level are compatible with other research studies in achievement testing in the area of language skills. Likewise, at the Sixth, Seventh, Eighth, and Ninth Grade levels, the girls had the advantage over boys. Language development appears to be easier for girls than for boys. There may be a cultural characteristic which causes this.

The next table shows the frequency distribution of arithmetic scores.

Table XIX

FREQUENCY DISTRIBUTION OF ARITHMETIC SCORES

ACCORDING TO GRADE LEVELS

Grade Equivalents	Fifth	Sixth	Seventh	Eighth	Ninth
108-110*					2
105-107				1	2
102-104					3
99-101				2	3
96-98			1	2	4
93-95				3	6
90-92			1	3	3
87-89				4	3
84-86			1	2	9
81-83			1	5	2
78-80			3	4	8
75-77			4	6	7
72-74		2	1	6	5
69-71		2	4	7	6
66-68		3	15	18	15
63-65		5	15	6	5
60-62	3	16	19	16	5
57-59	11	7	17	4	2
54-56	19	13	8	5	1
51-53	28	12	3	2	2
48-50	14	2	2		
45-47	11	3	2		
42-44	6	3			
39-41	4	1	1	1	
36-38	2				
33-35	1				
Mean	51.08	56.20	63.90	71.75	78.46

*Scores have been converted into grade equivalents. Hence a score of 110 should be read -- eleven years and no months. All scores should be interpreted in this manner.

Interpretation of Table XIX

Frequency Distribution of Arithmetic Scores According to Grade Levels

The frequency distribution of the arithmetic scores indicates the following ranges:

Grade Five: three years and three months to six years and two months

Grade Six; three years and nine months to seven years and four months

Grade Seven: three years and nine months to nine years and eight months

Grade Eight: three years and nine months to ten years and seven months

Grade Nine: five years and one month to eleven years and no months

The mean arithmetic scores were five years and one month, five years and six months, six years and four months, seven years and two months, seven years and eight months for grades Five, Six, Seven, Eight, Nine respectively. A comparison of the mean grade equivalent for each of the grade levels for the four sections of the Iowa Every Pupil Test of Basic Skills indicate:

Attained Mean Scores

	Fifth	Sixth	Seventh	Eighth	Ninth
Reading	5.0	6.0	6.7	7.5	8.3
Work Skills	4.6	5.6	5.8	6.7	7.3
Language	4.7	5.2	6.1	6.7	7.5
Arithmetic	5.1	5.6	6.4	7.2	7.8

By inspection of the above mean grade equivalents, the lowest

accomplishment for the Fifth Grade was in the basic study skills and the highest was in arithmetic. The Sixth Grade obtained the highest average in reading and the lowest mean in language. The highest mean in the Seventh Grade was reading and the lowest mean was in basic study skills. For the Eighth Grade the highest mean score was in reading and the lowest mean score was equal in basic study skills and in language. The highest mean attained in the Ninth Grade was in reading and the lowest mean was in basic study skills. The mean grade equivalent was slightly below the standard norms as established by the Iowa Every Pupil Test of Basic Skills. The amount that each grade was below the norm in each of the four areas is given below:

Reading

Fifth Grade: Four months below the norm

Sixth Grade: Four months below the norm

Seventh Grade: Seven months below the norm

Eighth Grade: Nine months below the norm

Ninth Grade: One year and one month below the norm

Study Skills

Fifth Grade: Eight months below the norm

Sixth Grade: Eight months below the norm

Seventh Grade: One year and six months below the norm

Eighth Grade: One year and seven months below the norm

Ninth Grade: Two years and one month below the norm

Language

Fifth Grade: Seven months below the norm

Sixth Grade: One year and two months below the norm

Seventh Grade: One year and three months below the norm

Eighth Grade: One year and seven months below the norm

Ninth Grade: One year and nine months below the norm

Arithmetic

Fifth Grade: Three months below the norm

Sixth Grade: Eight months below the norm

Seventh Grade: One year below the norm

Eighth Grade: One year and two months below the norm

Ninth Grade: One year and six months below the norm

It is significant to point out that in each of the sections of the Iowa Every Pupil Test of Basic Skills the students at the advanced grade levels were further below the norm than the students at the lower grade levels. Teachers at the advanced levels will need to remind themselves that the teaching of study skills is as significant at the upper grade levels as it is in the lower levels.

Tables XX through XXIV give a further analysis of the arithmetic scores.

Table XX

ITEM ANALYSIS OF ARITHMETIC SCORES — FIFTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
*Fund. K	52	47	36-67	31-67	51.03	52.72	7.96	7.53
Fund. O	52	47	42-61	33-58	50.07	49.66	5.09	4.93
Prob.	52	47	30-74	33-83	51.06	55.17	8.81	10.24
Tot.	52	47	36-60	36-62	50.11	52.17	5.48	5.68

*Fundamental Knowledge
Fundamental Operations
Problems
Total Arithmetic

Table XXI

ITEM ANALYSIS OF ARITHMETIC SCORES -- SIXTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
*Fund. K	40	29	40-89	40-92	62.12	59.17	11.17	10.71
Fund. O	40	29	42-61	36-68	54.40	55.27	5.43	4.30
Prob.	40	29	38-93	44-83	60.87	56.69	13.87	9.02
Tot.	40	29	43-72	41-69	56.65	55.58	7.48	5.53

*Fundamental Knowledge
Fundamental Operations
Problems
Total Arithmetic

Table XXII

ITEM ANALYSIS OF ARITHMETIC SCORES — SEVENTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
*Fund. K	54	44	43-101	36-89	64.22	64.04	15.71	9.55
Fund. O	54	44	33-84	42-87	61.77	64.11	10.24	9.37
Prob.	54	44	38-100	41-100	63.00	64.90	14.55	15.78
Tot.	54	44	41-98	47-92	62.72	63.97	5.97	9.87

