THE EFFECT OF TIME ON READING COMPREHENSION SCORES OF THE
IOWA TEST OF BASIC SKILLS FOR ELEMENTARY STUDENTS
WITH AND WITHOUT VISION CORRECTIVE LENSES

MASTER'S THESIS

Submitted to the School of Education and Allied Professions
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ENTITLED: The Effect of Time on Reading Comprehension Scores of the
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With and Without Vision Corrective Lenses

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ABSTRACT

THE EFFECT OF TIME ON READING COMPREHENSION SCORES OF THE IOWA TEST OF BASIC SKILLS FOR ELEMENTARY STUDENTS WITH AND WITHOUT VISION CORRECTIVE LENSES

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This thesis investigated the effect of time on reading comprehension scores of the Iowa Test of Basic Skills for elementary students with and without vision corrective lenses. The participants were 47 seventh grade students, 35 without corrective lenses and 12 with corrective lenses. The scores in comparison for this study were generated from the results of the students' 6th-grade performance and 7th-grade performance on the Level 12 Reading Comprehension portion of the Iowa Test of Basic Skills. The mean and standard deviation scores for the timed test (pretest) and extra-timed test (posttest) were compared through a t-test. The data produced in this study support the researcher's null hypothesis that students with corrective lenses as well as students without corrective lenses improved their scores on the reading comprehension portion of the Iowa Test of Basic Skills in an un-timed situation, but there were no significantly differences from pre- to post-tests.
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CHAPTER I
INTRODUCTION

Educators have utilized and trusted the results of standardized tests for many years. These tests were developed to measure and compare general education performance levels of the students. In the past decade, standardized tests for reading achievement have come under scrutiny over their validity for reporting reading ability accurately. Teachers have reported their dissatisfaction with several components of these standardized reading assessments:

Concerns focus on problems such as assessment tasks that bear little or no resemblance to those encountered in good instruction or the world beyond the classroom; decontextualized reading passages and trivial questions; multiple choice items that allow little opportunity for students to respond according to their own interpretations or to make personal connections with reading; and activities that do not engage students as meaning makers (Kapinus, 1994, p. 578).
Additional points of debate include: test items that denote cultural bias; time limits that are unrealistic to authentic classroom experiences and that overlook students with special needs; instruction based on the mastery of tested skills, rather than preferred curricular material; and results that are used to rank and place low scoring students in special instructional classes.

Some students possess a diversity of special physical needs that could affect how they perform on academic tasks, specifically standardized tests. One such physical need is visual problems that require prescribed corrective lenses. According to Taylor, Sternberg, and Richards (1995), "The general consensus on a definition of visual impairment is that it must be a condition that directly and significantly affects one's overall functioning" (p. 217). There are numerous causes for vision impairments, but Taylor et al. (1995) note, "if the visual problem can be corrected by the uses of glasses or contact lenses, the impairment is not considered an educational disability. Therefore, the child is not counted as a member of the visually impaired group" (p. 219). According to the Federal Register cited in Taylor et al., "The Individuals with Disabilities Education Act (IDEA) defines visually handicapped as 'a visual impairment which, even with correction, adversely affects a child's educational performance.'" (p. 218). This raises the question, should
students with corrective lenses be offered special accommodations, such as increased time limits for completion of standardized tests?

The topic of standardized test use is timely because of the public's opinion of the steady decline of educational standards of U.S. schools, as compared to world standards. As a result of public pressure to improve our performance, politicians and the federal government have enforced more statewide standardized testing. "President [George Herbert Walker] Bush (1991) called for 'voluntary national tests for 4th, 8th, and 12th graders in the five core subjects' to tell parents and educators, politicians and employers, just how well our schools are doing" (Farr, 1992, p. 27).

Reading is included as one of the core subjects. It has been a primary topic for criticism and focus for the last 50 years.

Current President George Walker Bush recently initiated the Reading First Program, which was passed unanimously by the Senate in May 2001. According to the Senate Record Vote Analysis (2001):

The Collins amendment would amend the Reading First Program: to improve the targeting of funds to those schools that had the most children reading below grade level; to clarify that each State's educational agency would be responsible for administering the program; to add to the bill's criteria for awarding grants that States would have to demonstrate improved reading achievement in those schools that received funding...and require the Education
Department to determine if the program had an effect on referral of young students for special education services under the Individuals with Disabilities Education Act....The Reading First Program and Early Reading First Program are based on education initiatives of President Bush’s. The programs will give aid to schools to identify young children who are having difficulty in learning to read and to provide assistance to help those children catch up with their peers; both programs will target funds to schools serving poor children; training in effective teaching methods will be given to teachers (S. Rep. No. 89, 2001, paragraph 3).

The traditional determinant for identifying students with educational needs is through the use of standardized tests. Likewise, school districts and states rely on the scores of standardized tests to demonstrate the achievement levels of the students.

With the increased use of standardized tests comes an increase in pressures on school administrators and, ultimately, teachers to ensure that students are learning the skills necessary to pass the tests. Accountability for student performance on these tests has been placed on educators. Although it is important to have high standards for education by using standardized tests to prove achievement levels, are our testing procedures such that all students, including those who utilize corrective
lenses, have the best opportunity to demonstrate what they have learned? Many educators are saying no.

Problem Statement

According to Perlman, Borger, Collins, Elenbogen, and Wood (1996), "The Americans with Disabilities Act requires that reasonable and appropriate accommodations be provided when students with disabilities are assessed. One commonly provided accommodation is to allow the student extra time to complete the test" (p. 2). Currently, there are no accommodations for students who wear corrective lenses as a result of vision problems. The researcher for this study attempted to show whether or not the reading comprehension scores on a standardized test, specifically the Iowa Test of Basic Skills (ITBS), can improve for both students with and without corrective lenses. The data produced in this study will hopefully support the researcher's hypothesis that students with corrective lenses as well as students without corrective lenses will improve their scores on the reading comprehension portion of the ITBS in an un-timed situation.

