ASSESSING THE EFFECTIVENESS
OF AN INTERVENTION PROGRAM
ON THE OHIO NINTH GRADE PROFICIENCY TEST:
AN EXPLORATORY ANALYSIS

THESIS

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ABSTRACT

ASSESSING THE EFFECTIVENESS OF AN INTERVENTION PROGRAM FOR THE INITIAL ATTEMPT ON OHIO NINTH GRADE PROFICIENCY TEST: AN EXPLORATORY ANALYSIS

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The purpose of the quantitative study was to determine the effectiveness of a week long summer PREP course at a Catholic high school prior to the initial attempt on the Ohio Ninth Grade Proficiency Test. Seventy-three students were identified as subjects based on IOWA reading test scores that were below grade level when taken in the eighth grade. Thirty-five of the students participated in the PREP program, thirty-eight did not. The effectiveness of this intervention instructional program was measured by analysis of covariance and a table of means. Results indicate that students who participated in the PREP program did marginally better than those who did not. Results also indicate that the higher the IOWA scores, the better success on the ONGPT, indicating that PREP efforts should be geared toward students with lower IOWA scores.
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CHAPTER I

INTRODUCTION

Substitute House Bill 231, passed in July 1987, established the statewide high school proficiency testing program for Ohio high school students (Ohio Department of Education [ODE], 1997). Subsequent legislation expanded proficiency testing to include grades four, six, nine, and twelve. Tests were developed by Riverside Publishing Company, based upon learning outcomes adopted by the State Board of Education (ODE). The learning outcomes specified the knowledge and skills each student should have by the time a particular grade level is reached. Areas tested include: citizenship, math, reading, and writing. Science was added in 1996 and must be passed beginning September 15, 1999 (ODE).

Fourth graders, beginning in the 2001-2002 school year, must pass the fourth grade reading proficiency test in order to be promoted to the fifth grade, unless a contrary recommendation is made by the teacher (Ohio Department of Education, 1997). Passing the ninth grade proficiency test is a requirement for anyone receiving a high school diploma in Ohio. Twelfth graders who pass all five components of the twelfth grade proficiency test receive a $500 college tuition credit valid in the state of Ohio.

Proficiency test scores are used in district and state report cards, and often seen as a benchmark of success at the individual, school, district, and state level.

Test rationale includes the early identification of students not performing satisfactorily, the implementation of necessary interventions as early as possible, and accountability on the part of educational programs.
PURPOSE OF THE STUDY

The purpose of this study was to determine the effectiveness of a week long, half-day PREP program offered to incoming freshmen at a Catholic high school. The PREP program was voluntary, and offered intervention strategies prior to the student’s initial attempt on the Ohio Ninth Grade Proficiency Test taken in early November. The purpose was ultimately to determine if participants in the PREP program had a higher passing rate on the ONGPT than those who chose not to participate in the PREP program.

PROBLEM STATEMENT

The Ohio Ninth Grade Proficiency Test is a “high stakes” test. Ohio Administrative Code Rule 3301-13-01 (G) requires that all students graduating after Sept. 15, 1998 pass the ninth grade proficiency test as a requirement for a high school diploma (Ohio Department of Education, 1997). Not only is a diploma at stake, but so too is a way of life. Jaeger (1991) cites work by Gordon Berlin and Andrew Sum that found disturbing trends among students who failed to receive a high school diploma. They included a higher incidence of being on public assistance, a higher arrest rate among young males, more children born out of wedlock, and fewer higher paying employment opportunities. In terms of school, failure to pass on the initial attempt is costly in terms of loss of instructional time and according to Robinson and Wronkovich (1991), there is a measurable negative effect on student self-concept.
HYPOTHESIS

The writer believes that ninth grade students who took advantage of the PREP program, where proficiency intervention is offered, will exhibit higher test scores on the initial attempt on the Ohio Ninth Grade Proficiency Test than students who chose not to be involved in the program.

DEFINITION OF TERMS

The following have been defined for the purpose and clarity of this project.

1. **ONGPT**: Ohio Ninth Grade Proficiency Test, which must be passed to receive a high school diploma
2. **Strands**: five components of the proficiency, covering citizenship, math, reading, science, and writing
3. **Intervention Strategies**: instructional strategies designed to enhance student success on the proficiency test
4. **Test-wiseness**: ability of student to use knowledge of test mechanics and test-taking skills when taking the ONGPT
5. **Administrative Codes**: mandates by the Ohio Board of Education establishing proficiency testing criteria
6. **Proficiency tests**: tests at the 4th, 6th, 9th, and 12th grade levels based upon learning outcomes adopted by the State Board of education
7. **PREP program**: a week long, half-day program of proficiency test intervention offered to freshmen at a Catholic high school.
8. **ITBS**: Iowa Test of Basic Skills
ASSUMPTIONS

It is assumed that the Ohio Ninth Grade Proficiency Test is fair, that all Ohio high schools follow the mandates as set forth by the State Board of Education, and that the test results reported by the Board of Education are accurate. It is also assumed that the subjects involved in this study are exposed to the same test conditions. It is assumed that all students participating in the PREP program receive the same intervention strategies. It is further assumed that teachers were honest in reporting intervention strategies employed. It is assumed that students did not receive intervention strategies other than the PREP program and those given to all freshmen on Oct. 12, 1999 during a school-wide half-day program to prepare students for each strand of the Ohio Ninth Grade Proficiency Test. It is also assumed that all students enrolled in the high school received a copy of *Passing the Ohio Proficiency Test* by Arnold, Doyle-Warren, Garmann, Hennessey, and Tong (1994) in the spring prior to the start of their freshman year and that those enrolled in the PREP program received a copy of *The Secret of Getting Better Grades* by Marshall and Ford (1994).
LIMITATIONS

The study will be limited to the initial ninth grade attempt on the Ohio Ninth Grade Proficiency Test in one Catholic high school. Findings will be limited by teacher adherence to using the same intervention strategies with all PREP students, and by student attendance. Findings will also be limited by interventions outside the high school not reported to the writer. Findings are confined to 73 Catholic elementary school students selected on the basis of IOWA reading test scores that were below grade level when the test was taken in the eighth grade. The test was not taken by incoming public school students.

