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Exploring the Relationship between Language and Reading Skills and Ohio Graduation Test Performance

A dissertation submitted to the

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DOCTOR OF PHILOSOPHY

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ABSTRACT

The purpose of this study was to gain a better understanding of the relationship between high school students' language and literacy skills and their performance on state mandated assessments, specifically the Ohio Graduation Test (OGT). An additional goal of the research was to identify language/literacy skills that are predictive of OGT performance.

A total of 96 Ohio public high school students were enrolled in the study and were placed in one of two groups based on their OGT results: Group 1- pass group (N= 56)or Group 2- fail group (N=40). The pass group passed all five sections of the OGT on their first attempt. The fail group failed one or more sections of the OGT on their first attempt.

All participants were administered two language (CELF-4, TLC-E) and one reading assessment (GSRT-1) during a 180 minute time period. Analyses of variance (ANOVA) were used to analyze scores for group differences. As well, discriminant analysis and binary logistic regression were used to classify groups and to identify language/literacy predictors, respectively.

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Results of the analyses indicate that significant differences existed between the two groups on the measures of receptive, expressive and higher level language skills and reading ability. Furthermore, the discriminant analysis revealed that participants could be classified into their respective groups with 77.2% accuracy. Likewise, using the logistic regression function, it was determined that the measure of reading comprehension was the chief predictor of OGT success and could be used with 81.5% accuracy. School designation/rating appeared to have little bearing on how participants were prepared to take the OGT and subsequently, little to do with whether students were more likely to pass or fail.

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This has been an extremely humbling process; one that has tried my patience and has taken me on an emotional journey. Only by the grace of God have I accomplished this task. This process has never let me forget that "…with God, all things are possible" (Matthew 19:26).

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CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM

Reading and writing are intricate and complex processes that are closely related to and dependent on other language abilities (Pearson & Stephens, 1994). Language is the vehicle by which individuals acquire literate behaviors. Without language, we could not effectively express our thoughts and opinions or understand the thoughts and opinions of others. Language plays an important role in the development of literacy during the school-age and adolescent years. Therefore, the reciprocal relationship between language and literacy is one that cannot be ignored when considering students' academic success. From decoding and comprehension (Curtis, 2002) to succinctly expressing one's thoughts through writing, language skills such as appropriately posing and replying to questions, vocabulary knowledge, and inference are vital for academic success.

The academic needs of struggling adolescent readers have been disregarded by educators and researchers (Moore, Bean, Birdyshaw & Rycik, 1999). Academic problems encountered by low achieving students are often language related; however, teachers rarely attribute academic

failure to language deficits (Ehren, 2002). The International Reading Association (2001) stated,

Adolescents entering the adult world in the 21st century will read and write more than at any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct their personal lives. They will need literacy to cope with the flood of information they will find everywhere they turn. (p.3)

Nevertheless, more and more adolescents are unable to meet the literacy demands of their home and school environments (Hock & Deshler, 2003). When students lack appropriate language and literacy skills, they cannot fully access the curriculum. Consequently, academic failure is often the result.

It is reported that approximately, five million (60%) high school students cannot read well enough to understand the information presented to them in their textbooks or other materials written for their grade level (Hock & Deshler, 2003). Yet, existing mandates expect these students to read well enough to sift through high-stakes state tests that are designed to measure academic competence in the subject areas such as language-arts, mathematics, science, and social studies (Moore et al., 1999). These tests evaluate a student's mastery of the curriculum content standards created by each state as

necessary for graduation from high school. According to the Ohio Department of Education (2005, 2006d, 2007c), between 24-27% of Ohio's tenth grade students failed to meet the state standards in reading and writing as revealed by the 2005, 2006, and 2007 Ohio Graduation Tests (OGT). Although it is presumed that complex variables play into this phenomenon, a better understanding is needed about why Ohio's adolescents are performing poorly on exams such as the OGT. Hock and Deshler (2003) claimed that students are failing standardized tests, not because they do not have the knowledge and intelligence to pass, but because they do not possess the reading skills necessary to pass. If this is true, exploring the relationship between language skills and literacy as they relate to state assessments may be warranted to provide further insight on this issue.

