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Predicting Success on a Minimum Competency Examination

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PREDICTING SUCCESS ON A MINIMUM
COMPETENCY EXAMINATION

by

Donald Joseph Henderson

A Dissertation Submitted to the Faculty of Loyola
University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

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VITA

The author, Donald Joseph Henderson, is the son of Benjamin and Lucille Henderson. He was born November 30, 1940, in Chicago, Illinois.

His elementary and secondary education was obtained in the Chicago public schools.

In 1964, he received the degree of Bachelor of Science with a major in Elementary Education from Central State University, Wilberforce, Ohio.

In 1968, he was awarded the Master of Science in Elementary Education at Indiana University. He did advanced studies in school administration at Purdue University.

He has published the following articles:

"Gary, Indiana, High School Diplomas with Meaning"

Phi Delta Kapan, May 1978.

"Issues: Grade Level Standards for Promotion"

ASCD News Exchange, October 1978.

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CHAPTER I

Introduction

Many children graduate from high school without basic skills in reading, writing, and arithmetic. Their diplomas indicate that they are ready to find their places in the world but unfortunately for many of these youth, the world has no place for them because their diplomas are merely certificates of attendance. They are unskilled and undereducated.

Educators (Clark & Thompson, 1976; Thompson, 1977), professional organizations like the NASSP (1975) and the public (PDK, 1976) recognize this problem and favor requiring students to demonstrate competencies in basic skills as a requirement for graduation. It is felt that this requirement would make the high school diploma meaningful in terms of minimal levels of performance because too many youth graduating from high school demonstrate an inability to compute well enough to be intelligent consumers, or lack a reading proficiency sufficient to follow job instructions and basic safety rules (Clark & Thompson, 1976).

This idea (minimum competency testing) has received widespread attention (Pipho, 1977) and 36 states have enacted legislation requiring that students have basic skills as a condition of graduation. The intent of this legislation is to cause local school districts to identify students deficient

in basic skills and then provide them remedial help. Thus, the imposition of competency requirements is not punitive, rather, it is a means to achieve an important end--high school graduates who can read, write, and compute at specified levels.

To make the intent of such legislation a reality, local districts must establish programs of testing and remediation. However, if a child reaches high school and lacks basic skills as measured by tests, much valuable remediation time has been lost. Therefore, a system which facilitates the early identification of students who might in fact fail the competency tests in high school would be useful. It would provide the lead time so essential to effective remediation. The problem in developing such an early warning system is identifying variables such as attendance, standardized test scores, or socio-economic-status which may "predict" future success or failure on the competency tests. This dissertation has implications for the solution to this problem for at least one urban school system which is in the forefront of the minimum competency movement.

Statement of Problem

The Gary Public Schools have recognized for several years that satisfying specified attendance and course credit requirements is not always sufficient to insure that a graduating senior is adequately prepared for post high school activities and responsibilities.

On September 17, 1974, Dr. Gordon McAndrew, Superintendent of Schools, presented to the Board of School Trustees a program of minimum competency for graduating seniors. The related policy which the school board adopted extends the graduation requirements to include demonstrated proficiency in reading, writing, mathematics, and oral communication. That policy states that students not mentally handicapped or learning disabled are required to show by examination that they are able to read, speak, and understand ordinary English; able to write a simple, correct, intelligible paragraph; able to perform with reasonable mastery, fundamental mathematical processes.

Test data from 1977-1979 indicate that approximately 40% of 10th graders tested on the Reading Proficiency Examination (hereafter referred to as RPE) fail on this initial administration.

The purpose of this study is to investigate the relationship between four variables and performance on the RPE. This is done to ascertain whether these variables can be used for early identification of students who may fail the RPE and therefore may require remediation. The variables to be investigated are:

1. School attendance history
2. Sex
3. Reading comprehension sub-test scores on the Iowa Test of Basic Skills
4. Socio-economic status

The RPE is administered by the Gary Schools as one requirement for high school graduation. According to the Department of Research and Testing within the school corporation, it is a valid and reliable examination of reading proficiency (Turner, 1977).

The analysis of data from profile sheets developed by the investigator (Appendix A) may assist the Gary Schools in early identification of potential failures. Once these students are identified, the school system can provide them a variety of services, and linkage to non-school social services so that students are able to pass the RPE with less trouble.

Hypotheses

The specific purpose of this study is to investigate the relationship between four selected variables and performance of 10th graders on the RPE. To this end, the following null hypotheses are generated:

1. School attendance does not significantly predict performance on the RPE.
2. Iowa Test of Basic Skills reading comprehension sub-test scores do not significantly predict performance on the RPE.
3. Sex of the students does not significantly predict performance on the RPE.
4. Socio-economic status does not significantly predict performance on the RPE.

Definition of Terms

1. Reading Proficiency Examination (RPE) - A 66 item criterion reference reading comprehension test consisting of three items

for each of 22 comprehension skills. George Elford, in a paper presented before the New England Educational Research Organization on May 15, 1977, said:

This new practice (Minimum competency testing) involves as a rule four elements, (1) Use of objectives, criterion referenced competency tests (2) Assessment of reading and computation using real life or life skills items (3) A required specialization mastery level for high school graduation (4) Early introduction to such testing for purpose of identification and remediation. (page 2)

2. Minimum Competency - For the purpose of this study, minimum competency is a score of 75% or higher on the RPE.
3. Profile Sheet - A form developed by the investigator to record pertinent information regarding subjects used in this study.
4. Elementary Attendance - Refers to days absent in grades kindergarten through sixth grade.
5. Secondary Attendance - Refers to days absent in grades seven through ten.
6. Low Socio-Economic Status - For the purpose of this study, Low SES refers to any student who has received or is currently receiving a book rental waiver because of indigency as defined by federal regulations.

Limitations of Study

It is not suggested that the results of this study can be generalized to all 10th graders, nor is it suggested that the results can be generalized to 10th graders from other urban

settings due to several limitations:

1. This study includes 203 students who were 10th graders in the Gary Public Schools during the 1977-78 school year, from each of two Gary high schools.
2. School records related to Iowa Tests of Basic Skills scores were absent for some students but they were not eliminated from the study.

This study is an initial quest for information regarding selected variables which may be associated with student performance on a Reading Proficiency Examination. The emphasis in this study will be upon the basic skill of reading, for two reasons:

1. Inability to read is synonymous with illiteracy.
2. The ability to read is generally considered to be the key to success in school.

Significance of Study

There are few, if any, studies on minimum competency examinations as a requirement for high school graduation. The investigator has undertaken this study based on the growth of minimum competency programs, the emphasis on the reading achievement levels of high school students, and the lack of research directly related to this area of concern.

Although this study has specific implications and applicability for the Gary, Indiana public schools, it is believed that the implications of this study should be of some value to other school systems of similar composition who are considering the use of minimum competency examinations.

Additionally, it is believed that the results of this study will serve as a departure point for more studies on minimum competency programs in an effort to foster increased achievement among high school students.

CHAPTER II

Review of Related Literature and Research

A rather extensive search of the literature points up the paucity of research specifically related to minimum competency testing as a requirement for high school graduation. The third and fourth editions of The Encyclopedia of Educational Research, Research Studies in Education, Dissertation Abstracts, and the Index to American Doctoral Dissertations as well as ERIC do not show any evidence of research related to minimum competency testing being attempted.

Jennings and Nathan (1977), having experience in a competency based education programs in St. Paul, Minnesota, have indicated that the experiences of a number of students, their parents, and teachers suggest that competency based graduation requirements warrant a very careful look and trial where the community, educators, and students are willing... The results need follow-up study.

Ratner (1974) has stated:

Nationwide attention should be increasingly focused on the failure of schools to ensure that all their students learn the basic skills of reading, writing, and arithmetic. In depth legal and social science research with respect to remedies for this situation should be undertaken as a priority (page 20).

An attempt has been made in this chapter to summarize from the literature the impact that minimum competency testing is having on American public education. An additional attempt

has been made to summarize from the research on reading failure the impact of the selected variables which relate to this study.

Minimum competency testing requires that all high school students with the exception of the mentally retarded, pass a test(s) of competency in basic educational skills. In order to receive a high school diploma, a student must demonstrate by examination that (s)he can read, write, speak and compute at a specified level of proficiency (Gilman, 1977; NASSP, 1975).

The rationale behind legislation and/or mandates on required minimum competencies seems to be this: requiring states or local school districts to set minimum standards of performance and to test students proficiency in meeting those standards will result in more competent students (Brodinsky, 1977; Owens & Ranick, 1977).

The minimum competency movement could well be the major school reform of the 20th Century (Gilman, 1977; Jennings & Nathan, 1977; Neil, 1978). It has been called other things such as, the great educational fad of the 1970's (Glass, 1978; Spady, 1978; Walker, 1977).

Whatever it turns out to be, the movement has already brought education into the headlines more than any topic since the passage of the Elementary and Secondary Education Act of 1965 (Neil, 1978). ESEA focussed attention on disadvantaged students, similarly, the competency movement is an attempt to give all students a chance to succeed in school and in life

(Gilman, 1977; Neil, 1978).

Minimum Competency Considered Historically

Although a surge of interest in competency testing began strongly in 1976, the concept of minimum competency is nothing new (Reilly, 1978). Its roots are evident in ancient history. About two thousand years ago, attempts were made to cultivate competency in oratory. Neil (1978), reports that in primitive societies, the training of youth was clearly directed toward making them competent in survival skills. European schools have been dominated by examinations for promotion at nearly every level, many private academies in this country had entrance examinations and some still do. In various fields such as medicine, dentistry, nursing, law and education tests have been made for entrance, passage from one level to another and certification of competency or proficiency prior to graduation.

Snedden (1916) was an early advocate of minimum competencies for youth. His approach was to make an analysis and classification of the qualities possessed by selected individuals who had admirable characteristics for young people. Snedden also recommended that comparative studies of successful people and failures be done in order to delineate those qualities for youth. Another early attempt at requiring competencies for graduation was reported in San Diego High School in 1942 (Hartung). The competency requirements were in addition to the Carnegie Units and were called "Essentials for Effective Living."

They were as follows:

1. Ability to apply first aid.
2. Ability to take care of one's self in the water.
3. Ability to engage in two of three sports that may carry over into adult life.
4. Ability to write business letters.
5. Ability to budget one's income. (page 174)

Some additional competencies were required of girls and boys separately.

For girls only:

1. Ability to buy the right kind of food and prepare it.
2. Ability to choose the right kind of clothes and to take care of them.
3. Ability to take care of a home.
4. Ability to take care of children.

For boys only:

1. Ability to use and take care of simple tools.
2. Ability to make minor repairs on household plumbing.
3. Ability to repair simple electrical equipment.
4. Ability to repair furniture. (page 174)

Students in the eleventh grade were tested on the above, giving them the senior year to make up any deficiencies. Paper and pencil tests and demonstrations of proficiency were used to measure these competencies.

Paul Diederich (1950) proposed an early prototype of a competency plan that is similar to that adopted in Oregon.

Beginning with a list of school objectives, Diederich envisioned an elaborate record keeping system that would verify when and how each of the objectives was or was not achieved. These records, called a "Profile Index" file, were to be maintained by teacher-counselors for the approximately forty students that would be assigned to them. No subjective judgments were to be used in the evaluation of the school objectives.

Another early advocate of proficiency was Franklin Bobbitt (1924). He said, "The achievement of a desirable level of proficiency in all the needed basic training should be a prerequisite to the choice of any of the extras" (page 70).

The compilation of life adjustment skills was not just a product of the 1970's. Samford (1953) amassed a comprehensive list, plus descriptions, of what he called skills and semi-skills that needed to be possessed by all young Americans. His list consisted of the following: ability to operate an automobile; personal use typing; care of physical needs; practical arithmetic; reading, writing, and spelling; mechanical ability; safety and first aid; creative hobbies; consumer education; budgeting and homemaking skills for girls and boys; good manners; wholesome philosophy of life; respect for truth; conversation; loyalty; ability to get along with others; courtship and marriage; tolerance; enthusiasm for the history and traditions of the United States of America.

Obviously, professionals in education have over a number of

years recognized and helped define areas of competency which are desirable.

Meaning of the High School Diploma

Another issue has been the relationship of competency to the high school diploma.

There has always been discussion about restoring meaning to the high school diploma. Traditionally, the American high school has defined its graduation requirements in terms of quantity and not quality. Since the turn of the century, the convenient measure of high school achievement has been the Carnegie Unit of credit. Numerous writers have decried this lockstep arrangement, but none has succeeded in initiating reform of any significant measure.

Bemoaning the fact that in 1935 numerous pupils were leaving high school prepared to do almost nothing of practical value, Spaulding (1935) described the ordinary high school diploma as a "masterpiece of equivocation." He went on, "The question which still needs answering is a question of outcomes ...the question of what all this school activity has actually amounted to" (page 149). Spaulding proposed that educators judge the outcomes of the schooling experience for each student giving more explanation and direction so that choices of work after a student leaves could be "more pointed and consequently more intelligent" (page 150).