Another possible limitation to this study is the relative short period of time students participated in the PREP program. Furthermore, the study did not include measures of other possible factors that may influence performance, such as race, gender, and socio-economic status of the student and the grade school GPA. This information was not available to the researcher. The conclusion section of this paper, however, discusses directives for future research on this topic.
CHAPTER II

REVIEW OF THE LITERATURE

Few topics in education are the source of more controversy and concern than proficiency tests. Educators, students, administrators, legislators, and communities alike are faced with the issues and effects of these tests. In studying a PREP program of intervention instructional strategies to improve success on the initial attempt of the Ohio Ninth Grade Proficiency Test, it is necessary to first understand both the historical and contemporary significance of these tests, on both the national and state levels. It is in that light that a more complete picture can be developed for evaluating intervention instructional strategies that can insure greater success on the initial attempt of the ONGPT. Student success on that test is vital in Ohio, because it is a determining factor in receiving a high school diploma.

Testing has always been “high-stakes” in nature and concerned with accountability (Paris, Lawton, Turner, & Roth, 1991). In 1444, the school master’s salary in Treviso, Italy was determined by “how well pupils performed on tests related to fixed areas or curriculum” (Madaus & Stufflebeam, 1984, p. 652). This practice was widespread in Europe and the English colonies during the nineteenth century. In 1845, the United States “time-honored practice of oral testing” was replaced by written essay exams in Boston’s overly populated schools (Marks, 1989, p. 37). The effort was initiated by Horace Mann.

According to Marks, the 19th century featured the “mathematization” of science (1989). It was during this time that Sir Galton suggested a method of measuring the correlation of two quantities, and Karl Pearson furthered his work by proposing the mathematical formula for
correlation. Joseph Rice (Marks, 1989), though, is credited as being “the real inventor of the comparative test in America” because he was one of the first to realize the need for standardized administration of tests (p. 37). Edward Thorndike’s 1904 publication of An Introduction to the Theories of Mental and Social Measurements was the first book on the subject and served as an impetus to the standardized testing movement (Marks, 1989).

Marks (1989) believes that the simultaneous development of intelligence tests boosted achievement testing. In 1905, Frenchmen Alfred Binet and Theophile Simon created the first intelligence scale. In 1916, American Lewis Terman, of Stanford University, used that scale to determine a formula for “Intelligence Quotient” or “I.Q.” The test became the “Stanford-Binet”, still the most widely used I.Q. testing tool in the US. Army Alpha, an intelligence test that utilized multiple-choice questions in order to test large masses, was introduced in recruiting candidates for World War I service.

It was after WW I, according to Madaus and Stufflebeam (1984) that standardized tests were used to “make inferences about program effects, to identify specific system weaknesses, to evaluate the curriculum and overall systems performance...to make decisions about individuals” (p. 653). One of the first tools used to do this was the Stanford Achievement Test, a complete battery of tests in one booklet, standardized to the same student population (Marks, 1989). It is still widely used.

During this time, universities became major players in achievement testing, developing institutes that specialized in field studies and surveys. Teachers College and Ohio State University were at the forefront of the movement.

During the 1930's, Ralph Tyler emerged as the “Father of Educational Evaluation” (Madaus & Stufflebeam, 1984). He coined the term “educational evaluation,” which he “defined as assessing
the extent to which the objectives of a program had been achieved” (p. 656). Tyler and Dewey joined forces in conducting the first and largest study of defferential school effectiveness when they compared student performance from progressive secondary schools to that of traditional schools (Madaus & Stufflebeam, 1984).

Following WW II, there was little interest in accountability, efficiency, or effectiveness. The nation’s focus was on assimilating returning GI’s back into society and the economy. The Russian launch of Sputnik I in 1957 changed that. Many new nationally normed standardized tests were developed due to the arrival of machine scoring and analysis services. In answer to growing concerns about quality assurance in testing, the American Psychological Association prepared Technical Recommendations for Psychological Tests and Diagnostic Techniques (Madaus & Stufflebeam, 1984). Publication of taxonomies of educational objectives helped train teachers in test development by helping teachers make objectives more explicit.

According to Marks (1989, p. 40), a growing concern among taxpayers as to how schools were spending tax revenues sparked “accountability statutes” in the 1960’s. This proved to be the impetus for current statewide testing programs.

What has proven to be seminal work by L.J. Cronbach (Madaus & Stufflebeam, 1984) was very critical of evaluation of that time because of its lack of relevance and utility. He suggested that education “reconceptualize evaluation as a process of gathering and reporting information that could help guide and improve curriculum development” (p. 660). According to Madaus and Stufflebeam, Cronbach “provided the first convincing rationale for evaluation to play a role in quality assurance in education” (p. 660). America’s “War on Poverty” in the mid-1960's caused the Elementary and Secondary Education Act (ESEA) to be amended to include Title I services, or compensatory education to disadvantaged children. The program required annual evaluations
utilizing standardized test data to document that objectives had been achieved. Available standardized tests had been designed to rank order students of average ability and were useless for the diagnosis and assessment needs of Title I programs.