Purpose of the Study

The purpose of this study is to compare the effect of time limits versus un-timed conditions on standardized reading tests on the
achievement of 7th-grade students with and without corrective lenses. The researcher investigated the appropriate use of time limitations on the reading comprehension portion of standardized tests. The researcher recommended a course of action or solution to administering standardized reading comprehension tests based on the results of the study.

Research Question

The following question guided this study:

What is the effect of time limits of standardized reading tests on reading comprehension scores for elementary students with and without corrective lenses?

Research Hypothesis

The following null hypothesis, adapted from the Runyan research study (1991), was tested in this study:

Both groups will increase their reading comprehension scores when tested under un-timed conditions, but the groups will not differ significantly in the un-timed testing condition.

Limitations

The scores in comparison for this study were generated from the results of the students' 6th-grade performance and 7th-grade performance
on the Level 12 Reading Comprehension portion of the ITBS. Given the year of academic growth, a conclusion can be drawn that the students would score better regardless of time extensions.

Even though the pretest and posttest in this study were administered a year apart, there could still be the possibility that participants could score better on the posttest because of familiarity with the test questions, not the un-timed testing conditions. "If subjects are able to remember some of the items from the pretest, their performance on their posttest may improve because of their memories rather than because of any experimental treatment" (Crowl, 1993, p. 200). This pretest problem could be a limitation for this study in that the tests are the same.

The small number of participants who were involved in this study is also a limitation. Out of a total of 47 possible participants, only 40 were tested in both the timed and un-timed test conditions. The remaining seven students, for a variety of reasons, were not present for the pretest or the posttest, causing the final results to be configured for their absence. Of the total 47 participants, 35 did not require corrective lenses, while 12 did require corrective lenses.

Other limitations that could pose problems to the validity of the study include: students who may have failed to report vision problems in either the 6th-grade or 7th-grade, students who have chosen not to utilize corrective lenses in either grades, physical growth may have corrected a
vision problem that was present in the previous year, or students could have prescriptions for corrective lenses that have expired.

**Summary**

The literature and research concerning the analysis of standardized tests merits review. "In recent years significant changes in our thinking about reading have ushered in a much needed reform movement in reading assessment practices" (Henk & Rickelman, 1992, p. 67). In order for there to be any type of positive change in the system, people need to be accurately informed about educational practices that would be most beneficial to the students. So much is based on this single administration of a standardized test, that debate over its accuracy is essential.

who continued to press for more testing" (ETS, 1999, paragraph 23).
CHAPTER II
REVIEW OF RELATED RESEARCH

Now that the issue of the standardized test debate has been introduced, theoretical implications, as well as empirical evidence will be presented in this chapter. The analysis of concerns by educators over instructional practices, student diversity issues, and time limits set by the standardized tests will reveal the importance for change of opinion over what is thought appropriate for growth in reading achievement of students. The historical origins of standardized tests, views advocating their continuation, opinions against the improper use of test results, and suggestions for change will be exclusively presented in this chapter. The time limits of the tests will be specifically emphasized, as it relates to reading rate.

Historical Origins

There was much debate over whether the Germans or the Soviets prompted the change in education in America. Gordon (2000) believes that reform in education began when, “in 1893, the National Association of Manufacturers was formed as American business became more
interested in entering overseas markets" (paragraph 1). The German businesses had a solid hold on the international markets at this time. This was mainly due to the productive labor force that was educated in the German industrial and trade schools. Corporate America saw an opportunity to compete globally by changing the education system to focus on producing a productive workforce.

Some people may put the responsibility for the educational transformation on the Soviets. The American education system again underwent changes after the Soviet Union preceded us in the race to launch the first spacecraft, Sputnik, in 1957. Americans were forced to reexamine education and redefine the curriculum in order to advance as a competitive world power. The Educational Testing Service (ETS) reported that, “According to Gallup polls year after year, citizens expressed confidence in the local school but increasingly worried about the national system" (paragraph 18). The 1960s were filled with curriculum reform.

In the 1970s, public criticisms of the education reform as initiated by the federal government redirected politicians to place the emphasis on assessment of student performance. Thus, the practice of using standardized testing procedures became increasingly popular. "In the 1980s and 1990s it was elected officials, governors and state legislators, who continued to press for more testing" (ETS, 1999, paragraph 23).
Current emphasis on testing was a major focus in the latest U.S. presidential campaign.

[George Walker] Bush has stated that schools who do not perform to nationally prescribed standards of performance will lose their federal dollars and proposes that states should reallocate funding from poor-performing schools (often underfunded to begin with) to high-performing (usually suburban) schools already receiving the lion's-share of state expenditures in education. He also advocates giving families a 'choice' by providing them vouchers so that they can shop around for better educational options (Gordon, 2000, paragraph 6).

According to the Senate Record Analysis Report (2001), "most States do not now have the knowledge or resources that are needed to establish the kinds of reading programs and early interventions that are most effective. Reading First [Program is] demanding accountability—schools will have to demonstrate that their early intervention strategies work" (paragraph 6).

Current Debate

The highly publicized controversy surrounding the use of standardized tests as a means for assessment and accountability, has clearly produced advocates and adversaries. Both groups have
developed powerful arguments to support their stance on the testing issue. The term advocate is used to describe those people who believe that testing is a necessary device to determine how American students compare educationally, and to establish accountability for the students' success and/or failure. Likewise, the term adversary is used to characterize those people who judge standardized testing as a tool that produces manufactured data. This forces curriculum change that ultimately is detrimental to the education of the students.