A few years later, Spaulding (1939) in answering the question, "What ought to be the requirement for graduation

from secondary school?", used the word "competence" in his response.

Present requirements for high school graduation emphasize the accumulation of a prescribed total of academic credits. There is often little relation between these requirements and out-of-school demands. In consequence, the usual high school diploma is largely meaningless; it offers little, if any, guarantee of the kind of competence which is important outside of school (page 9).

French (1940) pointed out that the high school diploma never had any defined standard:

Graduation from the secondary school has never meant anything definite and specific for the school men and women of any generation as a whole. For a given year in a given state or city, graduation may have meant and may now mean something fairly tangible and settled. For our history as a whole and for the country as a whole, we have never had any standard upon which one could generally depend (page 46).

Diplomas and other credentials are society's surrogates for demonstrated skills and capacity. The questioning of the virtues of such diplomas and other credentials comes almost universally from those who already possess them (Bailey, Macey, and Vickers, 1973).

Henry (1956) defined graduation from high school as a citizen's right. "It is a four-year ceremonial, or democratic ritual, a rite of passage, a melting pot" (page 60). During the years after the Civil War, the school became a stabilizer; during the Immigration Era, the schools became induction centers to a new way of life. According to Henry, the pupil's sense of taking part in a common American Experience justified the

existence of the twelve-year experience in the classroom.

Haskins (1938) described the high school diploma as a "warehouse receipt", certifying that a young person has been "preserved in good condition for four years" (page 407). Hanson (1958) said that if a high school graduate "insists that his diploma means the same thing that his grandfather's did and tries to use it in the same way, he is trying to pass a counterfeit coin" (page 261). Another writer, Ryan (1955), urges that the limited meaning of graduation should be interpreted to the public; everyone should be informed of reasons for the lack of skills and everyone should be informed of reasons for the lack of skills and erudition of some high school graduates; he also urges that awareness of the fine achievements of the many other high school graduates should be proclaimed.

McComas (1971) found historical evidence showing that educational changes tend to come from outside the profession, contemporary educators themselves have endorsed changes in high school graduation requirements (Acheson, 1975; Cawalti, 1977; Nance, 1977). Their recommendations reflect a belief that the diploma should signify more than "seat time" or mere attendance for a specified number of years. Rickens (1962) suggested that an original thesis be required as a high school diploma requirement. A course called "A Thesis Supervision Course in Contemporary World History", would be required to

promote a sincere interest in contemporary affairs; thus students would be better prepared for intelligent participation as citizens in a democracy.

Buelke (1956) decried the diploma as "lacking in certain essentials of honesty", and suggested that "The mere possession of a diploma should not be considered the major goal and the genuine purpose of attendance in school" (page 46).

Lloyd (1953) advocated an acceptance of the realization that the high school diploma can only be accepted as a standard of proficiency in a limited way:

As our schools have increasingly accepted the responsibility of furnishing to each normal youth an education suited to his capacities, aptitudes and needs, it has become increasingly evident that the diploma, if it is to have real significance, can be regarded as a standardized certificate of proficiency only up to a point, and that it must be individually interpreted and evaluated in each particular case (page 283).

Richmond (1976) suggested that schools stop giving out diplomas that are so meaningless; this would not mean that standards would have to be lowered, but that the false security of a piece of paper would be discontinued. Leibson (1957) proposed that upon graduation from high school, certificates of achievement be given indicating reading level attained, mathematics level attained, and a list of all subjects taken by the student. It is evident that discussion of the diploma is constant and, although related to competency, does not resolve the problem.

The High School Diploma in Current Context

The National Association of Secondary School Principals has played a definite role in the move toward minimum competency testing. There were three activities by NASSP that had a pervasive influence. The first, a Task Force on Secondary Schools in a Changing Society, appointed in June, 1974 by the Board of Directors of NASSP to prepare "a definitive statement on secondary education" as perceived by practicing school administrators, issued This We Believe (1975). The second, a Task Force on Graduation Requirements, appointed in August, 1974 "to learn the status of graduation requirements throughout the country," issued Graduation Requirements (1975). The third activity consisted of a monograph, Competency Tests and Graduation Requirements (1976) by two NASSP staff members, James Clark and Scott Thompson. Thompson was also the chairman of both special task forces previously mentioned. These three activities, culminating in the publication and wide distribution of the reports, had a significant effect on the minimal competency movement.

In This We Believe, graduation requirements from the 50 states were described as being quite diverse and under review in many states. Eight forces were found to contribute to this review of graduation requirements:

1. Determination of the age of majority as 18 years.
2. Extension of the constitutional rights of minors.
3. Recognition of the early physical and social maturation of youth.

4. Acceptance of the value of community-based education for youth.
5. Popularity of alternative paths to learning.
6. Revision of entrance requirements to college.
7. Modifications in school-college relationships.
8. Advent of new approaches to credit verification (page 39).

The task force found two trends among those states which were actively reviewing and revising graduation requirements:

1. An extension of the local option to determine graduation requirements while concurrently reducing state mandates.
2. The development of performance standards as a requirement for graduation (page 39).

The final recommendations of the task force recommended that qualification for the high school diploma should include verification by course and by competency of the following:

- I. As verified by competency measures;
 - a. Functional literacy in reading, writing, and speaking.
 - b. Ability to compute including decimals and percentages.
 - c. Knowledge of the history and culture of the United States, to include the concepts and processes of democratic governance.
- II. As verified by units or credits;
 - a. Successful completion of semester units equal to a normal student course load extending through the first semester of the senior year.
 - b. Sufficient attendance in courses and programs to gain fully the educational and social benefits of group situations (pages 43-44).

In Graduation Requirements, issued by the task force of

the same name, six reasons were listed as to why many states were changing diploma requirements:

1. New legal prerogatives for youth.
2. New maturational circumstances.
3. New social conditions.
4. New job interests.
5. New school-college relationships.
6. New attitudes about education. (page 2)

The recommendations for diploma standards for high schools were the same as those listed in This We Believe, prepared by the Task Force on Secondary Schools in a Changing Society. As Scott Thompson of NASSP was chairman of both task forces, there was obviously communication between the two groups. Besides the length and comprehensiveness of Graduation Requirements compared to This We Believe, the only notable difference was that the Task Force on Graduation Requirements suggested the use of "certificates of competence" to supplement the high school diploma.

In Competency Tests and Graduation Requirements (1976) by James Clark and Scott Thompson of the NASSP, an expanded rationale, along with examples from several school districts was given for minimum competency testing. The authors claimed that secondary education has been moving toward minimal competency testing for a decade.

Beginning with programmed instruction in the early 1960's, then moving to a focus upon behavioral objectives, and followed by the current interest in "outcomes," educators marched to their own drummer but followed the same general tune that recently has interested the public. (page 5)

Patton (1976) in summarizing a committee report at a conference sponsored jointly by HEW and NASSP stated that secondary education has two basic minimums it must provide for. One of them was, "the development of a command of the fundamental processes of language (reading, writing, verbal expression) at some unspecified level." (page 17)

At this same 1976 conference, a workshop was held on Graduation Requirements (Pipho, 1976). While most of the more than 100 conferees agreed that the Carnegie Unit should be retained "because it does measure time spent in the educational process" (page 53), many felt that it should be augmented with another dimension related to competency. The discussion focused on the following issues:

1. How can competency be evaluated?
2. Should minimum competency be related only to paper and pencil exercises?
3. What is the role of the State in determining competency?
4. Should competency graduation requirements be based on survival skills or mastery skills?
5. Competency requirements may lead to a single standard not really reflecting the diverse student bodies that most schools serve.
6. How should schools handle all of the record keeping that could become a part of the competency form of high school diplomas?

The Report of the California Commission for Reform of Intermediate and Secondary Education, the RISE Commission (1975), recommended that learners should be required to demonstrate

specified levels of proficiency as a condition for completing secondary education. The Commission urged that "The learner's progress in an instructional program should depend on demonstrated proficiency in achieving specified educational outcomes" (page 8). When the learner demonstrated having met the objectives, that program should be considered completed. However, the Commission went on to emphasize the affective importance of schooling.

Learning activities should not be confined to the acquisition of skills. Experiences that allow learners to explore creatively and gain self-satisfaction and enjoyment should also be part of each learner's program. (page 8)

An Association for Supervision and Curriculum Development (ASCD) "Survey of Educational Issues" was sent to the 200 members of the ASCD Board of Directors prior to the March, 1977 meeting in Houston, Texas, in which they were asked to establish priorities among some twenty issues. The highest prioritized educational issue, receiving 65 percent, was "the issue of determining competencies a student must have before receiving a high school diploma" (ASCD, News_Exchange, 1977; page 1).

The Council for Basic Education has been a consistent ally of the minimum competency testing movement (CBE Bulletin, 1977). Its policy stated:

For all its limitations and shortcomings, competency testing sets standards of achievement,

and American education is in need of such standards. We believe that minimum standards must come first, and we are not afraid that minimum will become maximum. Our chief misgiving is the proliferation of "competencies" which have little or nothing to do with education, but the risk seems worth taking. (page 10)

James Popham (1977) described minimum competency testing as being one of the top ten among education's most fashionable ventures. He noted that it already has had an impact on education. Popham, in a humorous vein, went on, "Who dares to lobby against competence? Competence, just as motherhood and apple pie is intrinsically praiseworthy. Can you imagine many educators rallying around incompetency based education?" (page 1)

The approaches to MCT have been practical as well as theoretical. The Denver Public Schools were the pioneers in recent times in developing the concept of requiring certain competencies for high school graduation in addition to the normal credit requirements.

In 1958, following a public opinion survey among some 400 business and industrial employers in Denver, it was concluded that the reliability and validity of the high school diploma was in dispute. Denver then began a cooperative effort with the California Test Bureau which culminated in the development in 1959 of the Proficiency and Review (PAR) tests. The tests measure proficiency in four areas: language, reading,

spelling, and arithmetic (Cavanaugh, Note 1).

The first PAR tests were administered to Denver Seniors in 1960. A score of 70 percent was considered passing. Fifteen percent of the graduating seniors failed one or more parts of the test during their fall semester; the test was again administered in the spring semester after remediation on a voluntary basis. At the end of the first year that the test was required for graduation, about three percent of the seniors failed to get a diploma and were given certificates of attendance instead (Leake, 1963).

The administration of the Denver test gradually moved from the twelfth, to the eleventh, to the ninth grade. If a student is found deficient, (s)he is channeled into basic courses in high school. Over 60,000 students have been tested since 1962; the failure rate having stabilized between three and four percent (Cavanaugh, Note 1). The tests prompted a state law in 1975 that stipulated that any special proficiency tests for high school graduation must be accompanied by regular or special courses, and each student who fails must receive remedial or tutorial services. The legislation also requires that such tests be given twice during each school year with initial testing to take place in the ninth grade. Parents of children who fail are to be notified once each semester of all proficiency test scores (Pipho, 1977).

Decline in Academic Achievement

What are the reasons that 36 states and 30 individual school systems have taken some form of action vis-a-vis minimum competency testing? Why is the public so determined to have educators define the high school diploma? The literature seems to indicate the following:

Declining test scores and other indicators of marginal student performance play a significant part in the public's determination to define the high school diploma. According to the 1976 Gallup Poll on Education, the general public believed that the decline in test scores indicated a real decline in the quality of education. By a two to one majority, all segments of the population polled were convinced that the tests had correctly assessed the situation. When asked the question, "Do you believe that a decline in national test scores of students in recent years means that the quality of education today is declining?" 59% said yes, 31% said no, and ten percent did not know.

The requiring of a standard nation-wide examination for graduation from high school was brought up by the same poll. The question, which was also asked in the 1958 poll, was, "Should all high school students in the United States be required to pass a standard nation-wide examination in order to get a high school diploma?" The responses to the two surveys showed the following:

	<u>1976</u>	<u>1958</u>
In Favor of such a test	65	50
Opposed	31	39
No Opinion	4	11 (page 190)

There is indication of a shift in public attitude. Interestingly enough, it was the least well educated who were most in favor of such a test. Table 1 shows the 1976 Gallup Poll results by major categories.

TABLE 1.