As a result of growing concerns, the Phi Delta Kappa commissioned a National Study on Evaluation, which called for the development of new evaluation theories and methods, and training for evaluation (Madaus & Stufflebeam, 1984). Numerous educators proposed models that deviated from that of Tyler, and created criterion referenced testing as an alternative to norm referenced testing. Emphasis was on the evaluation of goals, inputs, implementation, delivery of services, and the measurement of program outcomes. This period developed the framework for the period Madaus and Stufflebeam refer to as the “Age of Professionalization” (p. 663).

The Age of Professionalism, that we have been engulfed in since the mid-1970’s, has seen stronger cries for accountability, the commercialization of achievement tests, and their widespread adoption.

During this age, the Scholastic Achievement Test (SAT) and American College Test (ACT) have experienced dramatic growth. Over 2.5 million college applicants each year have taken one or both of these ‘voluntary’ tests required by colleges they wish to attend.

The Age of Professionalism has seen calls by two prominent Americans, the late Adm. Hyman Rickover and Sen. Claiborne Pell (D-R.I.) for a national test (Jaeger, 1991). It wasn’t until the 1998 Hawkins-Stafford Elementary and Secondary Schools Improvement Amendments, though, that appendages added to the National Association of Educational Progress (NAEP) that a trial balloon was launched. By 1992, all but a few states participated in a test of reading and math for fourth grade and math in eighth grade.

According to Jaeger (1991), the “goals of national testing parallel those of mandatory
statewide testing” (p. 239). Policy makers and evaluation experts, said Jaeger, think that the “existence of a set of externally imposed, uniform, statewide assessment programs would have salutary effect on the functioning of the state’s education system: that instruction would improve, that teachers would benefit, and that students’ learning would improve” (p. 241).

Anthony Gentile, president of Florida’s Broward County Teacher’s Union sees testing as “creating a tighter link between instruction and assessment” (Bushweller, 1997, p. 24). The principal of nationally recognized Key Renaissance Middle School in Indianapolis which frames its curriculum around Harvard University Professor Howard Gardner’s theory of multiple intelligences says “we don’t believe standardized tests are the guiding light, but they are a reality (p. 23).

Statewide testing is “high-stakes” for many students, because passing a designated proficiency test is a requirement for receiving a high school diploma. Such is the case in the state of Ohio. It is assumed that the tests represent “minimum skills and knowledge without which high school graduates cannot function as members of society and that the competency tests validly assess such skills and knowledge” (Jaeger, 1991, p. 242). Not only is a diploma at stake, but so too is a way of life. Jaeger cites work by Gordon Berlin and Andrew Sum that found disturbing trends among students who failed to receive a diploma. In comparison to peers who did receive a high school diploma, these students had an 8% higher incidence of being dependent on public assistance; males between the ages of 18 and 23 were twice as likely to be arrested; the probability of a woman bearing a child out of wedlock was 50% higher; and the annual salary was $1, 643 lower. Not receiving a diploma jeopardizes a student’s future by limiting employment, reducing quality of life, and diminishing the opportunity to contribute in meaningful ways to society.

Substitute House Bill 231, adopted in July 1987, made Ohio one of several states requiring
passing a proficiency test a requirement to receiving a diploma (Ohio Department of Education, 1997). Beginning with the class of 1994, ninth grade students must take the Ohio Ninth Grade Proficiency Test, and pass each strand prior to graduation. The strands include: citizenship, math, reading, and writing. Science was added in 1996, and must be passed by anyone graduating after Sept. 15, 1999. Ohio Administrative Cole Rule 3301-13-01 (G) requires ninth graders attending chartered nonpublic schools to meet these same requirements after Sept. 15, 1998 (ODE, 1997).

Ohio not only mandates proficiency testing in the fourth, sixth, ninth, and twelfth grades, but it also mandates competency-based testing and ability/achievement testing at many grade levels (Robinson & Wronkovich, 1991). In Ohio, as in most states, there is a growing concern on the overlapping and the “overall goals of the programs” (p. 11). There is also concern about the amount of instructional time lost to testing. According to Robinson and Wronkovich, it takes up to ten hours to complete a proficiency test and up to eight hours to complete a typical ability and achievement battery, amounting to twenty-two hours of test administration—approximately four full school days.

In a recent study cited by Robinson and Wronkovich (1991), Georgia researchers found a measurable effect of testing on student self-concept. They found that it is possible that “students who consistently fail to meet minimum competency standards will experience a drop in self concept” (p. 11).

School districts, and chartered nonpublic schools alike, are under a tremendous amount of pressure to achieve testing success. In Michigan, school accreditation is dependent on test scores (Bushweller, 1997). Publicity is glaring, and the stakes are high. Student promotion and graduation, the way instructional time is spent, public perception of a community, district or a school, and student self-perception are critical issues in statewide proficiency testing.
Against this framework, a study will be conducted to determine ninth grade student success on the Ohio Ninth Grade Proficiency Test. The study will involve intervention instructional strategies given in a voluntary PREP program at a Catholic high school during a week long series of half-day classes in the summer, prior to the initial test attempt, in the hope of preserving student self-esteem, valuable instructional time, and school reputation within the community, and the State of Ohio.