**Advocates**

The main advocates of standardized tests hold powerful positions in American society. These powers include the three P's of educational policy reform; the public, politicians, and publishers. According to Kommer (2001), President of the Ohio Middle School Association, "Schools must be held accountable. We are publicly funded and the public has every right to demand effective education" (p.1). "The persistent call for educational accountability and the public's 'faith in quantitative comparisons' have only increased the clamor for 'objective' ways to measure student performance" (Taylor & Walton, 1997, p. 67). Public pressure for accountability persuades politicians' decisions, where "testing is turning into a means of reform" (ETS, 1999, paragraph 1). "Testing has become an enormously lucrative industry in the United States" (Taylor data that the tests produce. The data provide a means for improving instruction, increasing equal opportunities among all students, and setting
Test-publishing companies create tests and test preparation materials, which most school districts purchase to help increase students' scores.

Kean (1996) argues, "Norm-referenced tests answer the accountability requirement so often placed on assessment systems" (p. 15). The term norm-referenced refers to educators' attempts to "compare students with like populations across the nation, over time, and from school to school and district to district" (Kean, 1996, p.15). The main function of using norm-referenced tests is to provide informative data for evaluative purposes. Calkins, Montgomery, and Santman (1998) present a perspective on the goals of norm-referenced testing in relation to student achievement:

Current emphasis on test scores comes from a determination to make sure we, as a nation, are helping every child from every town and city reach her full potential. The tests, then, become important because they give politicians, the public, and us, as educators, ways to look at inclining and declining trends in student achievement across different states and cities, across rich and poor communities. (p.168)

Advocates refer to several benefits associated with the informative data that the tests produce. The data provide a means for improving instruction, increasing equal opportunities among all students, and setting
higher academic standards. Madaus (1991) states, "Proponents of high-stakes tests suggest that such tests influence curriculum, teaching, and learning in desirable ways. They present evidence that high stakes tests can focus instruction and give students and teachers specific goals to attain" (p. 228). The actual manual for the Iowa Test of Basic Skills states, "The most important purpose for giving a test of any kind is to improve instruction by providing dependable information on strengths and weaknesses which can be used to individualize instruction" (Santee & Whitehead, 1994, p. 322).

The American Educational Research Association (AERA) stated in their July 2000 position statement, that the intentions of policy makers for using such high-stakes tests is simply to improve education. Gordon (2000), AERA Division G Vice-President states:

We are led to believe that one of the premises behind the push toward high-stakes testing is that if you put rigor into the curriculum and insist that all teachers teach to their highest capability and that children study and learn to their highest potential, they will rise to the occasion to pass a predetermined curriculum that can be measured by norm-referenced and multiple choice tests (paragraph 4).
Adversaries

When considering that the public in general, politicians, and publishers support standardized, norm-referenced tests, that leaves some parents, educators, and students themselves opposing such high-stakes means of assessment. Those who oppose testing do not oppose helping the students to succeed academically. "Opponents counter that a single test is not an accurate measure of a student's performance, and that the tests are unfair to disadvantaged and minority children....Parents believe standardized tests are needed for accountability, but such tests also push teachers to 'teach to' the tests" (Natt, 1999, paragraph 5). Teaching to the test narrows the curriculum to include rote memorization, and emphasis on lower level skills necessary for answering multiple-choice questions.

According to Calkins et al (1998), "the goal of a norm-referenced test is to make it impossible for everyone to pass....regardless of how proficient students might become, half of them will still fall below the midpoint" (p. 25). Educators who oppose teaching to the test believe "teaching merely to get test results not only deprives students of the opportunity to think, question, reason, or disagree, it also informs 50% of the group that they are below average and tells 10% that they are just no good at all" (Knowles & Knowles, 2001, p. 391). Teachers pressured to
raise scores, focus their attentions on "those students scoring just below cut-off points, and ignoring those both above or far below cutoff points" (International Reading Association [IRA], 1999, paragraph 14).

High-stakes tests carry with them high-stakes consequences for students, teachers, and schools. According to a survey conducted by Henk & Rickelman (1992), "Twenty-seven states report using the test for diagnostic purposes. Other uses include: district comparisons (20 states), student placement (14 states), funding determination (10 states), and evaluating teacher effectiveness (3 states)" (p. 77). More current findings by Houston (2000) show that "20 states use standardized tests for high stakes decisions such as promotion and graduation" (paragraph 3). As a more tangible example of high-stakes consequences consider that for "students who score low on a high-stakes test, it could mean that they will be rejected by a particular college, and it could affect their teacher's salary and the rating of the school district as compared with others where the same test was given" (IRA, 1999, paragraph 1).

The Ohio Proficiency Test (OPT) is considered to be a standardized test that carries with it high-stakes consequences. As quoted by Kommer (2001), President of the Ohio Middle School Association, "OPT is little more than a High Stakes Trivial Pursuit. Administered during one week, the test requires students to live or die academically on a predetermined day – no 'do overs!'" (p.1). One Ohio parent, Mary O'Brien, who opposes the
OPT, organized a protest which reads, "Be a Hero – Take a Zero, Say No to the OPT's" (Ohanian, 2001, p. 365). Brother Raymond Fitz, President of the University of Dayton, recently served on the Governor's Commission for Student Success, is quoted as saying, "If you're going to test something, you have to test something against the standards. The proficiency tests were becoming the standards" (Hargadon, 2001, p. 19). Efforts to improve the educational policies regarding the use of standardized tests in Ohio are currently being negotiated.