1976 GALLUP POLL RESPONSES TO STUDENTS PASSING
A NATION-WIDE EXAMINATION*

	Yes, they should %	No, they shouldn't %	Don't know or no answer %
National Totals	65	31	4
<u>Sex</u>			
Men	66	31	3
Women	65	30	5
<u>Race</u>			
White	65	31	4
Non-White	67	27	6
<u>Age</u>			
18-29 years	56	41	3
30-49 years	67	30	3
50 and over	71	23	6
<u>Education</u>			
Grade School	76	18	6
High School	69	27	4
College	53	44	3
<u>Community Size</u>			
1 Million Plus	70	25	5
500,000-999,999	69	28	3
50,000-499,999	67	31	2
2,500- 49,999	68	31	1
under 2,500	58	35	7
<u>Region</u>			
East	65	31	4
Midwest	66	30	4
South	64	31	5
West	67	31	2

*1976 Gallup Poll on Education (page 190)

Added to the public's reaction to the apparent deficiencies of high school graduates is a common belief among employers that thousands of American Youth are graduating from high school unable to read well enough to be considered functionally literate. The criticism has not only been leveled at high school graduates. Day (1977) with tongue-in-cheek, expressed the following in relation to the lack of skills of many college graduates:

I have shuddered at college graduates who cannot write or speak as well as high school freshmen should. I have shaken my bowed head at the student enrollment in alligator-farming, the technology of shoelace design and fabrication, and scientific tiddly-winks. (page 23)

Articles proliferated during the 1970's in the popular and professional press proclaiming the lack of ability of high school graduates entering colleges. Roueche (1977) said that virtually all colleges and universities in this country were "up to their armpits with hundreds of thousands of 'college students' who cannot read, write, speak, or listen well enough to enroll in and successfully complete regular college courses." (page 332)

Much of this reaction is based in part on the fact that scores on the Scholastic Aptitude Test (SAT) have steadily declined from 1964 to 1977. The SAT has been used since 1926 to help determine student's apparent preparedness for college (Angoff, 1971). Most students taking the SAT are seniors; some are juniors. The one million seniors taking it annually

represent approximately 25% of their age group and about $\frac{1}{2}$ of those going on to college. Scores on both parts of the test - verbal and mathematical - are computed on a scale of 200 to 800. The mathematical portion of the SAT tests reasoning rather than formal knowledge, and requires a knowledge of the math taught in grades 1 through 9. The verbal portion covers antonyms, analogies, sentence completion and reading comprehension (Donlon & Angoff, 1971). A 30 minute test of standard English was added in 1973 as a result of a suspected decline in writing skills (Neil, 1977).

A special 21 member panel headed by former Secretary of Labor, Willard Wirtz, on August 23, 1977, issued On Further Examination: Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline. The report, sponsored by the College Entrance Examination Board and Educational Testing Service, culminated a two year investigation and received wide exposure in the popular press for several weeks. While the report focused on the 14 year decline of scores on the SAT, which definitely is not a minimum competency test, it had much to say about high school graduates and standards:

More and more high school graduates show up in college classrooms, employers' personnel offices, or at other common checkpoints with barely a speaking acquaintance with the English language and no writing facility at all. (page 1)

There have unquestionably been changes over the past 10 to 15 years in the standards to which students at all levels of education are held. Absenteeism formerly considered intolerable is

now condoned. An "A" or "B" means a good deal less than it used to. Promotion from one grade to another has become almost automatic. Homework has apparently been cut in half. Open admissions colleges are available; if entering students don't know how to read, write and do arithmetic, "remediation" is available. (page 28)

A summary of the panel's findings was as follows: 2/3 to 3/4 of the SAT decline between 1963 and 1970 was related to compositional changes of the group taking the test. These changes included the increasing high school graduation rate, extension of educational opportunities for minorities and the poor, reduction in the dropout rate, and the easing of college entrance requirements. Since 1970, about 1/4 of the decline was attributed to compositional changes, making the overall factor of compositional change accountable for approximately 1/2 of the decline since 1963. The report also offers the following causal factors for the decline:

1. There has been a significant dispersal of learning activities and emphasis in the schools, reflected particularly in the adding of many elective courses and a reduction of the number of courses all students are required to take.
2. There is clearly observable evidence of diminished seriousness of purpose and attention to mastery of skills and knowledge in the learning process as it proceeds in the schools, the home, and the society generally.
3. Particularly because of the impact of television, but as a consequence of other developments as well, a good deal more of most children's learning now develops through viewing and listening than through traditional modes.

4. There have unquestionably been changes, during the period of the score decline, in the role of the family in the educational process.
5. The concentration of the score declines in the three year period between 1972 and 1975 leads the panel to suspect strongly that one important element here was the disruption in the life of the country during the time when those groups of test takers were getting ready for their college entrance examinations.
6. For whatever combination of reasons, there has been an apparent marked diminution in young people's learning motivation, at least as it appears to be related, directly and indirectly, to their performance on college entrance examinations. (pages 46-48).

The hypothesis that relates score declines on college entrance examinations to a more general decline in abilities of all high school students cannot be verified due to sampling errors and non-random selection of students. However, this explanation -- accompanied by criticism of educational programs and priorities -- has received much media attention (Silver, 1976).

The National Institute of Education (1976) indicates that between 1965 and 1975 there were declines nationally on the following tests:

1. American College Test (Composite)
2. Composite Test of Basic Skills
3. Iowa Tests of Basic Skills (Later grades)
4. Iowa Tests of Educational Development
5. Minnesota Scholastic Aptitude Test
6. National Assessment of Educational Progress: Science and Functional Literacy

7. Scholastic Aptitude Test

All of the afore mentioned variables serve to reinforce demands that schools go "Back to the Basics" (Neil, 1978; Brodinsky, 1977; Ebel, 1976).

Some feel that examination of available evidence shows a much more ambiguous picture. Cawelti (1980) and Enchternacht (1977) have indicated that it is unfortunate that the media has concentrated on the SAT results when the National Institute of Education Report (1976) also indicates there were indeed increases or no change on scores for the following national tests:

1. Air Force Qualification Test
2. American College Test (Science)
3. Iowa Tests of Basic Skills (Early grades)
4. National Assessment of Educational Progress:
Reading Achievement
5. Preliminary Scholastic Aptitude Test
6. Project Talent

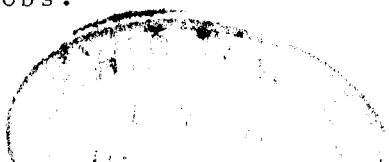
Farr (1977) suggested a limited use of SAT and ACT as a barometer of general achievement or reading ability for our students. He made three observations:

1. College entrance exams cannot be generalized to all children. The population that takes these tests is made up of students who intend to go to college and who are able to pay the fee to take the tests.
2. The advent of open enrollment in more institutions of higher learning and the decreasing decreasing high school dropout rate over the past

20 years means that more young persons with a boader range of abilities consider college and take the entrance exams.

3. College entrance exams are designed to assess how well students will do with the academic tasks of college, and they are not designed to measure basic reading ability.

Thiel (1975) in attempting to answer the question of what are the reasons or problems confronting the American public in their growing dissatisfaction with the system summarizes the following concerns from the literature concerned with power structures and social systems:

1. The current social milieu.
 2. Criticism and reform following shocking events.
 3. Need for school, second only to family, to safeguard the traditional values of society.
 4. Need for schools to prepare leaders to solve the many pressing social, political and economic problems. The magnitude of today's disrespect toward education makes accountability the battle cry.
 5. The general state of the economy.
 6. Widespread agreement that something is wrong with public education.
 7. Better educated parents growing more critical in their expectations from schools and less willing to believe educational "authorities." They demand that administrators and teachers be more accountable for the progress of students.
 8. Recognition that a considerable faction of youth fail to meet the standards of literacy demands for civilian and military jobs.
- 

The emphasis on competency testing is, of course, a response to the widespread public dissatisfaction with the measurable outcomes of public schooling. A number of studies indicate that whatever definition of literacy is used, substantial numbers of Americans are illiterate.

One of the most recent of these studies published by the U.S. Department of Health, Education and Welfare is the National Health Survey, (1973). This study done from 1966-1970 concluded that an estimated one million American youth 12 to 17 years of age probably could not read as well as the average 4th grader, and thus could be called illiterate. The study showed that disproportionate numbers of black youth were illiterate (15 percent), and that substantial numbers of white youth were also illiterate (3.2 percent). Not suprisingly, the study also found that the rate of illiteracy correlates with family income, declining from 14 percent in the lowest income group (less than \$3,000.00) to 0.3 percent in the highest (\$15,000.00).

Another widely publicized study on illiteracy was the Adult Performance Level (APL) project. The official introduction of the APL study occurred in October, 1975 when Terrel Bell, the U.S. Commissioner of Education, announced the results of the four-year study. The APL study began in 1971 and was conducted by the University of Texas with a one million dollar grant from the U.S. Office of Education's Adult Education

Division. Norvell Northcutt directed the APL study team. The main objective of the APL project was to specify the competencies of the adult population of the U.S. Because the term literacy connotes a very low level of functioning, this study team coined the term "functional competency" (Roth, 1976).

Products which resulted from the research were:

1. Developed and validated a series of objectives which comprise adult functional competency.
2. Conducted a series of national assessments of performance of adults with respect to these objectives.
3. Created, as a by-product of the research, a prototype test of adult functional competency. (Northcutt, 1975; page 12)

The APL study team identified five general knowledge areas necessary for functioning competence: occupational knowledge, consumer economics, government and law, health, and community resources.

The study found that on overall performance in these five areas, 19.7 percent of the population could be classified as "functionally incompetent." 33.9 percent could be classified as marginally competent; and only 46.3 percent were found to function with some degree of real competence (Roth, 1976).

This study also found that in order for an adult to gain competence in the aforementioned five areas, he must be able to use these general skills: reading, writing, speaking and listening, computation and problemsolving. Then matching

these skills with the five general knowledge areas, the APL study team arrived at a redefinition of adult literacy in the form of 65 broad objectives that specify minimum competencies an adult must possess in order to function successfully (Northcull, 1975).

The Texas study also noted great differences between whites and minority groups. They indicated that while 16 percent of whites are estimated to be functionally incompetent, about 44 percent of black and 56 percent of the Spanish-surname groups are estimated to be so. The study team felt that these differences were probably due to the relatively lower levels of income, education, job status, and job opportunity found among minority groups in this country (Northcutt, 1975).

These and other studies serve to identify serious shortcomings of many public schools in teaching basic educational skills. Numerous national studies indicate that in the future, persons without mastery of basic skills will be increasingly doomed to functional unemployability. (National Commission on Technology, Automation, and Economic Progress, 1966; U.S. Department of Labor, 1965; Corwin, 1965; Wolfbein, 1960; Venn, 1964)

Experts have indicated that estimates of literacy vary as widely as the measures employed. The variance in illiteracy rates result mainly from a lack of agreement as to what functional literacy is, and therefore, what should be measured.

Kirsh and Guthrie (1978), have stated:

Perhaps the most effective action in resolving the issues relating to the concept and measurement of functional literacy will involve distinguishing among various kinds of literacy questions. Basically, this involves emphasizing what kinds of practical information is needed or what decisions one wishes to make. Thus, we might employ measures which yield information that will be useful primarily for (1) determining requirements for listening, reading, writing and calculating for high school graduates; (2) providing potential employers with specific cognitive and affective information appropriate for personnel selection and placement; or (3) providing information on the reading manuals, leases, and applications. Whereas these do not exhaust the questions one might ask, they do point to the need for focusing on specific issues. (page 505)

Litigation

Much educational litigation in this country has sought to equalize, upgrade, or in certain cases, restrict educational inputs. Cases have sought, for example, to equalize the educational environment and overall educational inputs for all students by racial desegregation (Keyes v. Denver School District No. 1, 1973; Swann v. Charlotte-Mecklenburg Board of Education, 1971; Brown v. Board of Education, 1954); to increase the level of educational expenditures for certain students (San Antonio Independent School District v. Rodriguez, 1973; Serrano v. Priest, 1971); to require provision of school lunches (Davis v. Robinson, 1972; Briggs v. Derrigan, 1969); to abolish corporal punishment in the schools (Glaser v. Marietta, 1972; Ware v. Estes, 1971). However, little if any legal effort has

been made to insure that schools successfully use their inputs to achieve perhaps the single most important output: that all children learn, at a minimum, the basic skills of reading, writing and arithmetic (Ratner, 1974; page 15).

In 1954, the United States Supreme Court recognized that:

Today, education is perhaps the most important function of the state and local government... It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the foundation of good citizenship. Today it is the principal instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment (Brown v. Board of Education, 1954).

A recent rash of legal controversies have accused public schools of producing graduates who are illiterate and unable to earn a living. Several high school graduates have sued the school systems that are supposed to have educated them. The first known case to raise issues in this area was Doe vs. San Francisco Unified School District (1972). Peter Doe, as the plaintiff was designated in this case, has been graduated from a San Francisco high school despite the fact that he was unable to read at even a sixth grade level. The San Francisco schools were guilty of negligence and fraud, it was charged, because they failed to teach Peter Doe even those basic skills necessary for survival in our world despite the fact that he was capable of learning them. The schools were guilty of fraud because they gave Peter Doe a diploma attesting to the fact that he had achieved at a level suitable to be graduated

from high school.

While the case failed in court, it succeeded in the public forum. It struck terror into the hearts of principals, superintendents, and school boards throughout the country. It pointed out for all to see that a high school diploma was not a guarantee that its possessor had learned anything in high school. As a result, according to Strike (1977), educators and legislators have become interested in defining and testing for minimum competencies for high school graduation.

A public school systems' legal duty to ensure that all children learn the basic skills flows from a number of sources, including the Due Process and Equal Protection Clauses of the U.S. Constitution, state statues and constitutions and state common law. From the outset, it should be understood that in our country, teaching children the basic skills of reading, writing and arithmetic has been a central purpose of education (Patton, 1976; Ratner, 1974).