“Test-wiseness” is a term frequently used regarding student performance on achievement tests. Samson (1985) defines test-wiseness as “a subject’s capacity to utilize the characteristics and formats of the test and/or test-taking situation to receive a high score...independent of the examinee’s knowledge of the subject matter for which the items are supposedly measures” (p. 261). In synthesizing 24 studies that examined the effectiveness of training programs in test-wiseness or test-taking skills on elementary and secondary achievement, Samson found effective test-wiseness or test-taking principles that were independent of the test constructor or purpose. Included are lower level strategies, such as careful attention to directions, appropriate time-using strategies, the use of guessing and deductive reasoning strategies, and careful checking of answers. Higher level strategies included elements which are dependent upon the test constructor or purpose, such as consideration of the intent of the question and the recognition of cue-using strategies.

In analyzing data from the 24 studies, Samson used metaanalytic procedures to determine the effectiveness of test-taking programs on achievement. Criteria for the selections of the studies were: the dependent variable included measures of elementary and secondary academic achievement; the treatment focused on training programs designed to improve test-taking skills; and sufficient statistical data to determine an effect size (Samson, 1985, p. 262).
Samson’s (1985) findings indicated that longer programs which involved additional contact hours yielded significant gains in achievement. Programs needed to be from five to seven weeks. Strategies related to the task on hand yielded significant results, as opposed to those that were unrelated, speaking to the need for authenticity in intervention instructional strategies. Samson was surprised that no significant differences were found between treatment programs which included attention to the elements of higher level test-taking strategies as opposed to lower level ones. He found that training programs decreased measurement errors and were generally very effective in improving student achievement.

At Fullerton Elementary School in Maryland, two reminders are pinned up in every classroom each day. “One emphasizes what student’s should know after the day’s lesson, and the other says what they should be able to do with that knowledge”, according to recently retired principal John Huchinson (Bushwell, 1997, p. 22). “That double-edged ‘know and do’ emphasis is the basis of the school’s experiential learning program, which emphasizes teaching lessons that apply to real life”-authenticity, according to Huchinson (p. 22).

Another synthesis of research on intervention instructional strategies was done by Bangert-Drowns, Kulik, and Kulik (1984). Their interest was fueled by the fact that over 50,000 students each year enroll in commercial coaching schools to prepare for college and professional-level aptitude tests. The primary goal of their study was to evaluate the effectiveness of coaching for tests. Coaching programs covered: “familiarization with test instructions; training in test wiseness; relaxation or anxiety-reduction exercises; and review of the content covered in tests” (p. 81).

The researchers reviewed 108 studies. They found that the size of practice effects was a function of three factors: the similarity of practice and criterion tests; number of practice tests
taken; and ability level of the students tested (Bangert-Drowns, Kulik, & Kulik, 1984). They found significant gains when parallel forms of the same test were used and when there was a high frequency of practice test-taking. They also found that higher ability students gained more from practice than low ability students, leading to the implication that low ability students may need more explicit coaching. Significant gains were noted when pretests were used. It was also found that longer coaching programs produced higher test scores. Interestingly, studies that focused on SAT coaching programs found them to be of little significance. The researchers attributed this finding to the differences to the uniqueness of the SAT and its coaching programs.

Research conducted by Mary Lee Smith (1991) involved the role of external testing in schools. The study involved 15 months of participant observation at two low achieving schools in the Phoenix area to ascertain the meanings of test preparation held by participants and the ways these meanings were carried out in actions or strategies. Eight categories of meanings-in-action were derived from observation and interview data by coding and sorting, generating and testing assertions, examining discrepant cases, and submitting the typology to participants and experts.

Smith (1991) found that 88% of the teachers in the schools engaged intervention instructional strategies to prepare students for tests, and that the amount of time spent increased as the testing dates approached. Smith found that 32% of the teachers were required to prepare students for specific tests. The teaching of test-taking skills, such as how to transfer answers to separate answer sheets, how to finish within time limits, and how to eliminate obviously incorrect distractors before guessing, were seen as legitimate and fair practices, and engaged in by 60% of the teachers. Smith noted, however, that district personnel had built systematic test-taking-techniques into units of curriculum, provided a Study Skills Handbook with an assessment package, and required time periods during the day for instruction. The “test-taking skills become
part of the taken-for-granted curriculum, and instruction comes to resemble tests” (p. 528).

According to Smith (1991), most teachers admitted to exhortation of students, by encouraging them to get rest prior to the test, to put forth their best effort, and to recognize the seriousness of the test. Teachers generally felt that pupil performance was mediated by pupil engagement and effort.

Smith (1991) also found that 66% of the teachers prepare students for the test by sequencing topics so that those that the test covers are taught prior to the test, reviewing the composition of ordinary content regularly, and teaching new content that they know will be on the test. Topics covered after the test were not given the time and attention given to topics before the test.

The use of materials that mimic the format and cover the same curriculum of the test is referred to as “teaching to the test.” Smith (1991) found that “using these materials has the same effect on scores as would administering a parallel form and explaining all the answer options to the pupils” (p. 534). This practice was engaged in by 41% of the teachers. The actual practice of using parallel forms of tests was engaged in by only 10% of the teachers.