Role of Time

The issue of time becomes relevant when considering that students are given only 40 minutes to complete the reading comprehension portion of the Iowa Test of Basic Skills (ITBS). According to the ITBS directions for administration (1993a), the "test consists of passages that vary in length from a few lines to a full page....Approximately three fourths of the questions require students to draw inferences or to generalize about what they have read" (p. 5). Inferencing and generalizing are higher order thinking skills that require time to process.

Student diversity, as related to the actual testing conditions, is relevant to the interpretation of test results. "Standardized tests may underestimate reading performance of students who have difficulty responding under the constraints of the testing situation" (Valencia, 1997,
A requirement, such as time limits, is a significant factor affecting those students with low reading rates and or visual problems. According to a survey given to each state in the U.S., "Twenty nine states give timed tests, with the time period ranging from 10 to 50 minutes" (Henk & Rickelman, 1992, p. 75). Time limits affect reading performance for some students, producing results that inaccurately portray their reading abilities in un-timed conditions.

"Standardized tests of reading ability are usually timed tests, and the scores made by students often depend upon how fast they can read as well as how accurately they can comprehend the content and answer the questions" (Carver, 1992b, p. 347). According to Carver's test on college students, there are five basic reading gears that can be utilized depending on the purpose for reading. These gears include; scanning, skimming, rauding, learning, and memorizing. The normal comprehension-reading rate is experienced in the rauding gear, which is reading at about 300 words per minute (wpm).

Sometimes individuals shift down to the learning gear whenever (a) they want to know the material well enough to be accountable for it later, as in a multiple choice test, or (b) the material is relatively difficult for them and they did not understand the sentences the first time they were read (Carver, 1992a, p. 85).
An individual's reading rate can be reduced to about 200 wpm in the learning gear. Although this study was performed on college students, the results for the different degrees of reading rate are comparable to younger age levels. This suggests that students read more slowly when faced with multiple-choice test items, as in standardized reading tests. "Time limits may frustrate teachers who would rather let students take whatever time is necessary, as they would in regular classroom activities" (Kapinus, 1994, p. 579).

A small number of studies have been completed concerning extended time limits on standardized tests with learning disabled (LD) students. According to Huesman and Frisbie (2000), "The extension of time limits is believed to alleviate an irrelevant source of difficulty for LD students (i.e., slower than usual processing of information) and allow them enough time to demonstrate their knowledge and skills" (p. 5). Consistently, the studies' results support the notion that students with learning disabilities score better when given extended time. Perlman et al. (1996) suggested, "the better performance may be instead the result of reduced stress and more positive expectations resulting from the students' perception that they would have all the time they needed" (p. 6).

In a study by Runyan (1991), the effect of extra time on reading comprehension scores as it related to university students with and without
learning disabilities was completed. Participants were partly chosen based on their previous scores on the Scholastic Aptitude Test (SAT). Runyan (1991) stated that, “Thirty-one students participated in the study, 16 of whom were identified as having learning disabilities (LD). . . . The other 15 participants were normally achieving (NA)” (p.105). The results on the Nelson-Denny Reading Comprehension Test for both groups in timed and un-timed conditions were compared, and found that, Under exta-timed conditions, there was no significant difference for the comprehension score between the normally achieving students and students with learning disabilities. When scores of the normally achieving subjects under timed conditions were compared to the scores of subjects with learning disabilities under extra time, again there was no significant difference between the two groups for the comprehension score (Runyan, 1991, p.106).

Although these studies did not specifically focus on subjects with vision corrective lenses, they still support the idea that information processing can be improved for the students when given sufficient testing time.

Summary

It is clear to many that assessment of students' reading abilities is necessary for their learning and accountability for that learning. The question remains as to what type of assessment is the best, and/or most
beneficial for the students. Standardized tests have been in operation to accomplish the task of reporting ability levels. Some educators would argue that, "emphasis should be given to ongoing in-depth authentic assessment based on continual teacher observation of student performance in reading and on student understanding of the process of reading" (Levande, 1993, p. 126). This cannot be accomplished through the application of a single standardized test. "America's children are the 'most tested but the least examined' in the world. We require students to take tests that produce scores, but do not collect the multifaceted types of information needed to analyze their learning" (Valencia, 1997, p. 63).

As alternative styles of assessment are being developed in response to objections concerning the traditional approach, students are clearly profiting from the needed attention to improving education. For the continual benefit of the students' academic achievement, it is important to examine the effects of time limits of standardized reading tests on reading comprehension scores for elementary students with and without corrective lenses.

In regards to the research question, this literature review has touched on the issue of time limits as it relates to the reading comprehension portion of the Iowa Test of Basic Skills. The researcher has not found any studies to this date, which specifically deal with the issue of time limits and the impact on students with corrective lenses.
CHAPTER III
METHODOLOGY

This chapter will examine the methodology procedures utilized throughout the study. This study investigated the effect of time limits on the reading comprehension scores of standardized reading tests of students with and without corrective lenses. The procedures that will be discussed in this chapter as they relate to the study include: the selection of setting and participants, the research design, the selection and function of the testing instrument, the data collection procedures, and data analysis measures.

Setting

The setting for the study was in a kindergarten through eighth grade, parochial school in Dayton, Ohio. The school is located in a lower-middle-class urban area, and the enrolled students mainly live in the surrounding neighborhood. After initial contact with the school principal, a letter of intent was sent, which outlined the details of the study (See Appendix A). After conferring with the seventh grade teachers, approval for the study was granted by the school principal.