In *Wisconsin v. Yoder* (1972) the Supreme Court recognized that the teaching of the basic skills had a critical role in the entire mission of the public schools, and reaffirmed that students learning of such basic education is essential to the economic and political existence of our country.

Indiana (Burns Statutes, 1974), and virtually all other states have laws which compel all children under a certain age (frequently 16) to attend school. An overriding reason for requiring such attendance is so that children will adequately

learn basic skills (Ratner, 1974). Ratner argues that children are "deprived" of their "Liberty" by being compelled to attend school. For children who do not in fact adequately learn basic skills, the compulsory attendance laws tend to become irrational and deprived them of liberty without due process of law in violation of the 14th amendment. As the court said in an analogous case (Wyatt v. Stickney, 1971) involving the involuntary committment of persons to a mental hospital for treatment:

To deprive any citizen of his or her liberty upon the altruistic theory that the confinement is for humane therapeutic reasons and then fail to provide adequate treatment violates the very fundamentals of due process (page 785).

Although the courts have not yet determined what level of learning of basic skills is necessary for education to be "adequate", the Supreme Court has enunciated the standards by which such adequacy must be judged: A level sufficient to enable citizens to participate intelligently in the political process; to qualify for jobs and be economically self-sufficient; and to satisfactorily adjust to the technological, cultural, social, economic, and political complexities of modern society (Wisconsin v. Yoder, 1972).

Accountability

Scholastic achievements and records of formal study have traditionally been accepted measures of the outcomes of education. Yet, by 1977 these traditions, came under heavy attack by those wanting more specific measures of proof regarding

competencies of students. Generally, the advocates of accountability interlaced with minimum competency testing have insisted that the problems of low student achievement were primarily the result of schools setting low performance standards (Spacy & Mitchell, 1977).

Deficiencies in the basic skills are not unique to the 20th century (Schofield, 1976). However, the discovery that the goal of a free education for everyone has not been achieved became a startling revelation to many. Weingartner (1976) believed that the major motivation for the conservative back-to-basics movement was "the desire to recapture a past that never existed, and through reenacting this supposed 'past' to achieve a degree of certainty about the present" (page 139).

Accountability is not a new trend in education. Patten (1911) demanded that schools provide evidence of their contribution to society, or have their budgets cut. He urged schools to provide measurable results that could be readily seen; noting that present schools were antiquated and turning out a useless product.

The current trend toward minimum competency testing is concerned primarily with the outcomes of schooling. As schools remain the most logical and the best organized means of reaching young people, it is somewhat predictable that increased pressures for accountability would have been applied to measure the results of education more precisely (Galladay, 1976).

Thiel (1975) in a review of the literature on accountability, concluded that because of total disagreement among the various power structures and the vocalness of public criticisms of education, the courts and state legislatures are re-acting through the establishment of case law and statutory law to change the educational system through accountability for assessment of outputs. According to Ornstein (1976), politics played an important role in the move toward accountability. He generalized that accountability incorporated and reflected values and biases in the ideology of the individual that has a profound effect on policy makers. Ornstein pointed out that most elected officials do not have sufficient time to read technical literature, and when they do, it usually is limited to the sections on conclusions and recommendations.

James (1968) suggested that we are faced with a new cult of efficiency that is growing through demands for accountability, managerial objectives, contract learning, and voucher systems. James contended that if educators do not assume leadership in accountability and assessment, others will take charge and dictate the manner in which schools will be evaluated.

Van Geel (1974) expressed the idea that recent court rulings on the right to an education have caused a rush to legislate quality education. This rush to legislate quality education was warned against by Huber (1974) when he expressed the dangers of misapplication. He stated, "The individual or

group accountable for a task should have substantial control over identification, execution, and evaluation of the task." (page 293)

Gordon Cawelti (1978) has said, "The current national debate on competency testing is a screen behind which the deeper issue of accountability and responsibility for the quality of education is being obscured." (page 619). Congressman John Brademus (1973) in discussing the unspoken assumption about accountability asked: "Is it the weapon we've long been seeking that will let us punish the teacher who can't make our children learn or is it the vocalness of the emerging power structures charging education with inefficiency, waste, extravagant spending on frills, failure to meet the needs of the neediest, and failure to transmit the values of a free society to our youth that has caused legislature to act." (page 40590)

Neil (1978) summarizes that some critics of education believe the competency movement reflects a new conservatism sweeping the country. Others think the schools have been made the scapegoat for all the ills of society. Another view is that legislators are expressing their frustration and failure to get at education through any other means of accountability.

Accountability measures have been attempted - or at least talked about since the 1960's. By late 1972, thirty-four states had passed legislation or joint resolutions featuring some form of accountability (Thiel, 1975). The mandates

although diverse, require setting goals for education and for making someone accountable for reaching those goals. The competency movement uses some of the same language; specifies the setting of goals and holds schools accountable for providing the means to enable students to reach district or state goals (Neil, 1978).

There is no question that education should be accountable for its output. Henry Levine (1974) stated, "Accountability should be practiced at all levels of education" (page 363). Henry Dyer (1973) said, "Accountability should serve to improve the quality of education" (page 35). "...accountability plans and the reexamination of the educational process which accompanies them can bring only good for the professionally minded teacher who seeks to improve skills, methods, and materials" (Rice, 1970; page 16).

Former President Nixon in his Education Message (1970) said, "From these conditions we derive another new concept: Accountability. School administrators and teachers alike are responsible for their performance, and it is in their interest and that of their pupils that they be held accountable."

Leon Lessinger, sometimes called the "Father of accountability," had a great impact on education during the 1970's. He wrote Every Kid a Winner: Accountability in Education (1970) which became quite popular among those interested in the efficiency of education. When speaking of schools and their

responsibility, Lessinger said, "Schools must define their output no longer as teaching done, but as learning proven." (page 9).

Raymond Callahan in Education and the Cult of Efficiency (1962), examined the origin and development of business values and practices in educational administration. He unexpectedly found, by examining many historical references in both the popular and professional press, that the extent of business ideology on American culture was phenomenal: and coupled with that, an extreme weakness and vulnerability of school administrators. Callahan had hoped for more professional anatomy when he began his study, but found public criticism and local control the major forces in the capitulation of school administrators to business pressures.

In tracing the beginnings of the business approach to education, he wrote:

The procedure for bringing about a more business-like organization and operation of the schools was fairly well standardized from 1900-1925. It consisted of making unfavorable comparisons between the schools and business enterprise, of applying business-industrial criteria (e.g., economy and efficiency) to education, and of suggesting that business and industrial practices be adopted by educators. (page 6)

Another observation by Callahan compares educational practices to those of the business world:

Although education is not a business and the schools are not factories, no reasonable man can deny the advisability of applying certain business practices where they are appropriate to the work of the schools. But they are

a means to an end--the end being to provide the best possible education for our children. When efficiency and economy are sought as ends in themselves, as they were in education in the age of efficiency (and are in too many communities in 1962), the education of children is bound to suffer. (page 177)

Richmond (1976) described a renewal of the efficiency model being applied to education:

Now another production metaphor intrudes its ugly little head: student as Model T, student as beer can--all, of course, amendable to quality control. Let's have every kid graduate from high school with the same literacy skills, and let's do it in the same way Henry Ford turned out those black Model Ts. Teachers will become the inspectors who stamp approval or rejection on the final product. Assembly-line metaphors are appropriate as long as the material that goes into making the final product can be controlled. Public schools do not have such control; they take everybody and anybody, which is at once their strength and weakness. (page 24)

Arthur Combs (1972), an outspoken critic of the accountability movement, warned of the oversimplification of the use of behavioral objectives which provided a theoretical base for measuring outcomes. He maintained that such objectives produce a closed system of thinking and distort the thrust of education. Combs argued for a system of trust in a teacher's judgment, "Persons who never used judgment would be forever confined to what was immediately palatable and observable." (page 19)

Most humanistic psychologists, such as Combs, regard learning not as a product, but as a process resulting in a personal discovery and the intergration of those personal discoveries into special meanings for the learner. They have,

for the most part, adopted Maslow's self actualization as the primary goal of education. This approach could also be identified as "holistic" in approach to education.

Pine (1976) summed up the confusion over the push toward accountability in terms of developing mythology:

Accountability has so many meanings and has been used in so many different ways for so many different reasons that the net result has been professional and public confusion; a rush to easy answers, plans of action, and methods of evaluation; and a developing mythology of accountability. (page 50)

Proponents of accountability via minimum competency examinations for high school graduation have received much encouragement in their efforts from Benjamin Bloom (1976). He maintained that although children are different, their capacity to learn is nearly equal when provided with favorable learning conditions. Bloom claimed that 95 percent of the students in public schools could learn as well and as rapidly as the next child. Acknowledging that this is not what happens in the schools today, Bloom charged that variations in the cognitive and affective learning histories of each child entering a sequence of study accounted for the lack of achievement of so many.

As indicated earlier, 36 states have taken some form of action in relation to minimum competency testing. Generally, the overall goal expressed in the recent mandates is to assure that students reach a minimum level of competency in the basic

skills at certain grade levels and prior to being awarded a high school diploma.

A closer look at Indiana reveals that Representative James Jontz (R-Williamsburg) (1977) introduced a bill in the Indiana House of Representatives on December 7, 1977 which would require every school corporation in Indiana to assume four responsibilities:

1. Identification of minimum skills.
2. Assessment of students progress at specified grade levels.
3. Establishment of remedial programs.
4. Assessment of juniors and seniors.

Even though no action was taken in the 1977-78 legislature, the Indiana Education Commission (1978) put forth a resolution which mandates the following:

1. Setting of performance standards by the local district.
2. Testing at specified grade levels, initially in reading, spelling and composition.
3. Test results are to be used for remediation.
4. Local districts may use the test results for other purposes, e.g., as graduation requirements.

By making the withholding of diplomas optional, the State Commission has avoided any committment to this aspect of minimum competency testing. As of this writing, the Gary Community School Corporation is the only local district in Indiana which exercises this option.

The only legislation initiated at the federal level in 1977 was introduced by Congressman Ronald Mottl (D) representing the 23rd district of Ohio. He introduced H.R. 9574 (Mottl, 1977) to amend the Elementary and Secondary Education Act (ESEA) of 1965 to include a provision for voluntary minimum competency examinations. His original bill, H.R. 6088 required all state agencies to establish a program of mandatory basic educational proficiency standards before they can receive funds under the act. However, because he received so much opposition from state and local education agencies--including the Carter administration--he changed to voluntary examinations.

Mary Berry (1977), now Acting Commissioner in the Department of Health, Education and Welfare, commenting before the Committee on Education and Labor of the U.S. House of Representatives relative to H.R. 6088, said "H.R. 6088 reflects a growing concern in the nation that the quality of our public schools may have declined over the past 10 to 15 years, and the growing conviction that ³come drastic steps may be called for to reverse this decline." (pages 1-2)

She further outlined a number of major issues that are raised by H.R. 6088:

1. There is no settled view on whether or not a significant set of common needs or standards could or should be devised.
2. The problem remains of deciding just how well a person must perform to be judged minimally competent.

3. The most difficult problem is one of cost factors in providing educational programs to improve student performance to meet national competency standards.
4. The threat of withholding federal assistance is not likely to be an effective means of encouraging states to adopt basic standards of educational competency.

Admiral Hyman Rickover and Senator Claiborne Pell (D.R.I.) support the development of a national test for graduation. However, it is noted that national standards and a national test would violate the one principle that most educators cling to, a locally controlled American education system (Berry, 1977; Cawelti, 1978; Keefe & Georgiades, 1978; Pipho, 1978).

Pros and Cons of Competency Testing

Accepting the fact that minimum competency testing is a reality in many school systems and states, professional educators have expressed a range of views about the pros and cons of the issue. Brickell (1978) suggests that adopting a policy on minimum competency testing requires answering the following major questions:

1. What competencies will you require?
2. How will you measure them?
3. When will you measure them?
4. How many minimums will you set?
5. How high will you set the minimums?
6. Will the minimums be for students or for schools?
7. What will you do with the incompetent?

Walker (1977), a critic of minimum competency testing, indicates that professional educators can respond selectively to various features of a minimum competency program and in so doing make something positive out of the movement. He suggests that educators can support the movement's central aim--to help all young people attain the fundamental skills they need to function effectively.

Gilman (1978) suggests the following potential benefits of a minimum competency testing program:

1. The effect such programs will have upon what is taught in the schools. Whatever affects graduation requirements affects the curriculum.
2. The development of remedial courses.
3. Teachers may become more motivated to improve their techniques in teaching the basic skills.
4. The movement should provide a catalyst for examining what schools are doing.
5. Goals would become clearly defined.
6. Students would be more responsible for their learning.
7. It causes teachers, administrators, and students to be more accountable.
8. It can provide an opportunity to make clear to the community what the schools are all about.