THE IMPACT OF CURRENT EDUCATIONAL LAW

The No Child Left Behind Act (NCLB) was signed by George W. Bush on January 8, 2002 in Hamilton, Ohio. As education and school funding are responsibilities given to state governments, as indicated by the 10th amendment of the U.S. Constitution, NCLB has been the greatest infiltration of the federal government into education in history (Yell, 2006). The purpose of NCLB is to assure that every public school student achieves by meeting set academic standards

and educational goals and is taught in a safe school environment by highly qualified teachers. Public schools are charged with the responsibility of attaining 100% proficiency of all students on assessments that measure the set academic standards. These students include students of color, students from economically disadvantaged backgrounds, students with limited English proficiency and students with disabilities. NCLB strives to close the achievement gap between majority and minority learners and produce American students who can compete in a global economy with their foreign counterparts.

Yell (2006) outlined the rigorous goals of NCLB, which are as follows:

- All students will achieve high academic standards by attaining proficiency or better in reading and mathematics by the 2013-2014 school year.
- Highly qualified teachers will teach all students by the 2005-2006 school year.
- All students will be educated in schools and classrooms that are safe, drug free, and conducive to learning.
- All limited English proficient students will become proficient in English.
- All students will graduate from high school (p. 181).

These goals have yielded great controversy among schools, teachers, parents, students and communities at large. Despite this controversy, the states and their school districts are responsible for making adequate progress toward meeting these goals.

To achieve the goals of NCLB, the act is divided into 10 titles. Title I: Improving the Academic Achievement of the Disadvantaged is the largest section of the law. Additionally, it is the section most relevant to this research, as it makes provisions for the improvement of skills in reading via "Student Reading Skills Improvement Grants." These grants include the Reading First Initiative, which targets early reading in young children in kindergarten through grade 3. It also places a great emphasis on early identification and intervention for children who may be at risk for reading difficulties. NCLB recognizes that the skill of reading is fundamental to academic achievement and insists that all children are skilled and proficient readers by the end of third grade. As a result, President Bush proclaimed that the Reading First Initiative was the foundation of NCLB (No Child Left Behind, 2001; Yell, 2006).

Another essential component of NCLB is statewide assessments. In efforts of accountability for student progress, each state is responsible for assessing their students. This most often comes in the form of high stakes state tests such as the Ohio Graduation Test (OGT) which is

administered to 10th grade students in Ohio's public schools. Other tests are administered in grades 1-8. Ninety five percent (95%) of students must participate in state testing and the scores must be disaggregated by student subgroups. This ensures that all groups of students are achieving and meeting the state content standards and goals of NCLB.

RATIONALE FOR RESEARCH

As previously stated, roughly 60% of secondary students cannot read well enough to understand their own textbooks (Hock & Deshler, 2003). In spite of this reality, the federal government via NCLB makes it mandatory for students to participate in testing that has yielded undesirable outcomes in many cases. Although NCLB places emphasis on the importance of reading, there is an apparent lack of focus on reading beyond the third grade.

There is an existing body of research regarding the language and literacy skills of preschool and elementary children that demonstrates a clear reciprocal relationship between language and literacy skills. It suggests that language skills can be strong predictors of literacy problems and academic achievement. Few studies have examined these skills in the adolescent population. Still, fewer have focused on how language and literacy relate to

state assessments (Gordon Pershey, 2003b; 2006). The purpose of this study is to explore the relationship among language, literacy, and state assessments by comparing the language and literacy skills of students who have passed and failed the Ohio Graduation Test (OGT). Working with the central hypothesis that students who fail will present with subaverage reading and language skills, the long range goal of this project is to contribute to the current body of knowledge by gaining a better understanding of the association and/or interaction among language, literacy, and state assessments; furthermore, to understand the effects of language and literacy on standardized test performance. It is expected that findings will provide evidence for why students may be failing the OGT. The impact of the findings may have implications for policy and practice within the educational system.