The focus on intervention instructional strategies are primarily aimed at improving test scores and student success. However, these strategies have been shown to boost the confidence of test takers. According to Smith (1991) teachers employ them to show students that “they are smart, know a great number of things, and are capable of doing well on the test” (p. 535). These strategies serve as vehicles for working on a student’s feelings of self-efficacy. They serve to ‘inoculate’ students against emotional ‘paralysis’ in the face of the tests and against feelings of failure and inadequacy that the tests tend to engender.

Rawl (1984) found the “overly anxious students do not perform well on standardized tests”, and that “this is especially true when students expect to do poorly, either because of negative self-
image or low teacher expectations" (p. 108) He emphasized the need for teachers to “create a supportive atmosphere” (p. 108). Rawl has identified five test taking strategies that are key to improving test scores. They include not only reduction of student anxiety, but teaching students to follow instructions, advising them to use time wisely, teaching students how to attack difficult problems, and ensuring that students understand how to make shrewd guesses. Paramount to the success of these strategies, according to Rawl, is familiarizing teachers with the five principles so that these intervention instructional strategies are used correctly.

Factors that Rawl found to be effective in creating a supportive atmosphere and therefore reducing student anxiety included providing familiarity with the test format, the answer sheet, and time restrictions, and answering easier questions first (Rawl, 1984). He felt it extremely important that students be tested in their authentic environments, preferably in the student’s usual classroom.

Rawl (1984) says that “one of the most common causes of poor performance is failure to follow directions” (p. 109). Poor performance can be reduced by reviewing instructions in the days prior to the testing, making a light mark next to questions of uncertainly, and erasing all stray marks. In teaching students wise use of time, teachers should suggest an appropriate time table. Difficult questions should be broken “into manageable parts and rephrased into a students own words” (p. 110). When answering comprehension questions, students should read the questions before the passage, and always save time for a quick review at the end. According to Rawl, “below-average students in particular do poorly on standardized tests because they either give up or guess wildly” (p. 110). Students should be encourage to carefully consider all possible answers, separate a question into its component parts, work backward on math problems, and draw pictures and diagrams in order to visualize better. It is important to teach students to guess
shrewdly, as penalties are seldom assessed for incorrect answers. Absolute, absurd, extreme, or repetitive answers should be eliminated immediately. Rawl has found these to be effective and easily taught intervention instructional strategies.

Duke and Ritchart (1997) echoed many of Rawl's strategies. They make "explicit connections between good test-taking skills and good general-learning practices" (p. 189). They encourage purposeful reading and preparing students for a variety of questions about what they've read. They question students "to enhance comprehension and promote a wide range of interpretations—literal, inferential, and personal" (p. 90). According to Duke and Ritchart, it is important to teach test structure by demonstrating patterns such as story setting being found in the beginning of the passage, problems in the middle, and resolutions at the end. In math, they stress word problems, number sense, estimation, and mental math as keys to solving the heavy emphasis on computation.

Like many other researchers, they are concerned about "nipping test stress in the bud" (Duke & Ritchart, 1997, p. 119). They have found that practice tests help promote understanding of test mechanics and that discussions about tests that concentrate on seriousness, confidence, and strategy help promote positive attitudes. Dealing beforehand with "basic roadblocks" (p. 119) such as an inadequate breakfast, lack of sleep, and tardiness alleviates test day anxiety, as does avoiding academic activities immediately before the test.

Strategies such as those mentioned in this chapter appear to be impacting proficiency test scores, and the reception of high school diplomas. DeBrosse (2000) reports that in the Miami Valley area of Dayton, Ohio, 157 seniors in 43 local school districts failed some portion of the exam in March, 2000 compared to 202 seniors in 1999. Statewide, 98 percent of Ohio's class of 2000 have now passed the ONGPT and were eligible for a high school diploma on that basis.

The study in this thesis is geared toward measuring student success on the initial attempt of the
Ohio Ninth Grade Proficiency Test comparing students who participated in the voluntary PREP program and those who did not. Subjects were selected based on performance below grade level on the eighth grade IOWA reading test. Scores on each strand of the IOWA test were matched up with the score on the corresponding strand of the ONGPT. The IOWA reading test score was used as a benchmark because as Boyer (Graves, Van Den Brock, & Taylor, 1996) has summarized, “reading is not just another subject but the means through which other subjects are pursued” (p. xiv). Boyer (Graves, et al., 1996) elaborates when he says that “if by the end of the third or fourth grade, all children were linguistically empowered, their successive learning would expand exponentially, and later failure would be diminished dramatically” (p. 4).

Passing this test on the first try reduces student stress on this very high-stakes evaluation, and adds to classroom instructional time. Research indicates that intervention instructional strategies, especially those incorporated in authentic settings, are very effective in promoting initial test success.
CHAPTER III

METHODOLOGY

The purpose of this study was to determine the effectiveness of intervention instructional strategies employed in a week long, half-day PREP program in the summer prior to the initial attempt on the Ohio Ninth Grade Proficiency Test. This chapter will give an overview of the study and its design, detailed descriptions of the subjects and the setting, how the data was collected and analyzed, the role of the researcher. And the provision for trustworthiness.

The question asked in this quantitative study is whether or not students benefited from the PREP program when they took the Ohio Ninth Grade Proficiency Test for the first time. The results were based on a comparison between those who participated in the voluntary PREP program, and those who did not.