Cawelti (fall, 1977) identifies two benefits which can be derived from minimum competency testing programs:

1. Focuses the resources of a school system on a clear set of goals.

2. Forces us to re-examine the nature of a general education for secondary students.

Keefe and Georgiades (1978) suggest the following benefits:

1. Minimum competency testing provides an opportunity for communities to agree on common priorities and the basics of general education.
2. MCT Programs can give functional validity to the diploma.
3. Encourages early diagnosis.
4. Schools will have to develop remedial programs for deficient students.
5. A firmer accountability base for administrators, teachers, board of education and students would develop.

Scott D. Thompson, writing in the American School Board Journal (1977), states, "Competency tests should serve not only as an opportunity for students to identify deficiencies and to demonstrate important skills, but more importantly, to provide an impetus for revising program sequences and content to help students reach desired levels of proficiency. The purpose of competency tests is to 'screen in' students, not 'screen out' students." (page 42)

In Competency Tests and Graduation Requirements (1976), Clark and Thompson of the NASSP prepared an interesting list of possible positive and negative outcomes of minimum competency testing. Positive possible outcomes:

1. The question, "What is a high school education?" must be squarely faced.
2. The statements required for each courses will likely result in carefully organized teaching and carefully designed sequential learning.
3. Slow learners and underachievers will likely receive direct and immediate attention.
4. Courses of study will likely be revised to correct identified deficiencies.
5. Subjects leading to the development of competencies will receive additional emphasis.
6. Alternatives and options not requiring attendance in class will likely be broadened.
7. The senior year may gain more holding power because of a new focus upon requirements and options.
8. The community will know the minimum performance required in specific subject areas for the diploma.

Possible negative outcomes:

1. Confusion over the meaning of a high school diploma will continue if each district identifies its own level of competencies and performance indicators.
2. The emphasis on pragmatic and practical competencies may result in erosion of liberal education.
3. The emphasis on measurable outcomes could result in less attention to outcomes which are difficult to measure.
4. The record-keeping system could become burdensome to teachers and adminsitators.
5. The conflict between "humaneness" and "accountability" may be intensified as criteria are established and clarified.

6. Community disagreement may arise over the nature and difficulty of competencies.

Whether competency testing can help solve the problem of functionally illiterate graduates depends on how well such testing is done and how the results are used. Hathaway (1978) has said:

Competency testing can be of little help if the test results are used to identify, label, and subtly "weed out" the children with problems, thus making the diploma "worth something again!"

But competency testing can help us take important and educationally sound steps toward a solution to the problem if the tests are used for careful and timely identification of children who have problems attaining essential learning outcomes and if the special help they need is provided. (page 3)

High School Reading Ability

In spite of the fact that there is increasing evidence for the need to establish reading programs at the high school level, a comparatively small number of high school youth receive systematic instruction in reading. Karlin (1966) believes this to be a result of the belief that the responsibility for the teaching of reading belongs solely to the elementary schools; the lack of well prepared personnel to direct and staff programs; and an unawareness that large numbers of high school students might profit from direct help. Minimum competency testing, by its very nature, must provide direct help to students through remediation programs, Karlin's comments notwithstanding.

A number of studies provide information about the reading ability of students at the high school level. One large metro-

politan school district studied the reading status of its freshmen and sophomores and reported that over 40% were reading two to five years or more below grade level (Donovan, 1955).

The reading scores of over three thousand high school students in a midwestern state showed why its school should establish developmental and remedial programs without delay (Payton & Below, 1965). Cooper (1964) reported that 30,000 test scores drawn from a southern state showed a greater variance between reading ability and grade placement at the secondary level than at the elementary level. Ramsey (1962) found in his state that eighth grade students achieved reading levels significantly below grade norms. These and other studies demonstrated quite conclusively that a considerable portion of high school students do not read as well as they should or could. Is it any wonder that so many boys and girls fail to grasp essentials, not to mention deeper meanings?

Perhaps one of the most telling studies of reading ability on school performance was conducted by Penty (1956). She found that of the students whose reading was in the lower quarter, close to 50% left school before the twelfth grade, while just over 14% in the highest quarter of reading left school before graduation. She interviewed the drop-outs six years later and discovered that in most cases they gave poor reading as the cause of their problems. Penty also noted that a very large percentage of poor readers who dropped out of school as well as

those who remained had the ability to read better. She deplored the fact that proper help in reading was not available to them. Penty's findings are corroborated by other studies (Bledsoe, 1959; Nachman, Getson & Odgers, 1963; and Whitmore 1965).

The Secondary Research Department of the Gary Schools (Turner, 1977) compared standardized test results of the graduating class of 1974 (the class which provided the impetus for the minimum competency program) with the class of 1977 (the first class to meet the requirements of minimum competency). This comparison showed a definite improvement in the performance of seniors between 1974 and 1977. Note the following:

1. In the graduating class of 1974, over 100 seniors would have failed the minimum competency test in reading. In the class of 1977, only six seniors did not receive a diploma as a result of this competency requirement.
2. The reading achievement of the 1977 class was 1.2 years above the graduates of 1974.
3. In 1974, 10% of graduates read below the 6th grade level. In 1977, this was reduced to 6%.
4. The percentage of graduates reading at 12th grade and above increased 5% between 1974 and 1977.

The significance of these statistics is that they represent a turnaround in student performance--from steady deterioration to modest improvement. Underscoring the importance of this change is that it occurs at the point of greatest discrepancy in the traditional cumulative deficit model (Deutsch, 1965).

It must be noted that as a result of the minimum competency program, the Gary Schools provide systematic reading instruction, both developmental and corrective, in grades 7 through 12.

Attendance

The absenteeism rate is a particularly important variable since students are less likely to be affected by classrooms they attend less frequently. If students are absent they cannot avail themselves of relevant learning opportunities and lose the continuity of course content which is crucial for learning (Morgan, 1975). Students who attend school less regularly earn lower grades (Kooker, 1976; Rozelle, 1968), and may show less than expected learning gains (Jenne, 1973). School skipping (truancy) has been related to self-reported delinquency (Walberg, 1972). The absence rates of high school drop-outs may be elevated for several years prior to their dropping out (Yudin, 1973).

The NASSP (1975) reported that few studies concerning the problem of school attendance have been made. This hiatus existed in spite of surveys in which NASSP members named school attendance as the most perplexing student problem facing secondary school administrators. Butler (1925) noted that the item of regularity of attendance had largely escaped the scrutiny of investigators. He decried the fact that there was little in the literature bearing on school achievement. Butler

studied teacher class reports at the University High School of the University of Missouri. He looked at the grades and average number of absences of students during a four month period. His results showed, from a total of 1,913 marks, that there was a distinct relationship between attendance and achievement. The pupil making a mark of E (excellent) was absent from class only once in $2\frac{1}{2}$ school months. The pupils making the lowest mark (F) had an average of nearly 3 times a month, or more than once every seven days. It appeared to Butler that regularity of attendance may be taken as a fairly valid index of achievement and one that may have a rather large diagnostic and prognostic value.

Lloyd (1969) reported the distribution of measured reading achievement in a population of 3,651 sixth graders and the relationship of reading deficiency to later achievement and behavior in secondary school. He identified three groups of students: underachievers; average achievers; and over achievers. Measures of later academic performance include numbers of retentions in secondary school and performance on standardized tests in grades seven through nine. Behavior measures included amount of absence in grades seven through nine. He found that only in exceptional cases did underachievers in sixth grade overcome their deficiencies in secondary school. On all measures of later behavior, including absenteeism, he found no significant difference across achievement groups. The mean

number of days absent ranged from eight to fifteen days over all groups in all grades.

Hecht (1975) attempted to answer the question, are teacher ratings of pupils as Potential Drop-outs (PD's) and Academically Gifted (AG's) related to similar variables? The sample of pupil data studied was taken from the 1970 Pupil Centered Instrument, a national survey of pupils in grades two, four, and six. 22 thousand teachers filled out questionnaires on 85,000 pupils. Hecht found that of the pupils rated as PD's 64% were males, while females made up 64% of the AG's. 28% of the PD's had over 15 days absent per year, while only 7% of the AG's had that number. Of pupils whose families were on welfare, 20% were PD's and 3% were AG's. Her conclusion was that regardless of cause, children low on socio-economic indicators do not progress through school as well as their more advantaged peers.

Wiley and Harnischfeger (1974) presented a school level analysis using 40 central city Detroit schools in the sixth grade sample (2,558 students). They regressed achievement variables, including reading comprehension, on student background characteristics. Quantity of schooling exerted an impressive effect on all three achievement variables (verbal ability, mathematics achievement, and reading comprehension).

Karweit (1976) replicated Wiley and Harnischfeger's study using a hierachial data analysis technique. She included all

schools in the third, sixth, ninth, and twelfth grade samples of the Equality of Educational Opportunity Report (Coleman, 1966) and school-wide achievement averages for the Maryland Public Schools for the school years 1973-74 and 1974-75. She found, in contrast to their findings, that her replications do not conclude that quantity of schooling is of great practical importance for achievement. She does state, however, that:

Quantity of schooling (attendance) is still potentially an important factor influencing school outcomes. Clearly, however, effects need to be examined in a wide variety of school settings and with attention to individual student differences and to the potential importance of cumulative effects (page 245).

Summers and Wolf, (1975) studied school histories of 1,876 students from elementary, junior high, and senior high in Philadelphia. They concluded that at grade six unexcused absences have a negative effect on achievement. This negative effect is greater for the more advantaged students. Five additional absences per year for a student whose family income is \$10,000 means a decline in growth of 2.13 months as measured by the Iowa Test of Basic Skills, while for a student whose income is \$7,000 the five additional absences mean a 1.32 months decline in achievement growth.

At the eighth grade, these investigators found that unexcused absences have a negative effect on those who scored at 5.0 and above on the 6th grade ITBS, and the effect is greater for the high achievers. The effect is also more negative as a

pupils' family income increases.

Sex

Sex differences in reading ability have been a source of concern to educators, researchers, and administrators for many years. Ayers (1909), in his book Laggards in our Schools, concluded: "Our schools as they now exist are better fitted to the needs and natures of the girl than the boy pupil." (cited in Weintraub, 1966, page 155)

Dwyer (1973) indicates that it is a common research finding that girls are generally better readers than boys, and that the magnitude of sex differences in reading are usually greater than in other areas of verbal abilities. She further indicates that girls characteristically learn to read earlier, achieve higher scores on standardized reading tests, and account for a lower percentage of pupils referred for remedial work than do boys.

Weintraub (1966) pointed out the deep concern of educators today with the high proportion of poor students, repeaters, and drop-outs among boys. After reviewing research concerning sex differences, he made this summarizing statement:

Beyond first grade, the evidence is somewhat similar in that, as a rule, girls maintain their superiority in reading achievement at least through the elementary grades (page 159).

Stroud and Lindquist (1942) collected data on sex differences in achievement using 50,000 pupils in elementary and high

school as subjects. They found girls consistently better in reading up to the high school level. While sex differences in high school were not significant, they did favor girls.

Hughes (1953) tested boys and girls in grades one through eight using the Chicago Reading Test. She found the greatest differences in grade three, where girls achieved more than a half school year above the boys. The difference favoring girls was significant at the one percent level. The difference was significant at the five percent level in grade four. In grades five through eight, girls made higher scores but the differences were not statistically significant.

In a study by Sinks and Powell (1965) covering grades four through eight, the authors found significant differences in grades four and five, favoring girls. However, in grades six through eight, the pattern varied. These findings are consistent with the previously mentioned studies of Hughes (1953) and Stroud and Lindquist (1942).

Parsely (1964) analyzed the California Achievement Test Battery with data from 3,551 students in grades four to eight. This investigation showed significant differences between the sexes in cognitive ability. The data indicated that boys excelled in arithmetic reasoning, while girls excelled in reading achievement and arithmetic fundamentals.

Peltier (1968) and Maccoby and Jacklin (1972) point out that more girls than boys graduate from high school (about 51

to 49) and although more boys attend college, girls are more successful academically. Peltier further stated that nearly 2/3 of all grade repeaters are boys; more boys are underachievers and poor readers. The research of Grambs and Waetjen (1963), and Teigland and Winkler (1955) support this contention.

Wolf and Summers (1975) in a study of 627 students in 103 elementary schools, 533 students in 42 middle schools and 716 students in five senior high schools in Philadelphia concluded that a student's sex is related to his or her achievement at all school levels. They found that males do more poorly than females in elementary school; in middle schools only low ability males fall behind low ability females; and in senior high, males of average or less do better than females of equivalent ability. Moreover, Maccoby and Jacklin (1974) feel that while there are reports of isolated findings of sex differences throughout the literature, findings of no difference, or later findings showing opposite results are frequently ignored.

In a junior high study (grades seven to nine), carried out by Nasman (1966), the long and short term growth of a six week reading improvement program were analyzed, no significant sex differences were found.

Heilman (1961) reviewed numerous studies on sex differences in reading achievement and made the following summarizing

statements:

1. Boys as a group are surpassed by girls as a group in reading achievement in grades one, two, and three.
2. The superiority in reading achievement of girls tends to diminish in the intermediate grades. (page 353).