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previous 6th-grade scores (pretest) on the Level 12 Iowa Test of Basic Skills
Participants

The participants for this study were 47 seventh grade students. Prior to the study, each student was required to have a parental consent form completed (See Appendix B). The sample of students represented both students with and without vision corrective lenses, as noted by the school nurse and seventh grade teachers. The method for verifying students with corrective lenses was by examining the students’ vision/hearing screening chart located in each student’s confidential medical record. Since the students’ medical records were legally confidential, the researcher relied on the school nurse and seventh grade teachers to accurately report and record students with and without corrective lenses. According to the information retrieved from the students’ vision/hearing screening charts, it was reported that out of the total number of participants (47), 12 students used corrective lenses, while 35 students did not use corrective lenses.

Design

The design for this study is an ex post facto group comparison study. A pretest-posttest design was utilized in order to compare the effect of time limits on the reading comprehension scores of students with vision corrective lenses and students without corrective lenses. The students’ previous 6th-grade scores (pretest) on the Level 12 Iowa Test of Basic Skills
were obtained and compared to the scores on a second administration (posttest) of the reading comprehension section of the identical test in an un-timed condition.

Instrumentation

The effects of time limits and un-timed conditions on reading comprehension of students was compared and measured through the use of the Level 12 Iowa Test of Basic Skills (ITBS). The function of the ITBS is as follows:

- The test in Reading Comprehension measures how well students can comprehend a variety of written materials. Many of the passages, which vary in length from a few lines to a full page, are excerpts from published literature. At each test level, there is fiction, poetry, and at least one article about a social studies topic and a science topic....There are nine skills objectives represented in the Reading test for measuring each of three levels of meaning-factual, inferential, and evaluative. The levels of meaning differ from one another in terms of the depth of understanding each requires or in terms of the amount of dependence the reader places on information stated in the passage in order to construct his or her own meaning (Hoover, Hieronymus, Frisbie, Dunbar, Oberley, Cantor, Bray, Lewis, Qualls-Payne, 1993b, p. 12).
This instrument was chosen primarily for its traditional application of parochial school faculty to use as an assessment tool for reading comprehension.

Role of the Researcher

My role as the researcher was as a former teacher and liaison for the study. The students who participated in the study were students I had previously instructed when I was a teacher in their school. Understanding the importance of my research, the students were very cooperative in the posttest situation. Although I did not personally administer the pretest to these students, I had administered the test several times prior. I was aware of the specific procedures involved, and the measures that resulted from the scores. This first-hand experience with the ITBS helped me to develop alternative directions that eliminated the time restriction component (See Appendix E).

My role as a liaison for the study refers to the working relationship between the teachers and myself. I provided the directional procedures that were necessary for the commencement of the study. My involvement in the administration of the posttest was limited, in that I provided instruction and support for the teachers, but was not present during the actual posttest situation. My presence would only serve as a distraction to the students, possibly compromising the results.
Data Collection Procedures

In order to protect the identities of the participants, the seventh grade teachers were instructed to assign each student a code number. The students with normal vision were given an even number with either a B or G to denote the students' gender (i.e. B2 = Boy with normal vision). Students with corrective lenses were given an odd number with either a B or G (i.e. G7 = Girl with corrective lenses). The students used these code numbers when labeling their test forms.

The seventh grade teachers were provided with step-by-step instructions on the procedures of the study (See Appendix C). They were also provided with a record form that served as a means of recording the coded students 6th grade reading comprehension score on the ITBS (See Appendix D). Other materials that were necessary for the implementation of the study included individual copies of the reading comprehension portion of the ITBS, and revised answer forms (See Appendix F).

Per the instructions, the teachers gave the students the un-timed version of the reading comprehension test of the ITBS. Revised directions for the test were provided (See Appendix E). The students were instructed to record their answers on this form, as well as the amount of time that it took them to complete the test. Each student was given extra time, if needed, to complete the test. The teachers were finally instructed to
collect the tests and answer forms when all students were finished. The researcher collected tests, answer forms and record forms at the end of the testing day.

Data Analysis

The students in this study were given the reading comprehension portion of the ITBS under un-timed conditions. These scores were compared to scores from the previous year that was obtained under timed conditions. Each test yielded results that had to be calculated to determine the students' standard score for both tests. These pretest and posttest standard scores were analyzed by t-test in order to determine the mean score and standard deviation for both groups. The results of the two scores were compared to determine if time limits affect the group mean performance on the test.

The samples of students were also compared in relation to their use of corrective lenses. The scores of students with corrective lenses were compared with the scores of students without corrective lenses in relation to the two testing situations. The t-test allows for a comparison between the pretest and posttest in order to determine if there were significant increases in reading comprehension of the two groups of students. These types of data analysis support the suggested null hypothesis that both groups will increase their reading comprehension scores when tested
under un-timed conditions, but the groups will not differ significantly in the un-timed testing condition. This null hypothesis proposes that the two groups will not differ significantly, but the practical implication of that question lies in whether or not the groups differed in the previous timed administration of the ITBS. For this to be a meaningful analysis, the two groups need to differ significantly on the pretest, in order to show that the differences can be erased in an un-timed testing condition.
The researcher for this study attempted to show whether or not the reading comprehension scores on standardized tests, specifically the Iowa Test of Basic Skills (ITBS), can improve under un-timed conditions for both normal vision and vision corrected students. The data produced in this study supports the researcher's null hypothesis that students with corrective lenses as well as students without corrective lenses improved their scores on the reading comprehension portion of the ITBS when given extra time, but they did not differ significantly. Therefore the null hypothesis cannot be rejected.