PARTICIPANTS

Students

Seventy-three students participated in this study. They were selected from a student population of 296 freshmen in high school, of whom 276 participated in the ONGPT in Nov., 1999 for the first time. Subjects were selected based on performance that was below grade level on the eighth grade IOWA reading test.¹ Scores on each strand of the IOWA test were paired

¹ For a descriptive breakdown of student performance see Appendix A.
with the score of the corresponding strand of the ONGPT. Students were divided into two groups: those who chose to take the week long voluntary PREP program and those who chose not to. The IOWA reading test score was used as a benchmark because as Boyer (Graves, Van Den Brock, & Taylor, 1996, xvi) has summized, “reading is not just another subject but the means through which all other subjects are pursued”. Boyer (Graves et al., p. 4) elaborates when he says that “if by the end of third or fourth grade children were linguistically empowered, their successive learning would expand exponentially and later failure would be diminished dramatically”. The writer saw the reading score as the best means of identifying students who would most benefit from the PREP program.

Students were divided into two groups: those who chose to take the week long voluntary PREP program and those who chose not to.

Researcher

The researcher was a graduate student in the School of Education’s Reading and Language Arts program. The researcher has extensive experience in writing items for both state and national tests and has been involved in programs in two area schools to prepare students for both initial attempts on the ONGPT and for passing strands that a student failed in prior test attempts. The researcher has been an educator since 1975.

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2 For a complete illustration of the data set see Appendix B.
STUDY SETTING

The study was conducted at a Catholic co-educational high school in an urban city in Southwest Ohio. The school has over 1,000 students and draws from over 20 different Catholic elementary feeder schools, as well from the public schools from the city in which it is located, and surrounding cities. The school represents a wide-range of socio-economic backgrounds. It’s student population is comprised largely of Caucasians and Black Americans, with a small number of Asians and Africans. The faculty has 90 members, of whom over 90% are lay people.

THE PREP PROGRAM

The PREP program is a voluntary week long series of half-day sessions offered during the summer to incoming freshmen. Of the 296 students enrolled in the freshmen class of 1999, 135 chose to participate in the PREP program. The cost was $60. Students unable to pay for the program are admitted free of charge.

Each student participates in six sessions during the PREP program. The first session is an orientation to the high school and an overview of expectations which the school has of its students. Included in this session are study skills and test-taking tips. The text The Secret of Getting Better Grades (Marshall & Ford, 1994) is distributed to each student and widely used during the PREP program.

The rest of the program is dedicated to preparing students for the Ohio Ninth Grade Proficiency Test. Each strand of the test is covered by a teacher in that particular subject area. Teachers utilize Passing the Ohio Ninth Grade Proficiency Test (Arnold, Doyle-Warren, Garmann, Hennessey, & Ton, 1996) which is given to all incoming freshmen upon their
acceptance to the high school in the spring prior to entrance.

Teachers involved in the PREP program completed surveys as to which intervention instructional strategies they used. Strategies involved include, but are not limited to, test-wiseness and test-taking tips, review of the subject matter covered in each strand, highlights of material covered in past tests, and developing acronyms as suggested in *Proficiency achievement Success Strategies* (Watkins, 1999) to assist in taking the ONGPT. Students are coached as to how best to approach the different types of questions on the proficiency test and practice taking parallel tests. This program has been in place for over five years.

**RESEARCH DESIGN**

**Data Collection**

The Director of Guidance at the high school was instrumental in helping the researcher gain access to the records necessary for the completion of this study. The researcher was provided with a list of all freshmen, a list of all PREP participants, and a list of all students taking the Ohio Ninth Grade Proficiency Test. IOWA test scores were secured for the purpose of identifying students who tested below grade level in reading at the eighth grade level, and took the ONGPT. A pool of 73 subjects formed. Proficiency scores were secured for those 73 students in Feb., 2000. The 73 subjects were subdivided into two groups: the 35 students who participated in the PREP program and the 38 who did not. The Director of Guidance reported that none of the 73 students reported receiving outside intervention for the ONGPT when asked. Surveys were completed by teachers who participated in the PREP program to determine which intervention instructional strategies were used in preparing students for the ONGPT.³

³ See Appendix C for complete survey.
Statistical Method

Analysis of covariance was applied to evaluate the program's impact on student performance on each strand of the Ohio Ninth Grade Proficiency Test. Analysis of covariance is used since the dependent variable, proficiency test scores, are measured at the interval level. The independent variable of interest, participation in the PREP program, is measured as a categorical variable (1/0), and the control variable, IOWA Test scores are measured at the interval level. The IOWA basics Skills Test scores served a role similar to that of a pre-test. In effect, analysis of covariance seeks to determine if participation in the PREP program produces a statistically significant increase in the mean test scores on the proficiency exams while controlling for the IOWA Test of Basic Skills.

The analysis to follow presents the means on the ONGPT scores within categories of program participation/non-participation. Furthermore, the technique reveals the average rate of change in performance as measured by the unstandardized beta weight.

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4 Analysis of covariance is one form of a regression technique. Throughout the remaining discussion and tables, the terms "analysis of covariance" and "regression" will be used interchangably.

5 Where 1=participated in the PREP program and 0=did not participate in the program.
CHAPTER IV

ANALYSIS AND RESULTS

In this chapter, the results of the study will be analyzed and discussed. The validity of the hypothesis will be determined in light of the results. It is hypothesized that ninth graders who took advantage of the PREP program, where proficiency intervention instruction was offered, will exhibit higher test scores on the initial attempt on the Ohio Ninth Grade Proficiency Test, than students who chose not to be involved in the program.