The evidence seems to indicate that sex differences in reading achievement favoring girls are greatest in the primary grades. The gap gradually becomes smaller and smaller as children approach high school. Stroud and Lindquist (1942) found non-significant differences, favoring girls, on the high school level. They stated:

In the two subjects that run through both the elementary and high school with respect to which we have ample data - reading and language usage - we find the two sexes maintain the same relative position. (page 666)

Dwyer (1963) indicates that the following explanations have been advanced as causal factors for the observed sex differences in reading:

1. Differential rate or level of maturation. Girls are considered to be more advanced developmentally than boys and are thus more ready to learn to read.
2. Reader content. Content is sometimes considered to be more geared to girls' interest than boys'.
3. Negative treatment of boys by female teachers. Negative or inferior treatment in specific teacher-pupil interactions is held responsible for boys' lower reading achievement.

4. Cultural expectations for the male sex role. Boys perceptions of school and reading as inappropriate to or in conflict with development of the male sex role may depress boys' achievement. (page 455)

Support for these factors have been gained from some researchers (Bentzen, 1966; Criscuolo, 1968; Dykstra & Tinney, 1969; Grambs & Waetjen, 1966; Palardy, 1969; Peltier, 1968).

Socio-economic Status

There has been much discussion and indications of deep concern about the achievement of students from the low socio-economic strata. The mounting attention given to these students is evidenced by the passage of the Elementary and Secondary Education Act of 1965, The Economic Opportunity Act of 1964, and the thrust of the Civil Rights Movement, which in most instances, tends to be focused in this area.

The studies of Neighbors (1910) and Van Denberg (1941) showed a definite relationship between SES conditions and progress in school. Gough (1946) showed positive relationships between SES levels and vocabulary, reading ability, arithmetic, and language ability. Bernstein (1960), Ballachey, Crutchfield and Krech (1962) and Sommerville (1969) discuss the child's SES as a relevant factor in his language development indicating a positive relationship between his background of experiences and his academic achievement.

Havighurst (1964) noted the following characteristics of low SES children:

1. They are at the bottom of American society in terms of income.
2. They are widely distributed in the United States.
3. In racial and ethnic terms, these groups are about evenly distributed between whites and non-whites.

Deutsch (1963) presents a picture of a group of children low in motivation, unreceptive to and unskilled in the tasks and demands of the school, who find it difficult to communicate, possess, negative self images, and who are frustrated from being in situations where they are unable to understand, succeed, or be stimulated. Deutsch says of these low SES children:

They come from impoverished and marginal social and economic conditions; their living conditions are characterized by great overcrowding in sub-standard housing, often there are likely to be large numbers of siblings and half-siblings, again with there being little opportunity for individuation. At the same time, the child tends to be restricted to his immediate environment...In the child's home there is a scarcity of objects of all types, but especially of books, toys, puzzles, pencils, and scribbling paper... The sparsity of objects and lack of diversity of home artifacts which are available and meaningful to the child, in addition to the unavailability of individualized training, give the child few opportunities to manipulate and organize the visual properties of his environment and thus perceptually to organize and discriminate the nuances of that environment. (page 167)

Conant (1961) adds to this picture by pointing out that the achievement of these children is typically a year below their grade placement. Concerning the relationship between reading progress and socio-economic and cultural level, Conant states:

But in the college orientated suburb, the number of slow readers is relatively small and teaching children to read by no means looms so large and difficult a problem as it does in the slums. Some

commentators have failed to recognize the relationship of the reading problem to the socio-economic and cultural level of the home...concern with the reading of pupils, particularly the slow reader must continue well beyond the elementary school. (pages 23-24)

The environmental milieu of the low SES child offers few opportunities to develop the prerequisite skills necessary to attain mastery in reading (Ausubel & Ausubel, 1963; Bruininks, 1970). Auditory and visual stimuli in many lower class homes are generally restricted, unorganized, and qualitatively different from the stimuli provided children of higher SES (Deutsch, 1963). The effects of these experimental limitations are reflected in the findings of a number of studies which indicate that disadvantaged children generally approach early school learning with significant perceptual, linguistic and cognitive deficits (Deutsch, 1963; Deutsch, 1964; Havinghurst, 1964; Weaver, 1967). Instead of overcoming these deficits, they get further behind as they progress through school (Bereiter & Engleman, 1966).

Epidemiological surveys have reported the prevalence of reading failure to be four to ten times more common among children of low SES groups in comparison to the rate of the rest of the school population (Chandler, 1966; Deutsch, 1966; Eisenberg, 1966). Deutsch (1965) has coined the term "cummulative deficit" to describe the tendency of the low socio-economic child to fall progressively behind in academic subjects with

each successive grade level. By the time these children reach junior high school, 60% are considered deficient in their reading skills by 1 to 4 years (Deutsch, 1967).

Robbin (1975) in summarizing studies of Socio-economic status related to school achievement reveals that measures of SES are often major predictors of the output variable. He further indicates that, in some cases, the prediction equations would require extraordinary changes in the school related variables to compensate for the impact that the socio-economic variables make on the prediction of the output variables. Socio-economic factors have been shown to affect student achievement much more so than school controlled factors. Coleman, in his landmark study, Equality of Educational Opportunity (1966), concluded that family background has the greatest effect on school achievement when compared to any of the other variables which were included in his study. Also, Jencks (1973) indicated that there is no evidence that school reform can substantially reduce the extent of cognitive inequality, as measured by lists of verbal fluency, reading comprehension, or mathematic skills, problem solving and composite achievement scores.

Hill and Giammatteo (1963) investigated SES and its relationship to vocabulary, reading comprehension, arithmetic skills, problem solving and composite achievement scores. The population studied was 223 third graders from western

Pennsylvania. Correlations obtained suggest that SES was an important factor in school achievement. The means obtained in basic skills indicated that children from the high SES group by grade three were eight months ahead of children from the low SES group in vocabulary development, nine months ahead in reading comprehension. Average total achievement scores on the Iowa Test of Basic Skills showed seven months difference between the high and lower SES groups.

A study reported by Barton (1963) showed that the classrooms where children came from working class families, reading grade levels were generally below actual grade levels in an increasingly greater percentage throughout the first six grades. Among children from the lower skilled, lower paid part of the working class, the difference was even greater. Barton concluded, "the most important single factor in progress in reading in school is socio-economic class." (page 74)

In terms of SES as it relates to school achievement, Theodore Sizer, (1973) has indicted public school education thusly:

Academic achievement, as the profession and the public now define it, correlate with income: the wealthier your parents are, the more likely you are to score higher on tests; the schools, then, reinforce class structure; they legitimize, in an apparently objective manner, existing social arrangements. (page 26)

In light of the foregoing discussion it seems pertinent to ascertain whether scores on the Reading Proficiency

Examination currently used by the Gary Schools correlate significantly with a low SES level as defined in this study.

Iowa Tests of Basic Skills

Recent trends in education have emphasized the importance of the individual differences of students. The focus upon individual instruction has been accompanied by the need for individualized measurement of basic skills using various achievement measures.

Historically, the Gary schools have administered the Iowa Tests of Basic Skills (ITBS) to its students in grades four and eight. Many educational decisions have been based upon the results of this test. The focus on the ITBS in on the evolution of "generalized" intellectual skills and abilities involved in vocabulary, reading comprehension, language, work-study skills, and arithmetic.

The importance of proficiency in basic skills in determining high school and college success has been repeatedly demonstrated (Hieronymus & Lindquist, 1964; Scannell, 1958, 1960). Given the Gary schools involvement in minimum competency testing, especially reading proficiency, it seems germane to determine if the ITBS reading comprehension sub-test covaries with the reading proficiency examination administered by the Gary schools as a requirement for graduation. Rucker, Beggs, Gustafson, Paulus, and Roby (1970) indicate that the reading sub-test offers one of the best predictors of academic success.

This investigator reviewed a number of studies in which the ITBS was used as a criterion of achievement both longitudinally and concurrently. This review indicates that the ITBS is an acceptable measure of academic achievement and is a basic skills test (Buros, 1959). A few studies will be presented which illuminate this assertion and have some bearing on the present investigation.

Wilson (1976) attempted to determine those factors which exist concurrent with high achievement as measured by the ITBS. The data were drawn from 429 sixth graders in the Des Moines, Iowa public schools during the 1974-75 school year. Based upon step-wise regression and various other analyses, a profile of the individual student most likely to be a high achiever emerged. Of the seven variables considered, only two are germane to the present study: the student who is female and who is not eligible for free hot lunch will generally exhibit high achievement as measured by the ITBS. ¹

Fitzsimmons (1966) attempted to answer the question: What are the key points of failure which have later effects on a pupils' career? Of particular interest in this study was the pattern of "downstream effects". This concept implies that failure to perform satisfactorily in the early grades will have an impending effect on future education. The population

¹For this study, the 1959 Iowa Test of Basic Skills was used.

studies was 258 disadvantaged urban school children from four school districts in Iowa with one or more scores on the ITBS at or below the 33rd precentile. Subjects were third graders in 1958 and were longitudinally analyzed over a twelve year period. The results of this study indicated:

1. Subjects who initially did poorly on the ITBS subtests continue to do poorly over the years.
2. Subjects who do poorly in one or two areas, and well in the rest on initial ITBS testing, tend to move toward the mean; where this is not the case, subject may continue to do poorly in the areas they were initially poor in.
3. The disadvantaged population, for a variety of reasons, is the most difficult to obtain longitudinal data on. The schools are less careful or responsible in obtaing data from tests administered in the standardized manner.

Scannell (1958) attempted to predict general academic college success by using ITBS results for grades 4,6, and 8 for 3,202 students entering two Iowa Colleges during 1948-1952. Scannel concluded that predictions of college success from elementary school test scores (ITBS) can be as useful as predictions from high school data.

Ryan and French (1976) carried out a study designed to provide some indication of the relativr effectiveness of achievement tests for predicting academic performance as a possible alternative to intelligence tests for different SES levels. SES level was indicated by the proportion of pupils in each school receiving social assistance.

Tested, were 209 elementary pupils in 3rd through 5th grades. They found that the ITBS scores were valid predictors of 5th grade GPA and ITBS was a more valid predictor of GPA for low SES schools.

SUMMARY

In summary, minimum competency as one of the major goals of a public school education is clearly in the forefront of the educational picture at this point in time. Professional educators and their organizations have debated the minimum competency issue extensively. It has become attached to the symbol of attainment, the high school diploma. Employers, the public and higher education have expressed their concern. The legislative halls have responded, and the courts have made pronouncements. Action on this issue of minimum competency abounds.

If minimum competency programs are to root, flower and maintain themselves, educators must look to the remediation of students who are unsuccessful on these examinations. The aim of minimum competency programs should not be to deny diplomas to students, but rather, to identify students with deficiencies and provide an adequate remedial program for them. This creates the need for an early warning system. The question is then raised, what shall this early warning system be?

The research and literature indicates that the Iowa Test of Basic Skills is an acceptable valid, and commonly used measure of academic achievement. If we can use this measure in a regression equation with other readily available measures such as sex, socio-economic status and attendance, we might be in a position to create such an early warning system which will give us some lead time in dealing with students who may in fact experience difficulty on a competency examination.

The majority of research done on sex differences in achievement indicates that girls hold the advantage, as far as reading is concerned, on the elementary level. Far less research has been done on the secondary level, and what has been done has produced conflicting results. Although the causes of sex differences in reading remain debatable, it can hardly be argued that the majority of authors believe that sex differences exist in favor of girls.

The research also points to the substantial influence of socio-economic status on school achievement. Although the research seems conflicting as it regards attendance and school achievement, this factor is increasingly important to educators who feel that if a student is not in class he can not learn the basic skills.

Therefore, this investigator concludes that the variables of ITBS score, sex, attendance, and socio-economic status may be useful in formulating an early warning system to identify students who may fail the Reading Proficiency Examination.

Reference Note

1. Cavanaugh, G. Supervisor of Development and Research,
Denver Public Schools. Letter to Dr. Gordon McAndrew,
October 29, 1975

CHAPTER III

RESEARCH DESIGN

Subjects

The subjects used in this study were 203 students who were tenth graders during the 1977-78 school year from two Gary high schools. The 98 students classified as failures represent the total number of tenth graders failing at both schools as a result of the April, 1978 test administration. The 105 students classified as passing were selected using a table of random numbers (Arkin, 1962). These students comprise a random sample of all tenth graders at both schools. There were 110 boys and 93 girls included in this study.

Subjects are used from these two schools because these neighborhoods are very stable, have strong traditions, are of comparable size and achievement levels, and have a stable veteran staff. One high school was approximately 60% white and the other was approximately 98% black. According to school corporation records, the percentage of students in the lower socio-economic category (as defined by this study) is 15% at one school and 19% at the other (Gary Community School Corp. 1977).

Materials

This investigator has developed a "Student Profile Sheet" (Appendix A) which was used to record pertinent data which were analyzed to aid the completion of this study.

Although the profile sheet provides for the collection of data which may not be reported in this study, it may be useful to the school corporation in other areas of concern.

Data (scores) pertinent to the dependent variable RPE were collected from the Gary Schools Research Department and reported as a percentage of correct objectives.