SPECIFIC AIMS

The specific aim of this research project is to understand how language skills and reading abilities of high school students affect state test performance and achievement, specifically performance on the Ohio Graduation Test (OGT). A further goal is to determine whether the language and literacy skills of high school students can accurately predict OGT test performance.

RESEARCH QUESTIONS

The research questions that follow will be examined by the current investigation.

- 1. Is there a significant difference between the receptive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4th ed. (CELF-4) (Semel, Wiig & Secord, 2003)?
- 2. Is there a significant difference between the expressive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4th ed. (CELF-4) (Semel, Wiig & Secord, 2003)?
- 3. Is there a significant difference between higher level language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Test of Language Competence, Expanded Edition (TLC-E) (Wiig & Secord, 1989)?
- 4. Is there a significant difference between the reading ability of students who have passed all 5 sections of the OGT and of students who have not passed all 5

sections of the OGT as measured by the Gray Silent Reading Tests (GSRT-1) (Weiderholt & Blalock, 2000)?

- 5. Is there a subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly <u>discriminate</u> between students who have passed all 5 sections of the OGT and students who have not passed all five sections of the OGT (after controlling for school rating)?
- 6. Is there a subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **predict** student performance outcomes (i.e. passage/failure) on the OGT (after controlling for school rating)?

NULL HYPOTHESES

In order to answer the above research questions, null hypotheses were formulated and are listed below.

 There is no significant difference between the receptive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4th

ed. (CELF-4) (Semel, Wiig & Secord, 2003) except due to chance.

- 2. There is no significant difference between the expressive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4th ed. (CELF-4) (Semel, Wiig & Secord, 2003) except due to chance.
- 3. There is no significant difference between higher level language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Test of Language Competence, Expanded Edition (TLC-E) (Wiig & Secord, 1989) except due to chance.
- 4. There is no significant difference between the reading ability of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Gray Silent Reading Tests (GSRT-1) (Weiderholt & Blalock, 2000) except due to chance.
- 5. There is no subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions)

that will significantly <u>discriminate</u> between students who have passed all 5 sections of the OGT and students who have not passed all five sections of the OGT (after controlling for school rating) except due to chance.

6. There is no subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **predict** student performance outcomes (i.e. passage/failure) on the OGT (after controlling for school rating) except due to chance.

CHAPTER II

REVIEW OF THE LITERATURE

As stated in Chapter I, the goal of this research is to investigate the relationship between language, literacy and state test performance in high school students. However, before proceeding with relevant literature supporting the relationship between language and literacy; more specifically, language and reading, it is of chief importance to provide a brief overview of the two major theoretical perspectives on the processes of reading. Knowledge of these perspectives will provide a better understanding of the theory in which this research is grounded.

THEORETICAL PERSPECTIVES ON THE PROCESSES OF READING

The art of reading is a phenomenon that, throughout the years, has seized the attention of many disciplines of study including but not limited to psychology, linguistics, sociology, education and literary theory (Pearson & Stephens, 1994; Alexander & Fox, 2004). As the understanding and study of reading evolved into both an inter- and multidisciplinary interest, various perspectives of reading were formulated.

From the turn of the 20th century until the middle 1960's, the learning theory of behaviorism was the

prominent and generally accepted hypothesis that explained the processes of reading. Behaviorism, led by psychologist B.F. Skinner, held the view that learning should not be viewed as development or growth but as the act of acquiring behaviors as a result of specific occurrences within the environment (Alexander & Fox, 2004; Stephens, 2006). Paired with control and repetition of the environment through reinforcement and punishment (conditioning), these behaviors are predictable, observable and lead to habituation (Stephens, 2006).

With viewing reading through the lens of behaviorism, it was understood to be a perceptual process (Pearson & Stephens, 1994). Within this perceptual process, it was thought that readers merely translated graphic symbols or letters into an oral code. The reader listened to the sounds of the oral code and translated them into words through a subsequent translation process. Simply put, the behaviorist perspective provided researchers a theory that deduced the process of reading to the skill of word decoding that provided no discrimination between oral and written language. As a result, the teaching of reading was reduced to eliciting predictable and observable behaviors. Consequently, many bottom-up approaches to reading as explained by Gough (1972) and LaBerge and Samuels (1974)

(as cited in Rumelhart, 1985) were prevalent during this era.