Tables 1-6 present the analysis of covariance. Table 1 begins by offering a comparison of the means while controlling for the pretest of the IOWA Test of Basic Skills. A review of Table 1 indicates that the PREP program is exhibiting some difference in the mean scores on the five strands of the Ohio proficiency exam between program participants and non-participants. For all five proficiency exams, students exhibited an increase in performance. For example, students who participated in the program for five days revealed a reading proficiency score of 212 compared to a score of 209 for non-participants. Furthermore, students who participated in the PREP program received a score of 192 in math, compared to 187 for those students who did not participate. In citizenship there was a five point difference, with students involved in the PREP program scoring 200, while those who did not scored 195. A three point difference in science is evident with PREP students scoring 187 as opposed to the non-PREP score of 184. The writing score was not dramatic, with students involved in PREP receiving a score of 6.05 and non-PREP students scoring 6.0.

The key question is, however, are these differences random, or systematic as a result of
participating in the program? Tables 2-6 address this question. Table 2, for instance, shows the average rate of change in the Ohio citizenship score as a result of participation in the PREP program. In particular, the unstandardized beta weight indicates that for a one week participation in the program, students exhibit an average increase in citizenship of 3.07 points. Despite this increase, the difference is not statistically significant, which suggests that the difference is a random phenomenon as opposed to a systematic outcome of the program. In effect, we can not be 95% confident that the program, when controlled for the effects of IOWA test scores, is having a systematic effect on performance.

Table 3 shows that the average rate of change in the Ohio reading score as a result of participation in the PREP program. Here the unstandardized beta weight indicates that for a one week participation in the program, students exhibit an average increase in reading scores of .2 points. This finding is not statistically significant and supports a conclusion of random phenomenon.

Mathematics is addressed in Table 4. It shows that for a week long tenure in the PREP program, the average increase in the Ohio math score is 2.67 points. Despite this increase, the difference in not statistically significant, suggesting that it is a random phenomenon, and not a systematic outcome of the program.

Table 5 shows the average rate of change in the Ohio science score as a result of participation in the PREP program. In particular, the unstandardized beta weight indicates that for a one week participation in the program, students exhibit an average increase in science scores of 2.216 points. Despite this increase, the difference is not statistically significant, which again suggests that the difference is once again more a random phenomenon as opposed to a systematic outcome of the program.
Lastly, Table 6 shows the average rate of change in the Ohio writing score as participation in the PREP program. The unstandardized beta weight indicates that for a week long involvement in the program, students exhibit an average increase in writing scores of only .273 points. This slight increase is not statistically significant at all.

While Table 1 demonstrates higher mean scores for students involved in the PREP program, upon closer examination of individual proficiency test strands in Tables 2-6, it appears that these higher scores are not statistically significant. They seem to be a random phenomenon as opposed to a systematic outcome of the PREP program. Therefore, it would appear that the hypothesis as stated in chapter one, and again in this chapter, is not supported. Overall, ninth graders who took advantage of the PREP program, where proficiency intervention instruction was offered, did exhibit slightly higher scores on the initial attempt on the ONGPT than students who chooses not to be involved, but these increases can not be declared statistically significant.
### Table 1

**Means and Standard Deviations on Five Strands of the Ohio Ninth Grade Proficiency and Iowa Basic Skills Test**

<table>
<thead>
<tr>
<th>Did the student take the prep program?</th>
<th>Ohio reading score</th>
<th>Score on Iowa reading exam</th>
<th>Ohio mathematics score</th>
<th>Score on Iowa mathematics exam</th>
<th>Ohio citizenship score</th>
<th>Score on Iowa Social Studies exam</th>
<th>Ohio science score</th>
<th>Iowa science exam score</th>
<th>Ohio writing score</th>
<th>Iowa language arts score</th>
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</table>
### Summary of Regression Analysis of Ohio Citizenship Proficiency Score on Iowa Score and PREP Class (N=73)

<table>
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<th>Unstandardized Coefficients</th>
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<td></td>
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<tr>
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<td>3.070</td>
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<tr>
<td>Score on Iowa Social Studies exam</td>
<td>6.232</td>
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</tbody>
</table>

$R^2 = .353$

*p < .05*
### Table 3

**Summary of Regression Analysis of Ohio Reading Proficiency Score on Iowa Score and PREP Class (N=73)**

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<thead>
<tr>
<th></th>
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<th>Std. Error</th>
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</thead>
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<td>Constant</td>
<td>146.469</td>
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<td>0.200</td>
<td>3.896</td>
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<tr>
<td>Score on the Iowa reading exam</td>
<td>10.073</td>
<td>2.135*</td>
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</table>

$R^2 = 0.203$

* $p < 0.05$
Table 4

**Summary of Regression Analysis of Ohio Mathematics Proficiency Score on Iowa Score and PREP Class (N=73)**

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Std. Error</th>
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<td>Constant</td>
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<td>Score on Iowa Mathematics exam</td>
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<td>1.808*</td>
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$R^2 = 0.353$

*p*.05
Table 5

Summary of Regression Analysis of Ohio Science Proficiency Score on Iowa Score and PREP Class (N=73)

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<th>Std. Error</th>
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<td>Constant</td>
<td>168.722</td>
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<td>2.216</td>
<td>2.687</td>
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<tr>
<td>Score on Iowa Science exam</td>
<td>5.803</td>
<td>2.454*</td>
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</table>

$R^2 = 0.137$

* p<.05
Table 6

Summary of Regression Analysis of Ohio Writing Proficiency Score on Iowa Score and PREP Class (N=73)