Testing Instruments

A. Iowa Test of Basic Skills:

Virgil E. Herrick, reviewing the ITBS battery in the Fifth Mental Measurements Yearbook (1959) states:

Most of the items (in the comprehension test) for grades 3, 4, and 5 deal with comprehension of details; the test section for grades 6, 7, 8, and 9 includes increasing numbers of purpose, organization, and evaluation items. One question which might be considered is why better balance in the different types of comprehension items is not maintained at all grade levels... In defense of the large number of items dealing with details, it should be said that most items go beyond recognition of facts to understanding and drawing inference from the reading selections. (pages 32-33)

Herrick further states: "The tests, for their purposes, are among the best available at this time." (page 34)

The reliability coefficients are quite high, as often expected with a long test. According to Herrick, they range from .84 - .94 for the major tests and .70 - .93 for the sub-tests.

B. Reading Proficiency Examination:

Westinghouse Learning Corporation designed the Reading

Proficiency Exam (RPE) according to specifications of the school system. The test contains 66 items testing twenty-two reading skills such as identifying the main idea, distinguishing between fact and opinion, and locating details in a passage. Three items test competency in each skill; a student has to answer two of the three items to get credit for "mastering" that skill. To pass the test and thus be classified as a "reader", a student has to demonstrate competency (2 of 3 items) on seventeen of twenty-two skills. The P values obtained over the entire test average out to .75.

Procedures

The technique most often used to investigate the relationships among measures of achievement and a host of school and background input factors is multiple regression analysis. Multiple regression is a method of analyzing the joint and separate contributions of two or more independent variables (called predictors) to the variation of a dependent variable (called criterion). The relationship is expressed as an equation of the form:

$$Y = A + B_1X_1 + B_2X_2 \dots + B_kX_k \quad (\text{SPSS, 1975 page 328})$$

Where Y is the dependent variable (RPE score)

$X_1 \dots X_k$ are the independent variable (attendance, sex, SES, ITBS scores)

$B_1 \dots B_k$ are the individual weights assigned to each independent variables.

When used correctly, multiple regression can be a powerful

tool to aid educational decision makers. The technique can demonstrate which input factors seem to have the greatest influence on the criterion. This process may suggest strategies for improving educational opportunity through direct manipulation of those factors which are under the schools control.

However, it must be remembered that multiple regression relies solely on the intercorrelations between the dependent and independent variables. Therefore, while we may be able to say that we have "explained" X percent of the variance in the criterion with variables 1, 2, and 3, we can never assume that variables 1, 2, or 3 actually have caused this level of achievement.

Another limiting factor on an investigators ability to make decisions with multiple regression is that it only considers the variables which are the model, certainly there are any number of variables which may possible effect or moderate achievement. However, this study only seeks to find the relationship between ITBS score, sex, attendance, and socio-economic status because they are readily available and have been shown to have some effect on school achievement. It is believed that they would also have some effect on performance on the Reading Proficiency Examination.

A Pearson correlation was performed between the Reading Proficiency Examination score and each of six variables (secondary reading percentile, elementary reading percentile,

days absent in elementary school, days absent in secondary school, socio-economic status and sex of the student).

T-Tests were applied to analyze the differences in mean scores between students in the pass/fail groups and four independent variables.

CHAPTER IV

Findings and Interpretations

This study was designed to investigate the following null hypotheses:

1. School attendance is not significantly associated with performance on the Reading Proficiency Examination (RPE).
2. The reading comprehension score on the Iowa Tests of Basic Skills (ITBS) is not significantly associated with performance on the RPE.
3. Sex of the student is not significantly associated with the performance on the RPE.
4. Socio-economic status is not significantly associated with performance on the RPE.

The alpha level for all of these hypotheses is $P < .05$.

Data analysis for this study leads to the acceptance of hypothesis 3 and rejection of hypotheses 1, 2, and 4. Table 2 supports the conclusions drawn regarding the hypotheses in the following manner: secondary reading percentile on the ITBS shows the strongest relationship with performance on the RPE ($r_{xy} = .68$, $P < .05$). Elementary reading percentile also shows a strong relationship to RPE performance ($r_{xy} = .68$, $P < .05$). Days absent in secondary school ($r_{xy} = -.20$, $P < .05$), and days absent in elementary school ($r_{xy} = -.16$, $P < .05$) also correlate with RPE performance.

It is also not surprising that socio-economic status correlates with RPE performance ($r_{xy} = .21$, $P < .05$). Additionally, Table 2 illustrates that the sex of a student does not

significantly relate to student performance on the RPE ($r_{xy} = .03$, $P < .05$). "N" varies for these correlations because data regarding elementary and secondary reading percentile scores and attendance data were not available for some subjects. Nevertheless, they were included in the study due to the selection process.

TABLE 2
CORRELATIONS BETWEEN RPE SCORES (dependent variable)
AND SIX INDEPENDENT VARIABLES

Independent Variable	No. of Subjects	Correlation with RPE Score	Significance
Secondary Reading Percentile (ITBS)	116	.68	*
Elementary Reading Percentile (ITBS)	151	.61	*
Days Absent Secondary	188	- .20	**
Days Absent Elementary	176	- .16	**
Socio-Economic Status	203	.21	**
Sex	203	.03	N.S.

* Δ .05

** Δ .01

In Tables 2, 10, and 11, the column headed "significance" describes the probability that the differences found were due to chance. The results for any variable which has not met the .05 criterion previously established, will be labeled "n.s.", which means "not significant".

Table 3 illustrates the intercorrelations between the variables included in this study. It also shows the orderly and logical relationship between the variables. One expects to find and does find that:

1. Elementary and secondary percentiles correlate highly (.84 $P < .05$)
2. Days absent in elementary and secondary correlate (-.53, $P < .05$) and
3. SES correlates with RPE score (.21 $P < .05$), elementary reading percentile (.24, $P < .05$), secondary reading percentile (.26, $P < .05$), days absent in elementary school (-.19, $P < .05$) and days absent in secondary school (-.27, $P < .05$).

These correlations appear in a manner that is consistent with expectations developed from experience and research studies. Moreover, Table 3 shows that sex does not correlate with any other variable as might be deducted from Table 2.

TABLE 3
A CORRELATION MATRIX OF 7 VARIABLES

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
1.0						
.68	1.0					
.61	.84	1.0				
-.20	-.14	-.15	1.0			
-.16	-.06	-.01	-.53	1.0		
.21	.26	.24	-.27	-.19	1.0	
.03	.09	.08	.04	.03	.04	1.0

LEGEND

RPE Score
 Secondary Reading Percentile
 Elementary Reading Percentile
 Days Absent - Secondary
 Days Absent - Elementary
 Socio-economic Status
 Sex

P < .05

Table 2 shows that overall students standardized reading scores, days absent, and SES related significantly to performance on the RPE and Table 3 shows that these variables tend to intercorrelate in a way that is consistent with our expectations. The purpose of this study is to investigate how these variables may be used to predict which children may have difficulty passing the RPE when they take it initially.

Therefore, we need to investigate whether the relationships observed in Table 2 exist for children in the pass-fail groups on the RPE.

Table 4 shows the relationship between high and low SES and pass/fail groups on the RPE. Sixty eight percent of students receiving a book rental waiver (low SES) failed the RPE while thirty nine percent of students not receiving a book rental waiver (high SES) failed the RPE. The chi-square test (goodness of fit) for this data is significant ($P < .05$).

TABLE 4
SES RELATED TO PASS/FAIL GROUPS

SES	PASS	FAIL	TOTALS
Low	20	44	64
High	85	54	139
	105	98	203

$\chi^2 = 14.5$ $P < .05$

Table 5 illustrates a non-significant relationship ($P > .05$) between sex of the student and passing or failing the RPE. This confirms the data presented in Table 2 in that males and females do not significantly differ in their performance on the RPE.

TABLE 5

SEX AS IT RELATES TO PASS/FAIL GROUPS

SEX	PASS	FAIL	TOTALS
Males	54	56	110
Females	51	42	93
	105	98	203
$\chi^2 = .169$ $P > .05$			

Table 6 depicts T-Test values¹ for pass/fail groups on four independent variables. These variables are days absent in elementary school and secondary school, as well as elementary and secondary reading percentiles on the ITBS. All four variables were significant (elementary days absent $P < .05$; secondary days absent $P < .005$; elementary reading percentile $P < .001$; secondary reading percentile $P < .001$). These variables do, therefore, distinguish students in the pass/fail groups.

¹We use a T-Test with these data because we are making comparisons between means.

TABLE 6

T-VALUES OF FOUR INDEPENDENT VARIABLES BY PASS/FAIL GROUP

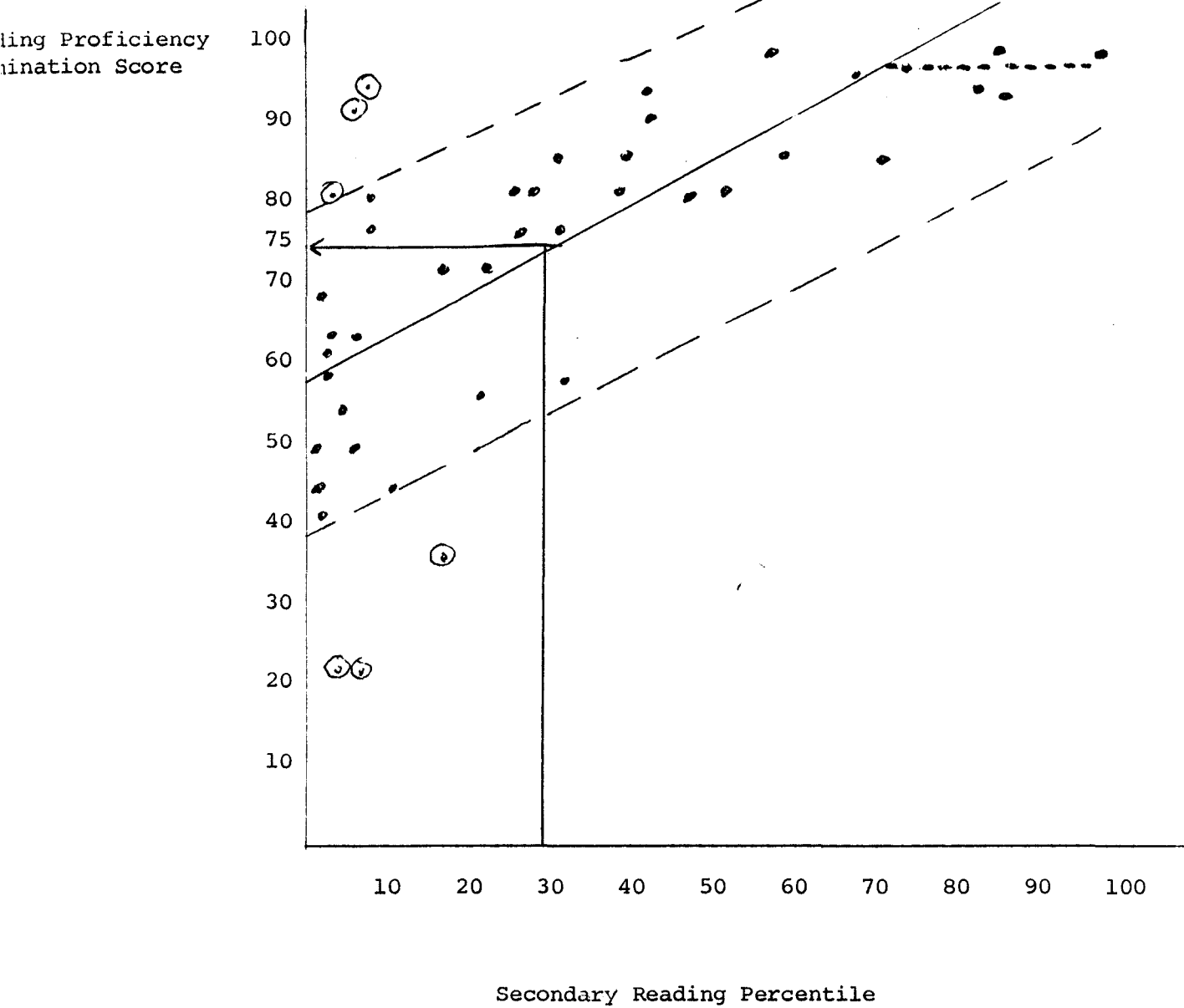
Independent Variable	Pass Group		Fail Group		Difference	T-Value	Significance
	N	Means (S.D)	N	Means (S.D)	Pass - Fail		of T-Val
Days Absent Elementary	97	7.9 (5.9)	79	9.8 (5.6)	1.9	2.17	< .05
Days Absent Secondary	103	10.7 (8.8)	85	15.4 (12.3)	4.7	3.06	< .005
Elementary Percentile (Reading)	84	40.6 (25.9)	67	10.3 (10.9)	30.3	8.97	< .001
Secondary Percentile (Reading)	54	45.5 (27.1)	62	10.3 (9.3)	35.2	9.62	< .001

variation accounted for in RPE scores only increases to forty-nine (49) percent. This means that the other variables do not contribute any additional information, due to the inter-correlation of the variables as shown in Table 3. Therefore, only secondary reading percentile needs to be used in a regression equation to capture the information related to RPE performance by all the other variables. Hence, the following equation, $RPE\ score = .558 (\text{secondary reading percentile}) + 58.63$, predicts RPE scores and helps to identify children who have a high probability of failing the RPE.