Beginning in the middle 1960's, with influences from the fields of neuroscience, linguistics, artificial intelligence and brain and learning (Alexander & Fox, 2006), reading researchers became discontent with the behaviorist view that reading was a set of learned behaviors gained via conditioning. Many felt that this view not only excluded knowledge of how the brain works during this process but it also excluded knowledge of how the learner interacts with the environment. Accordingly, the era of constructivism commenced.

The learning theory of constructivism was first highlighted by the thoughts of seminal theorist, Jean Piaget (Smilkstein, 2006). This viewpoint operated on the basic premises that learners learn by connecting new knowledge to what they already knew, that learning is constructed through experience, and that learning occurs in a stage-like progression until learners reach higher, more sophisticated knowledge, skills, and/or understandings. The reading process, driven by constructivist theory, was heavily influenced by the field of linguistics and psycholinguistics (Alexander & Fox, 2006).

The research agenda of linguist Noam Chomsky set the stage for viewing reading through the lens of language. Chomsky believed that human beings are naturally predisposed and possess an innate ability to learn language under favorable conditions. Psycholinguists Kenneth Goodman and Fred Smith took Chomsky's notion a step further by stating that humans not only are predisposed to learning language but they refine their skills by testing different rules and trying them out (Pearson & Stephens, 1994). In this view reading was thought of as a natural extension of language and if people learn language naturally (under favorable conditions), then the same should be true for reading. Goodman (1967) (as cited in Pearson & Stephens, 1994), through miscue analysis, suggested that readers use syntactic, semantic, and graphophonemic cues to make sense of what they read. Furthermore, Smith (1971) (as cited in Pearson & Stephens, 1994) informed the reading community that reading is a consequence of living in a literate society. He believed that, similar to language, reading is something that is learned and not explicitly taught.

The psycholinguist perspective made us value the process of making meaning from text and value texts where learners can draw upon their language knowledge to predict words and meanings. This perspective assisted us in placing

value on the reading process and the errors/miscues made while reading. As well, this view helped us put less stock in faultless pronunciation and reciting words from a page. Most importantly, the psycholinguistic perspective helped us view reading as language and not merely as perception or simple decoding.

The constructivist era had additional influences from the sociolinguistic and cognitive psychology fields (Person & Stephens, 1994; Alexander & Fox, 2006). Sociolinguistic driven theory believe that language and literacy practices are highly influenced by the practices and beliefs of the learner's environment and we therefore must not dismiss the social and culturally contexts in which language and literacy are constructed (Heath, 1983; Wells, 1986; Taylor & Dorsey-Gaines, 1988). Cognitive psychology gave us schema theory as one way to explain reading comprehension and learning. Schema theory is a theory about how knowledge and/or experiences are organized and stored into our memory. As related to the nature of reading, this theory hypothesizes that individuals make sense of new information by relating it to old information already stored in memory.

The constructivist view provided those within the reading community a foundation that explained the process of reading through innate ability and learning by

experience through constructing knowledge based on knowledge that is already held by the learner. The teaching of reading reflected this view with reading instruction moving away from bottom-up models to more topdown and interactive models (Goodman, 1994; Pearson & Stephens, 1994; Rosenblatt, 1994; Rumelhart, 1985).

The underlying notion of the current research is one that is consistent with the theory of constructivism and the belief that reading/literacy is a function of language. This chapter will continue with definitions of both language and literacy; it will review the literature supporting the relationship between language and literacy deficits and the impact of language and literacy on learning and academic achievement. Finally, this chapter will conclude with discussion regarding the need to address struggling adolescent readers and an overview of the Ohio Graduation Test.

LANGUAGE AND LITERACY

The ability to use speech and language to communicate is a characteristic specific to all human beings. The definition of language, as defined by the American Speech-Language-Hearing Association (Committee on Language, 1983) follows:

Language is a complex and dynamic system of conventional symbols that is used in various modes for thought and communication.