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<th>Std. Error</th>
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</thead>
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<td>Constant</td>
<td>4.099</td>
<td>0.541*</td>
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<tr>
<td>Did the student take the prep program?</td>
<td>0.273</td>
<td>0.150</td>
</tr>
<tr>
<td>Score on Iowa Writing exam</td>
<td>0.214</td>
<td>0.138</td>
</tr>
</tbody>
</table>

R² = 0.049
*p<.05
CHAPTER V

DISCUSSION

The analysis revealed that participation in the PREP program is exhibiting some difference, for all five strands, however the differences are random. What might explain this outcome? Indeed, the length of participation may have some impact on the results. As noted earlier in this paper, students participated in this program in a short time frame, only a week of half-day sessions, which could have some impact on performance. Future studies on this topic should seek to track students for longer periods of time. Samson (1985) found that programs from five to seven weeks yield significant gains. These programs do not necessarily have to be half-day in length, but could be incorporated into required periods of time during the school day prior to the initial proficiency test (Smith, 1991). This approach could be effective because it occurs in the authentic classroom environment (Rawl, 1984) and is offered to all students in attendance, not just those who elect into the PREP program.

It is apparent, based on the IOWA mean scores, that brighter students decided to take the PREP course and had higher scores on the Ohio Ninth Grade Proficiency Test, which is to be expected. Behaviorally, it makes sense that higher achieving students would be more motivated to do whatever possible to improve their scores on the initial ONGPT. According to Robinson and Wronkovich (1991), there is a measurable effect of testing on student self-concept. Therefore, it is reasonable to assume that students with lower IOWA scores would be discouraged and might be less likely to elect to take the PREP course.

Bangert-Drowns, Kulik, and Kulik (1984) found that higher ability students gained more from
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LOCATION: Patro
PATRON TYPE: OhioLINK Graduate

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CALL NO: Thesis
AUTHOR: Byrd, Deborah L.
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practice than lower ability students, leading to the implication that lower ability students need more explicit coaching. Strategies related to the classroom task on hand as opposed to those that were unrelated, yielded significant results with all students, speaking to the need for authenticity in presenting intervention instructional strategies (Samson, 1985). Strategies discussed in chapter two have been proven to be effective in improving test-wiseness, test scores, student self-concept, increasing self-concept, and increasing instructional time as fewer students need to repeat test strands.

It is reasonable to assume that while the PREP program didn’t make a large difference, over a period of time a similar program placed within the school curriculum could continue to see a trend of higher scores on the initial attempt on the ONGPT that would not be random in nature.

There were variables that were not included in this study because of unavailability to the researcher. That fact could impact future research on this topic. They include race, gender, elementary grade point averages, and socio-economic backgrounds.

While exploratory study did not prove the hypothesis, it offers strong directives that could prove to be significant in future studies. For example, future studies should emphasize the following strategies, as we continue to gain more insights into this topic. First, additional studies should track students for longer periods of time, perhaps five to six weeks (Samson, 1985). Second, up-front cooperation should be obtained from school officials and researchers to obtain demographic information on students both participating and not participating in a prepatory program in order to statistically control for these factors when assessing the effectiveness of a prepatory program. The following factors would be helpful to establish program impact: race of student, parent’s education level, number of children in the student’s family, and grade school GPA. The ability to obtain these attributes would enable researchers to understand more fully the
real impact of a prep program. Finally, qualitative data should be obtained from students and teachers to identify common themes and issues about prep programs that may, in turn, be used to assist in further program development of preparatory programs throughout the State of Ohio and the nation.
### Appendix A

**PREP/Non-PREP Subjects:**

**IOWA Basic Skills/Proficiency Strand Correlations:**

**Total of Proficiency Strands Passed**

<table>
<thead>
<tr>
<th>Subject</th>
<th>PREP</th>
<th>IOWA LA</th>
<th>WRT SCO</th>
<th>CH WRIT</th>
<th>PASS</th>
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### Data Table

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### Notes

- The table above provides a detailed breakdown of PREP/Non-PREP subjects, IOWA Basic Skills/Proficiency Strand Correlations, and the total number of proficiency strands passed.
- The data includes various metrics such as PREP scores, IOWA scores, and proficiency strand correlations.
- The table is structured to facilitate easy reading and understanding of the data presented.
Appendix B

Mean Scores of Students Who Failed Proficiency Exam

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<tr>
<th>Subject</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
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<tr>
<td>Writing</td>
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<td>0.5164</td>
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</table>
I am currently working on my Master’s Thesis for the University of Dayton in Reading and Language Arts, with a completion deadline of July 15. I am conducting a study of innovative teaching strategies on the initial attempt on the Ohio Ninth Grade Proficiency Test. Your input is vital to my research! Please take a few minutes to complete this form (feel free to add information) and return it to me in the stamped, addressed envelope at your earliest convenience. And, enjoy your gourmet chocolate bar!

Debbie Byrd (294-2934)

Name: __________________________ Subject area: ____________

What role have you played in CJ’s PREP program? Please explain in detail.

Did you do anything in the PREP program specifically to prepare students for the proficiency tests? If so, what instruction/activities were involved?

What activity/activities were done in your subject area on Oct. 12 to prepare students for the proficiency tests? Please explain in detail.

Were test-taking strategies taught in the PREP program? If so, which ones? Were any taught during the Oct. 12 practice sessions?

Is there anything you feel could be done at C-J to assist students achieve better success on the initial attempt of the ONGPT?

AGAIN, THANKS!!!
WORKS CITED