As stated earlier, out of a total of 47 possible participants, only 40 were tested in both the timed and un-timed test conditions. Of these 40 participants, 29 did not require corrective lenses, while 11 did require corrective lenses. The remaining seven students, for a variety of reasons, were not present for the pretest or the posttest testing conditions, causing the final results to be configured for their absence. The mean and standard deviation for the timed test (pretest) and un-timed test (posttest) were compared for the students. These results are shown in Table 1.
The results of the study showed that the students with corrective lenses ($M=229.92, \ SD=31.032$) and the students without corrective lenses ($M=227.31, \ SD=31.228$) did not differ significantly in their performance on the pretest $t(42) = -0.247, p>.05$. Likewise, the results showed that the posttest scores for the students with corrective lenses ($M=248.64, \ SD=19.26$) and the students without corrective lenses ($M=249.38, \ SD=27.294$) also did not differ significantly in their performance $t(41) = 0.082, p>.05$. The results do suggest however, that the students without corrective lenses had a greater variance of scores on the posttest when compared to the students with corrective lenses.

Table 1

Means, Standard Deviations, and $t$ Tests of Pretest and Posttest Scores for Students With and Without Corrective Lenses

<table>
<thead>
<tr>
<th>Group</th>
<th>With Corrective Lenses ($n=12$)</th>
<th>Without Corrective Lenses ($n=32$)</th>
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<tr>
<td>6 (Timed)</td>
<td>229.92 (31.032)$^a$</td>
<td>227.31 (31.228)</td>
<td>-0.247*</td>
</tr>
<tr>
<td>7 (Un-timed)</td>
<td>248.64 (19.602)</td>
<td>249.38 (27.294)</td>
<td>0.082*</td>
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</table>

$^a$ Standard deviations are in parentheses

*p > .05
Discussion of the Results

Although the results suggest that there is no significant difference between the students with corrective lenses and students without corrective lenses in regards to the pretest and posttest, there was a significant difference in the performance within the individual groups on the two tests. The results also imply that the students with corrective lenses scored slightly higher than the students without corrective lenses on the timed pretest. This finding, although not significant, suggests that the students with corrective lenses were not at a disadvantage prior to the timed pretest. These statistics were derived from the paired samples t-test, and the students’ raw scores on the pretest and posttest. All but three of the total sample of students who completed both the pre and posttest (N=40) increased their scores.

The three students who decreased their scores from the pretest to the posttest were all students who required use of corrective lenses. These three students were also the only three girls who required corrective lenses. The other eight students who required corrective lenses were all boys who increased their scores on the posttest. Given the small sample size, this finding needs to be investigated more thoroughly.

The increase in scores however, cannot indisputably be contributed to the un-timed conditions, because there are confounding variables that need to be taken into consideration. According to Crowl (1993), a
confounding variable is “a variable other than those the researcher is investigating that could account for the outcome of the study” (p. 409). The researcher in this study does not know if the increase in scores is a result of the un-timed condition, or such confounding variables as students' developmental and academic growth between the pretest and posttest, as well as test question familiarity.

There are other confounding variables that should be considered in regards to the students with corrective lenses. Some of the students may use lens prescriptions that are outdated, and possibly ineffective in correcting their specific vision problem. This could result in a lower score on the test of reading comprehension. It has also been suggested that students who utilize corrective lenses were and are avid readers. By being avid readers, they may have inadvertently caused a nearsighted condition that previously did not exist, ultimately requiring the use of corrective lenses. The scores on the pretest and posttest could be the result of their augmented reading capability.

Due to the influence of confounding variables, the null hypothesis could be rejected leading to a Type I error. As stated by Crowl (1993), a Type I error occurs when “the researcher concludes that it is likely that the findings based on the study of samples do not accurately reflect what one would [expect]....The researcher can erroneously conclude that the null hypothesis should be rejected, when in fact it should not be” (p. 264).
The students without corrective lenses were found to have a greater variance of scores on the posttest than the students with corrective lenses. This suggests that when the students with corrective lenses were given extra time to complete the test, they scored comparatively similar, showing less variance. This finding is open to interpretation as the number of participants in the two groups was uneven.

When reviewing the students' posttest time records, out of the total sample (N=40), 20 students reported that they completed the test beyond the original 40-minute allotment. These completion times range from 41 minutes, and not exceeding 76 minutes. Four students completed the test in exactly 40 minutes. Only one student out of the 20 decreased their score despite taking extra time to complete the test.

When specifically comparing the two student groups' posttest time records, all 29 students without corrective lenses increased their score, 13 of those 29 utilized the un-timed condition. Out of the 11 students with corrective lenses, 8 increased their score, 7 of those 11 utilized the un-timed condition. Out of the total of three students who decreased their score, only one student utilized the un-timed condition.
CHAPTER V
SUMMATION

This chapter summarizes the key elements of this study, proposes conclusions based on the data results, offers recommendations for related research studies, and presents the researchers personal position statement concerning time limits and standardized tests for reading comprehension.

Summary

The purpose of this study was to compare the effect of time limits versus un-timed conditions on standardized reading tests on the achievement of 7th-grade students with and without corrective lenses. As stated in the introduction, standardized tests for reading achievement have come under scrutiny over their validity for reporting reading ability accurately. Time limits affect reading performance for some students, producing results that inaccurately portray their true reading abilities. This study supports the hypothesis that both groups will increase their reading comprehension scores when tested under un-timed conditions, but the groups will not differ significantly in the un-timed testing condition.
The results of this study maintain the support consensus of the related research concerning reading rate and reading comprehension. Reading comprehension can be improved when reading rate is decreased. According to a study of reading rate (Carver, 1992a), this decrease in reading rate is necessary when, (a) additional concentration is required for comprehension of the material, and (b) when a person is held accountable for knowing the material well enough to answer questions concerning the material. In regards to the research question concerning the effect of time limits of standardized reading tests on reading comprehension scores, both of these components are necessary for the completion of the test. One possible explanation for the students increased scores on the reading comprehension portion of the ITBS, was the un-time testing condition which allowed them to slow down their rate of reading and concentrate on the material.