- Language evolves within specific historical, social and cultural contexts;
- Language, as rule-governed behavior, is described by at least five parametersphonologic, morphologic, syntactic, semantic, and pragmatic;
- Language learning and use are determined by the intervention of biological, cognitive, psychosocial, and environmental factors;
- Effective use of language for communication requires a broad understanding of human interaction including such associated factors as nonverbal cues, motivation, and sociocultural roles.

Language is the foundation of communication, and as the above definition states, language may take on several modes in order for communication to occur. These modes may include but are not limited to speaking, listening, reading, writing, and signing.

The term "literacy" may be defined in countless ways. A common definition of literacy is the ability to read and write. Other accepted definitions of the word literacy go beyond simple reading and written skills and serve as a basis for effective communication. Hock and Deshler (2003) define literacy as the ability to read, write, speak, listen, and think effectively. As a result, literacy can be viewed as the vehicle or mode through which language is used to communicate effectively.

THE RELATIONSHIP BETWEEN LANGUAGE AND LITERACY DEFICITS

Language and literacy are intricately connected. There is an existing body of knowledge suggesting that deficits in one area are related to deficits in the other (Catts & Kamhi, 2005; Menyuk & Chesnick, 1997; Whitmire, 2005). Specifically, deficits in early language skills have been connected to later reading abilities. Stothard, Snowling, Bishop, Chipchase and Kaplan (1998) determined that language impaired preschool students continued to have difficulties with language and in particular literacy tasks throughout adolescence. Although these preschoolers' problems with vocabulary and language comprehension appeared to be resolved by age $5\frac{1}{2}$, the students' difficulties involving phonological processing and literacy tasks persisted. As a result, this lack of skill kept them at risk for language, literacy, and other difficulties later in their academic careers. Bernhardt and Major (2005) found that when preschoolers were re-evaluated three years following their initial language assessment, those with verbal memory and language production difficulties were more likely to struggle with literacy tasks.

Catts, Fey, Tomblin, and Zhang (2002) states that, "reading is a language-based skill, and thus deficits in language development can negatively affect reading

achievement" (p.1142). Catts and colleagues investigated the reading outcomes of kindergartners with specific and nonspecific language impairment (SLI and NLI, respectively) by evaluating their language and reading skills in kindergarten, second and fourth grades to determine the effects of their language impairment on their reading abilities. When compared to normal controls, the kindergarteners with language impairment (SLI AND NLI) scored lower on all measures of word recognition and reading comprehension. Furthermore, the NLI group consistently scored one standard deviation below the mean (standard score < 85) on reading tasks. Their results also concluded that more than half of these children met the criteria to qualify for reading disability in second grade (52.9%) and fourth grade (48.1%).

Larney (2002) conducted an in-depth exploration of key longitudinal research studies that have linked early language impairment to later reading difficulties (Lewis, Freebairn, & Taylor, 2000; Stothard et al., 1998). From this exploration, the author concluded that a definite relationship exists between early language delay and later reading abilities. This relationship is correlational in nature and is dependent upon the type, severity, and persistence of the language impairment. For example, young

children with phonological impairments only, may be at less risk for later reading problems than children who have difficulties with phonology, semantics, and syntax. Moreover, children whose language difficulties have persisted past the age of 5½ years are at greater risk for later reading difficulties.

Although it cannot be expected that all children with language impairment will struggle with reading acquisition and development, there is much evidence to support that speech/language impairment often coexists with impairments of reading. For example, Flax et al. (2003) investigated familial linkage to the co-occurrence of language and reading impairment in children with SLI. These researchers evaluated children with SLI and their nuclear and extended families, then compared them to normal controls. Flax and colleagues specifically stated that, "...there is strong support for a relationship between language impairment and subsequent reading problems, it is clear that not all reading impaired individuals have a history of oral language impairment and that not all language impaired individuals develop reading problems" (p.3). Despite this, they found that for persons with SLI, language and reading impairments were more likely to co-occur within the same person than to exist separately. As well, there was a

higher occurrence of SLI and reading impairment in families with an affected member than in the control group.