*Fundamental Knowledge
Fundamental Operations
Problems
Total Arithmetic

Table XXIII

ITEM ANALYSIS OF ARITHMETIC SCORES — EIGHTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
*Fund. K	50	47	36-101	43-92	70.94	71.08	11.14	10.88
Fund. O	50	47	36-102	53-110	69.80	74.19	12.18	15.07
Prob.	50	47	34-115	52-100	70.78	73.21	16.70	14.59
Tot.	50	47	41-106	53-100	70.10	72.15	11.52	15.09

*Fundamental Knowledge
Fundamental Operations
Problems
Total Arithmetic

Table XXIV

ITEM ANALYSIS OF ARITHMETIC SCORES — NINTH GRADE

Skill	Number		Range		Mean		Sigma	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
*Fund. K	42	51	55-102	49-102	80.66	75.50	13.51	13.55
Fund. O	42	51	51-110	53-110	77.83	79.67	15.22	14.55
Prob.	42	51	52-107	44-103	82.90	75.51	15.92	14.31
Tot.	42	51	52-108	52-109	80.62	76.68	14.81	15.65

*Fundamental Knowledge
Fundamental Operations
Problems
Total Arithmetic

Conclusions of Tables XX Through XXV

The sub-tests of the arithmetic section consisted of fundamental knowledge of arithmetic, fundamental operations, and problem solving. At the Sixth Grade level the girls had the advantage in each of the sub-tests; but at the Sixth Grade level the boys were superior to the girls in fundamental knowledge of arithmetic and problem solving. At the Eighth Grade level the advantage went to the girls in all sub-tests, and at the Ninth Grade level the boys were superior in fundamental knowledge and problem solving.

The following chapter presents the summary and conclusions.

Chapter V

SUMMARY AND RECOMMENDATIONS

Purpose

This study was made to measure accurately and reliably the proficiency of the basic study skills of intermediate and junior high pupils. The major purposes of this investigation are briefly summarized as follows: First, the administrator wished to ascertain the achievement of the pupils in his school as compared with the norms established by a reliable, nationally known, diagnostic achievement battery. Second, he recognized that some students were having trouble in the content areas, and he was eager to discover the factors which were hindering the progress of these students so that he could provide remedial experiences if necessary, and provide adequate instructional materials and practices for the students. Third, many of the teachers realized that the students were not working at their capacity, and they desired to know whether there were specific deficiencies in study habits and skills.

Procedure

The procedure used for this study made use of the Iowa Every Pupil Test of Basic Skills which was administered during the fourth month of the school year. This battery of tests was given to 467

intermediate and junior high school students. Those students were all enrolled in one school system and were those who were present on the days the tests were given. This battery of tests measures the students' ability to use the basic study skills and does not measure their knowledge of content information. Some of the skills tested were comprehension and vocabulary in reading; the use of the index, the use of references, the use of the dictionary, and reading and interpretation of maps, charts, and graphs; punctuation, capitalization and spelling; fundamental number knowledge, fundamental arithmetic operations and problem solving.

This study was a normative-survey type of research. The normative-survey type of research was used to ascertain certain facts concerning present conditions in the proficiency of work-study skills. This form of research is not merely limited to the present since it can be used to gather data at different periods of time and allows for comparisons to determine changes or trends.

The data gathered by the Iowa Every Pupil Test of Basic Skills was organized into tables. These tables indicate frequency distributions of grade equivalents for reading, work study skills, language skills, and arithmetic skills. A further analysis of the scores obtained were put into tables consisting of the ranges, the means, and standard deviation according to sex.

Conclusions

The findings of this study indicate:

1. The girls were superior in reading in Grades Five, Seven, Eight, and Nine. The boys were superior in reading at the Sixth Grade level.

2. Students encountered rather great difficulty in all levels in the work-study skills.

3. The girls had the advantage in the work-study skills at the Fifth, Sixth, Seventh, and Eighth Grade levels. Boys were superior in Grade Nine.

4. The girls were superior to the boys in the total language scores at all grade levels.

5. Capitalization appeared to be exceedingly difficult at all levels.

6. In arithmetic the girls had the advantage at the Fifth, Seventh, and Eighth Grade levels; in the Sixth and Ninth Grades the advantage went to the boys.

7. The Fifth Graders were lowest from the expected norm in the work-study skills; their highest total score was attained in arithmetic.

8. The greatest difficulty for the Sixth Graders was in the area of language; their highest total score was in reading.

9. The students of the Seventh Grade attained their lowest total score in the area of the work-study skills; they were one year and six months below the expected norm.

10. Eighth Graders had the greatest deficiency in the area of language; they were one year and seven months below the norm.

11. Ninth Graders had considerable difficulty in the area of work-study skills; they were two years and one month below the norm in this area.

12. The deficiencies in the four main areas increased as the grade levels advanced.

Limitations

1. The study is limited to only one school system and should not therefore be considered representative of all schools.

2. The writer had no knowledge of whether there had been any instruction in work-study skills in the curriculum. Nevertheless, study skills are so important that it would be almost inconceivable to think that schools were neglecting this area in the curriculum.

Educational Recommendations and Implications

1. All educators and teachers must realize that students must have adequate skills and study habits.

2. Since study skills are directly related to subject matter areas, each teacher must teach those study skills essential to the student so that he may better learn the subject matter.

3. The teaching of the various skills must be considered as means rather than as ends; they are the means by which students obtain their education.

4. It is apparent that many students will need individual guidance and assistance.

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