Conclusions

When determining if students with corrective lenses should be offered special accommodations, such as increased time limits for completion of standardized tests, the researcher can support the use of un-timed conditions. The results of this study suggest that un-timed conditions would benefit not only students with corrective lenses, but also students without corrective lenses. Earlier research established that
students with corrective lenses are not considered to have an educational disability, and therefore should not be given special accommodations. It would not be considered a special accommodation if un-timed conditions were automatically offered to all students.

Out of the 40 students who completed both the timed pretest and un-timed posttest, 20 students did utilize the un-timed testing conditions, where 19 increased their scores. Although the other 20 students did not take advantage of the un-timed conditions, 18 still increased their scores. A possible explanation for this finding is that the students' knowledge of the elimination of time limits decreased their anxiety normally felt under timed situations. This reduction in test anxiety may have resulted in a relaxed testing situation, ultimately increasing their scores. This explanation is speculative, in that these students' scores may have increased because of the confounding variables that were discussed earlier, and not because of the reduction of test anxiety.

Recommendations

Traditionally, standardized tests have been in operation to accomplish the task of reporting ability levels. Educators would argue that, "emphasis should be given to ongoing in-depth authentic assessment based on continual teacher observation of student performance in reading and on student understanding of the process of
reading” (Levande, 1993, p. 126). This cannot be accomplished through the application of a single standardized test. Further research needs to be conducted to ascertain the validity of standardized tests to accurately report ability levels as compared to authentic assessments.

The results of this study would have been more valid if advanced experimental procedures had been followed. These procedures include: testing a larger sample size yielding results that are more accurately representative of the targeted population, completing the pretest and posttest situations in a shorter duration reducing the effects of developmental and academic growth on the part of the subjects, creating a pretest and posttest that are comparable, but not identical, and therefore eliminating test question familiarity. Further research can be completed utilizing these advanced experimental procedures providing results that have greater generalizability.

The final recommendation is to execute additional research experiments specifically targeting the effects of time limits in testing situations as it relates to students with and without corrective lenses. A study could by piloted to find out if students with corrective lenses are in some way disadvantaged when compared to students without corrective lenses. This research could also include interviews of the participants that ask specific questions relating to their efforts in completing a personally
inconsequential test, their overall impressions of the un-timed test, and their experience with test anxiety in relation to time limits. Further research could also focus on students with corrective lenses, targeting gender issues, in regards to possible limitations that require special considerations in testing situations.

Personal Position Statement

Year after year, I was placed in the lowest reading class, because my scores were so low on the Iowa Test of Basic Skills. My grades in reading were always As, and I never struggled with the course work. My only problem was my vision, which required the use of corrective lenses. I could understand what I was reading, but because of vision problems, I had a very low rate of reading. I either did not finish the tests, or rushed through carelessly trying to finish, resulting in low scores.

Now that I am older, I want my voice heard in the fight against high stakes standardized testing. I want educators and policy makers to realize that the scores on standardized tests do not accurately reflect true reading abilities given the time restrictions. Maybe it is not because of lack of understanding, but rather a reduced reading rate. Multiple reading assessments should be used before labeling a student as a low reader. I plan to continue researching this topic, as it is relevant to the field of education.
Appendix A

LETTER OF INTENT
Dear Ms.

As a graduate student at the University of Dayton, I am responsible for completing a research study to fulfill the requirements as set forth by the University. My graduate work has been in the field of reading, therefore I have chosen a research study that will further my knowledge about student achievement in reading.

Year after year, I was placed in the lowest reading class, because my scores were so low on the Iowa Test of Basic Skills. My grades in reading were always A's, and I never struggled with the course work. My only problem was my vision. I could understand what I was reading, but because of vision problems, I had a very low rate of reading. I either did not finish the tests, or rushed through carelessly trying to finish, resulting in low scores.

Now that I am older, I am focusing my research on the time limits of these standardized tests. I hope to show educators and policy makers that the scores on high stakes test do not accurately reflect the true reading abilities given the time restrictions. Maybe low scores are not because of lack of understanding, but rather a slower reading rate. Multiple reading assessments should be used before labeling a student as a low reader. I would like your school to be a partner in this project.

In this study, the effects of time limits on reading comprehension of students will be compared and measured through the use of the Iowa Test of Basic Skills. My plan is that the students' previous 6th-grade scores on the ITBS will be obtained and compared to the scores on a second
administration of the reading comprehension section of the identical test, minus the time limits. The students will be assigned random numbers so as to protect their identities.

Before I can start my research study, I need to obtain permission from you and the seventh grade teachers, as well as the parents of the seventh grade students for participation in the study. I will also need to work with the teachers to obtain student vision screening results and previous scores on the reading comprehension section of the ITBS. Finally with teacher support, assign random numbers to the students, as well as administer a second non-timed, identical ITBS test to the students during regular class time. I would like this study to take place during the months of October and November with testing in October. The final results of the study will be made available to you.

If you would like your school to participate in my research study, or have any questions, I can be reached at (H)254-3072 or (W)229-1262.