Figure 1 shows the line defined by the foregoing equation with the dotted line indicating the "ceiling effect" and the broken line defining a "statistical" straight line ($SES = 10.3$). Even though the size of the standard error of the estimate makes the width of the statistical straight line appear to be large, the regression equation is useful for our purpose, for it clearly defines regions of percentile scores which predict either passing or failing on the RPE. Note, that there is only one student (of fifty randomly selected cases) who failed the RPE and had a percentile score greater than 29, the percentile that estimates a passing RPE score of 75. There are really only five students who passed the RPE and had percentile scores less than 29. Three of these five have highly improbable scores, suggesting cheating on the RPE, or carelessness on the standardized ITBS.

FIGURE 1

Application of Regression Equation



The literature reviewed in chapter two indicates that minimum competency programs are concerned with students demonstrating mastery not only in reading but also in mathematics and written communication skills (page 8). It, therefore, seems germane to study the relationship between the measures of basic skills in the Gary program; the Reading Proficiency Examination (RPE), the Mathematics Proficiency Examination (MPE), and the Written Proficiency Examination (WPE).

Table 7 shows that these measures of basic skills intercorrelate significantly ($P < .01$). It can be concluded or assumed with a high degree of certainty that one might expect that a student who does well on the RPE will do well on the MPE and the WPE.

TABLE 7

A CORRELATION MATRIX OF PERFORMANCE
ON THREE MEASURES OF BASIC SKILLS

	RPE	MPE	WPE
RPE	1.0	.72	.60
MPE		1.0	.53
WPE			1.0

Tables 8 and 9 confirm the foregoing and show that students who pass the RPE almost always pass the MPE and WPE.

TABLE 8

RPE RELATED TO MPE BY PASS/FAIL GROUPS

		MPE		
RPE		Fail	Pass	TOTALS
Pass		3	95	98
Fail		57	31	88
TOTALS		60	126	186

$$X^2 = 80.80 \quad P < .01$$

TABLE 9

RPE RELATED TO WPE BY PASS/FAIL GROUPS

		WPE		
RPE		Fail	Pass	TOTALS
Pass		6	88	64
Fail		54	28	82
TOTALS		60	117	176

$$X^2 = 68.94 \quad P < .01$$

A step-wise regression using RPE as the dependent variable and all other variables, including MPE and WPE, as independent variables shows that MPE scores combined with secondary reading percentile and WPE scores (the only other significant variables in the regression) accounts for 65 percent of the variation in RPE scores. Thus, if the following equation is used, $RPE = 1.12 (MPE) + .27 (\text{secondary reading percentile}) + (-9.79) (WPE) + 43.20$; very good estimators of RPE scores can be obtained.

Although MPE and WPE scores (combined with secondary reading percentile) are powerful estimators of RPE scores, they are not useful in the practical setting because all basic skills measures are obtained at the same time, and what the author wishes to establish is an early warning system to facilitate early remediation. In this regard, secondary reading percentile alone remains extremely useful as the earlier analysis shows.

Moreover, step-wise regression analyses indicate that secondary reading percentile is not only the most useful one for predicting RPE scores ($r^2 = .46$), but it is also the most useful one for predicting MPE ($r^2 = .33$), and WPE ($r^2 = .24$) scores, even though many of the other variables correlate significantly as Tables 10 and 11 show.

TABLE 10

CORRELATION BETWEEN MPE SCORES AND
SEVEN INDEPENDENT VARIABLES

INDEPENDENT VARIABLES	N	CORRELATION WITH MPE	SIGNIFICANCE
Secondary Reading Per- centile	116	+ .57	*
Elementary Reading Percentile	151	+ .57	*
SES	203	+ .19	*
SEX	203	+ .07	N.S.
Days Absent - Secondary	188	- .31	*
Days Absent - Elementary	177	- .13	N.S.
WPE	175	+ .53	*

* = $P < .05$

TABLE 11CORRELATION BETWEEN WPE SCORES AND
SEVEN INDEPENDENT VARIABLES

INDEPENDENT VARIABLES	N	CORRELATION WITH WPE	SIGNIFICANCE
Secondary Reading Per- centile	116	+ .48	*
Elementary Reading Percentile	151	+ .46	*
Days Absent - Secondary	188	- .21	*
SEX	203	+ .12	N.S.
SES	203	+ .12	N.S.
Days Absent - Elementary	177	- .07	N.S.
MPE	187	+ .53	*

* = P < .05

The author concludes that Secondary Reading Percentile, provides one a crude but effective predictor of a student's future performance on the specific tests of basic skills. Therefore, one might use this convenient measure, the secondary reading percentile, as the basis of an early warning system that relates not only to reading but mathematics and writing skills as well.

SUMMARY OF FINDINGS

Five of the six variables investigated relate significantly to performance on the RPE and significantly distinguish students in the pass/fail groups. However, due to the extent to which these variables intercorrelate, we can identify the student who may fail the RPE by using only the secondary reading percentile in a regression equation.

Further, secondary and elementary reading percentiles correlate significantly with performance on the math proficiency examination and the written proficiency examination.

CHAPTER V

Conclusions, Discussion, Recommendations for Further Research

This study was designed to "predict" students who might fail a minimum competency reading examination, which is a requirement for graduation from high school in Gary, Indiana.

The hypotheses tested represent variables which are readily accessible to teachers and administrators who have the responsibility for insuring that students master the basic skills.

The method of providing remedial assistance that is now most widely used in secondary schools is the remedial course, but what is needed is a systematic way of assigning students to such classes who need the remedial assistance as early as possible in their academic careers. However, these courses should not be used merely as dumping grounds for students who are not functioning effectively in the regular program and whose behavior is disruptive.

The concern in Gary is to insure that students master certain fundamental skills prior to high school graduation. Since Gary subscribes to the notion that some students need more time to learn than others, the author is indeed interested in an "early warning system" which will allow profitable use of instructional time with those students most in need of remedial assistance prior to entry into high school. The results

of Table 2 in this study indicate that if one is interested in determining students who may fail a competency test at the high school level, one might look at middle school reading percentile score as an early identification of the need for remedial help.

With the foregoing in mind, the reader's attention is directed back to Figure 1 where several things can be noted. Notwithstanding the few "outliers", most students who failed the RPE (less than 75%) obtained a reading percentile score of less than 29 at the middle school level. One might conclude from this that an efficacious use of remedial courses would be to schedule students who fall below the 29th percentile into these classes. By and large, one can also conclude that those children above the 30th percentile would not cause as much concern. Similarly a ceiling effect, as far as the RPE is concerned, is reached around the 70th percentile, i.e., one can not determine how well these students will actually perform on the RPE.

It might well be that students scoring between the 15th and 29th percentile would require only one semester of concentrated remedial help. However, the fact that a student has failed to reach the 30th percentile may not require major revisions to the students ongoing instructional program. The student may be performing satisfactorily in most or all of his or her courses and may merely need assistance with some

specific area within which the performance standard has been set. For situations of this nature, some form of "pull out program" may be appropriate.

By a pull out program is meant a program wherein a student is removed from a regular class to receive one-on-one attention in an area of weakness. This strategy of providing remedial assistance is widely used at the elementary level, particularly for deficiencies in the areas of reading and mathematics. It could be employed at the middle school and high school to some advantage for those students near the 29th percentile level. In designing appropriate pull out programs, it will, of course, be necessary to identify staff members who can work effectively in the individual tutorial or small group instructional mode. The activities of student and teacher should be focused on well defined objectives known to all and for which specific assessment procedures have been developed. It will then be possible to carry out such instruction only for the period of time necessary to meet the performance standard.

One also might more profitably schedule for the entire year those students scoring between the 1st and 14th percentile. These students also may profit from in-depth individualized diagnosis for possible learning disabilities or special education placement.

Recognizing that school personnel may want a grosser measure of reading achievement which would assist in placement, the reader's attention is directed to Tables 12, and 13

wherin the relationship between elementary ($P < .001$) and secondary ($P < .001$) reading stanine and performance on the RPE is depicted.

TABLE 12

ELEMENTARY STANINE BY PASS/FAIL GROUPS

<u>GROUP</u>	<u>STANINE</u>	<u>PASS</u>	<u>FAIL</u>	<u>TOTAL</u>
Low	1 - 3	24	60	84
Average	4 - 6	46	9	55
High	7 - 9	<u>13</u>	<u>--</u>	<u>13</u>
		83	69	152

$\chi^2 = 52.6$ (2DF) $P < .001$

TABLE 13

SECONDARY STANINE BY PASS/FAIL GROUP

<u>GROUP</u>	<u>STANINE</u>	<u>PASS</u>	<u>FAIL</u>	<u>TOTAL</u>
Low	1 - 3	23	57	80
Average	4 - 6	41	7	48
High	7 - 9	<u>9</u>	<u>7</u>	<u>16</u>
		73	64	137

$$X^2 = 44.6 \quad (2DF) \quad P < .001$$

Because of the intercorrelations noted between the variables used in this study, one might conclude that children with stanines of 1, 2, or 3 would be candidates for a remedial program at the elementary school and middle school level.

Tables 8 and 9 indicate that, by and large, students who fail the RPE also fail the MPE and WPE. Therefore, one might conclude that since RPE correlates well with MPE and WPE and since secondary reading percentile also correlates well with the above measures of basic skills the secondary percentile may also be used to identify those students who could profit from math and english remediation.

The author recommends that better care must be exercised in maintaining student records. The creation of a central test file containing all student test data from the time a student

enters the Gary schools is highly recommended. All such data should be under a student I.D. number control. This would allow for accurate recording and retrieval of data. At present, this is only done at the secondary level. Among other advantages is the fact that this will allow alphabetical printouts to be sent to each school building. These printouts will contain information needed for identifying students in danger of failure especially when they enter secondary school. Currently, individual student cumulative records, with spotty data, must be searched to find this same information. The author does not propose the elimination of cumulative records; the desire is to supplement them in a manner more suited to student screening and placement.

RECOMMENDATIONS FOR FURTHER RESEARCH

1. The literature indicates that there are sex differences in school achievement, particularly reading. However, this study suggests that sex does not relate to success on the RPE. Future studies might investigate this relationship using a larger sample in connection with minimum competency reading tests.

2. Additional research might investigate whether the reading percentile scores for middle school are, in fact, useful tools for placing children in one year, one semester or half semester remedial courses.

3. Further research should look at the longitudinal effects of remediation for those students identified as possible failures on the competency examination.

4. Some follow up studies would be in order to determine post high school success in college or the world of work as these relate to performance on competency examinations.

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GARY COMMUNITY SCHOOL CORPORATION

STUDENT PROFILE

Name _____
 School _____ Date of Birth _____ Student # _____
 Date Entered Gary Schools _____
 Number of Gary Schools Attended: _____ Elementary _____ Secondary _____
 Grades Repeated _____
 Any Language Other Than English Spoken in the Home _____

ACADEMIC

Test Data		Date	Grade	G.E.	%-ile	Sta-9
Elementary (Gr. K-6)	<u>Iowa</u>					
	Vocabulary					
	Reading					
	Math Concepts					
	Math Problem Solving					
Elementary (Gr. K-6)	<u>Iowa</u>	<u>Date</u>	<u>Grade</u>	<u>G.E.</u>	<u>%-ile</u>	<u>Sta-9</u>
	Vocabulary					
	Reading					
	Math Concepts					
	Math Problem Solving					
Secondary (Gr. 7-12)	<u>Iowa</u>	<u>Date</u>	<u>Grade</u>	<u>G.E.</u>	<u>%-ile</u>	<u>Sta-9</u>
	Vocabulary					
	Reading					
	Math Concepts					
	Math Problem Solving					
Stanford (Test of Academic Skills)	<u>TASK</u>	<u>Date</u>	<u>Grade</u>	<u>G.E.</u>	<u>%-ile</u>	<u>Sta-9</u>
	Reading					
	English					
	Math					

Verbal

Non-Verbal

Large-Thorndike

Math

Reading

Proficiency Scores

Teacher Comments - Social Promotions etc.

Remedial Courses Math (Dates)

Reading (Dates)

APPROVAL SHEET

The dissertation submitted by Donald J. Henderson has been read and approved by the following committee:

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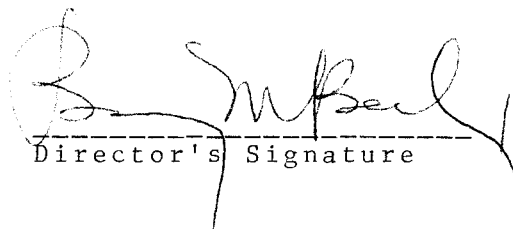
The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Education.

Date

12/13/79

Director's Signature

A handwritten signature in cursive script, appearing to read "Barney Berlin", written over a horizontal dashed line.