Simkin and Conti-Ramsden (2006) examined the reading abilities of three subgroups of 11 year old language impaired students, including those with expressive, expressive-receptive, and resolved SLI. Similar to other studies, the results indicated that on measures of word reading and reading comprehension, those with resolved SLI scored highest, followed by those with expressive SLI. Students with expressive-receptive SLI scored the lowest on reading measures. Providing further detail of the subgroups, it was noted that 25% and 29% of the resolved SLI group had difficulty with word reading and reading comprehension, respectively; 67% and 73% of the expressive SLI group had difficulty with word reading and reading comprehension, respectively; and 88% of the expressivereceptive SLI group had difficulty with both word reading and reading comprehension. This study provides further evidence that not all children with SLI have reading difficulty; however, it is substantiated that there is a high incidence of language impairment and reading difficulty co-occurring within individuals, especially with children with receptive and expressive language problems.

As many past studies have explored how aspects of language such as phonology, semantics, and syntax relate to reading ability, other studies have looked into higher level language skills such as pragmatic understanding, inference, and metalinguistic skill to determine how these also influence reading ability, specifically reading comprehension (Lazo, Pumfrey, & Peers, 1997; Menyuk & Chesnick, 1997; Nation, Clarke, Marshall, & Durand, 2004; Share & Leikin, 2004). These studies have highlighted how language and literacy difficulties can fester within students who have gone unidentified as having academic problems. Elementary students with poor reading comprehension skills performed poorly on tests of semantics, syntax, and higher level aspects of language although their decoding, reading fluency and accuracy were within the average range (Nation et al., 2004; Nation & Norbury, 2005). Also, results from the study by Share and Leikin (2004) indicated that while word recognition and pseudo word reading predicted decoding skills, it was higher level language skills that contributed to the reading comprehension difficulties in primary students. The findings from these studies bring attention to the fact that language difficulties can sometimes mask themselves behind what may appear to be average literacy skills. As a
result, many students may secretly struggle with text comprehension even though their decoding and reading fluency are age and/or grade appropriate.

In summation of the above research, the relationship between language and literacy is well established. Whether impairments in one domain cause impairments in the other remains unknown; nevertheless, it is known that language impairment tends to coexist with reading impairment and that early language impairment and higher level language skill plays into later reading abilities.

THE IMPACT OF LANGUAGE AND LITERACY ON LEARNING AND ACADEMIC ACHIEVEMENT

Learning within any educational system in a literate society is contingent upon appropriate literacy skills. As the relationship between language and literacy has been discussed, it is apparent that adequate language skills are necessary to support literacy development. It is of chief importance to fully understand the ramifications that deficient language and literacy skills may have on academic achievement. Currently, it is thought that anywhere from 50%-100% of children with speech/language disorders demonstrate academic difficulties (Lewis, Freebairn, & Taylor, 2000). Students must be competent users of language and efficient language comprehenders in order to

meet curricular demands and perform a variety of academic tasks. In Menyuk's (1995) discussion about language development and education, she explains how students must use language to encode and recall vocabulary and sequence stories and scripts. As well, language is vital to the processes of problem solving, inference, critical thinking and using strategies to carry out educational responsibilities.

In a seminal study by Rosenthal, Baker, and Ginsburg (1983) the effects of both language and home background on reading and math achievement were explored. After surveying over 12,000 English and Spanish speaking families, it was concluded that language background had a great influence on reading performance but less of an effect on math. While the focus of this study was on language differences and not disorders, it points out that language competence is a necessary component of academic success.

Marinellie and Johnson (2002) studied definitional skills in school-age children with SLI. It is believed that the ability to produce definitions of words is related to both literacy and academic achievement because it relies on both linguistic and metalinguistic knowledge. In this study, children with SLI were compared to normal controls

in their ability to define common nouns (i.e. apple, horse). Results indicated that children with SLI scored significantly lower than those with typical language skills. This has many implications for academic success as students are often required to master content specific vocabulary, explain and describe concepts, and comprehend written and spoken language.