Thank you for your time, and consideration in this matter,

Gina M. Doepker

ENCL: Sample Parent Permission Letter
Appendix B

PARENTAL CONSENT FORM
Dear Parents,

As a graduate student at the University of Dayton, I am responsible for completing a research study to fulfill the requirements as set forth by the University. My graduate work has been in the field of reading, therefore I have chosen a research study that will further my knowledge about student achievement in reading. I have chosen St. Anthony Elementary as the site for my research study, because of my prior positive experiences with St. Anthony and parochial schools in general.

In this study, the effects of time limits on standardized reading tests will be compared through scores on the Iowa Test of Basic Skills. The study will take place during one class period, and require no extra time out of the regular school day. Students will be assigned random numbers so as to protect their identities. The results of the study will be made accessible to the school as they become available.

The principal, along with the seventh grade teachers, have approved my plan and agreed to participate in the study. In order for this research to proceed, I need your permission to have your child participate in the study as well. Please sign the bottom of this page and have your child return it to their teacher by October 15th. If you have questions or concerns about this research study, please contact me at (H) 254-3072 or (W) 229-1262 ex.2.

Thank you,

Gina M. Doepker

(Cut along dotted line and return bottom portion to teacher by October 15th)

__________________________________________
(Student Name) has my permission to participate in the research study.

__________________________________________
(Parent Signature)
Appendix C

INSTRUCTIONAL LETTER TO TEACHERS
Dear Teachers,

Thank you for agreeing to take part in my research study. Enclosed you will find the permission slips that need to be sent home with the students today. In the letter, I have instructed the parents to return the signed permission slips with the students by Monday, October 15th. It was my thought that you could offer the students a small token for returning the permission slips on time, as well as for participating in the study. I will provide this token of appreciation at the end of the day that the students will take the test. I was considering giving the students a can of pop, but this is negotiable.

This letter also serves as instructions for how to proceed after the permission slips are returned. I have provided a form to record all pertinent information. We can meet in the afternoon on Tuesday, October 16th to discuss specific details if needed. If this date and time is not good, and/or you have any questions or concerns, please call me at (H) 254-3072 or (W) 229-1262 ext. 2.

1. Send home permission slips
2. Collect permission slips by October 15th
3. For students given permission to participate:
   ✓ Retrieve vision-screening information. Any student who is reported to wear any type of corrective lenses, (i.e. Glasses, Contact Lenses) will be placed in the corrective lenses group. All other students will be placed in the students without corrective lenses group.
✓ Retrieve 6th grade scores on the reading comprehension test of the Iowa Test of Basic Skills. Scores can be recorded on the form provided.

✓ Assign each student a code number. Students without corrective lenses should be given an even number with either a B or G to denote the students’ gender (i.e. B2 = Boy with normal vision). Students with corrective lenses should be given an odd number with either a B or G (i.e. G7 = Girl with corrective lenses). The students should use these code numbers when labeling their test forms.

✓ Give students the un-timed version of the reading comprehension test of the Iowa Test of Basic Skills. Revised directions for the test will be provided. Have students record on the answer form, the amount of time that it took them to complete the test. (Collect tests and answer forms when all students are complete.) *A testing date can be determined at the October 16th meeting.

✓ At the end of the testing day, students will be provided with a small token of my appreciation. (Pop?)

Thank you,

Gina M. Doepker
Appendix D

RECORD FORM
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<tr>
<th>Student Code #</th>
<th>6\textsuperscript{th} Grade Score</th>
<th>7\textsuperscript{th} Grade Score</th>
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Appendix E

ALTERNATIVE DIRECTIONS FOR THE IOWA TEST OF BASIC SKILLS
Alternative Directions
Reading Comprehension

Distribute the test booklets and answer sheet. Instruct the students to put their individual codes at the top of the answer sheet. *(You will need to give the students their codes.)*

When all students are ready to begin, say:

Now we are going to take a reading comprehension test. Find the section for Reading Comprehension on your answer sheet. *(Pause.)* Turn the page in the test to page 7. *(Pause to see that everyone is in the right place.)* Read the directions on this page to yourself while I read them aloud. They say:

This is a test of how well you understand what you read. This test consists of reading passages followed by questions.

Read each passage and then answer the questions. Four answers are given for each question. You are to choose the answer that you think is better than the others. Then, on your answer folder, find the row of answer spaces numbered the same as the
question. Fill in the answer space for the best answer.
The sample on this page shows you what the questions are like and how to mark your answers.

Now read the sample reading selection and the question. (Pause.) What is the right answer to the sample question? (Pause for reply.) Yes, answer C, "Going for a walk," is correct, so the third answer space, C, has been filled in for question S.

When you finish the test, note how many minutes it took to complete the test, and mark it in the section that says "Time to Complete" on your answer sheet. If you have any questions, raise your hand and I will help you after the others have begun.

Now turn to page 8. Does everyone have the right place? (Pause to do a visual check.) You may begin.

Circulate among the students, checking to make sure that they are marking their answer folders properly.

At the end of exactly 20 minutes, say:
Stop for a moment. Put your pencil down and we will take a short break. You may stand next to your seat if you wish, but don’t go anywhere else in the room.
After no more than a minute or two, say:

Take your seat now so that we can begin working again. (Pause to give everyone a chance to sit down and quiet down.)
Now find the place where you stopped before the break and begin working.

Circulate among the students, checking to make sure everyone has found the proper place for resuming testing. Be sure students have not skipped a reading passage.

After all the students have completed the test, say:

Close your test booklet and place your answer sheet under the front cover of your test booklet.

Collect the test booklets and answer sheets.
Appendix F

STUDENT ANSWER FORM
Reading Comprehension

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http://www.senate.gov/~rpc/rva/1071/107189.htm