With regard to speech disorder, several studies indicate that academic difficulty is prevalent among those who possess an articulation/phonological disorder. Lewis, Freebairn, and Taylor (2000) investigated academic outcomes in students with a history of speech sound disorder. In this account, the researchers looked at 52 preschool children with speech disorder and used test performance on phonology, syntax, and semantics to predict later reading, language and spelling skills at ages 8-11. It was found that poor reading skills were best predicted by poor measures of phonology, semantics, and syntax. In the same way, poor spelling was also predicted by poor measures of phonology.

In a similar study, Nathan, Stackhouse, Goulandris and Snowling (2004) conducted research to find out if children diagnosed as having a speech disorder at age 4 or 5 were able to meet national curriculum standards at age 7. These

students were given assessments in the areas of reading, reading comprehension, spelling, math, and writing. When compared to normal controls, students with a resolved speech disorder scored above the national statistics in all areas and above normal controls in all areas except writing and spelling. Students with persistent speech disorder scored below the national statistics on all measures except reading. Additionally, they scored below the control group on all measures. Students with persistent speech disorder were more likely to perform lower than normal controls or those with a remediated speech disorder. These studies provide evidence of how speech/language impairment can affect a student's ability to access the curriculum and succeed academically. Particularly, in the age of federal initiative, state standards and testing at every grade, speech/language impairment can have detrimental effects.

Speech/language impairment can continue to have negative academic effects even into young adulthood as evidence by the research of Young et al. (2002). Young and colleagues examined the academic outcomes of 19 year old students who were diagnosed with language impairment (LI) at age 5. When compared to normal controls, those with LI at age 5 scored significantly lower on academic measures of spelling, reading comprehension, word identification, word

attack, and mathematical calculation. In this same group, 36.8% and 42.7% met criteria for reading and math disability, respectively. It was concluded that, "having a history of early language impairment substantially increases the risk of later developing learning disability in all academic areas," (p. 640).

With all that is known about language, literacy, and academic achievement, there is a pressing concern to support the needs of struggling readers. With national attention focused on early reading with efforts such as the Reading First program (Gambrell, 2004), there is a special demand to address the needs of struggling adolescent readers. This issue is discussed below.

THE NEED TO ADDRESS STRUGGLING ADOLESCENT READERS

The literacy skills of many of our nation's adolescents are not up to par according to standardized assessments. As reported by the "our nation's report card," the 2002 National Assessment of Educational Progress (NAEP) in reading and writing, roughly 65% of 8th and 12th grade students were performing low in reading, and about 71% of these students were not performing optimally in writing (Ehren, Lenz & Deshler, 2004). On the 2005 NAEP reading report card, 69% of 8th grade students scored below the "proficient" mark (Grigg & Donahue, 2005). Likewise, 64% of

8th grade students scored below proficient on the 2007 NAEP reading report card (National Center for Educational Statistics, 2007). When these scores are disaggregated by race/ethnicity, socioeconomic status (SES), and gender, it was noted that black students scored lower than Caucasians and Hispanics; students of low socioeconomic backgrounds (as measured by eligibility for free/reduced lunch) scored lower than those who were from higher income families; and males scored lower than females (Grigg & Donahue, 2005).

It is thought that reading skills plateau in high school (Hock & Deshler, 2003). As such, taking what is known about reading development, a startling observation to be made from the above data is that without intervention, America's lower achieving students will continue to fall further and further behind their higher achieving counterparts. These low achieving students are the same pupils who are overrepresented in special education, lower tract classes, and remedial college courses. The ACT company reported that only 51% of students taking the ACT met the "college readiness benchmark in reading," (ACT, 2006). In addition, the ACT Company went on to report that students of low income levels and minority backgrounds were even less likely to meet the benchmark. It is estimated that between 40% and 70% of first-time community college

students are under-prepared for college level work (National Center for Educational Statistics, 1996; Saxon & Boylan, 1999). It is also estimated that more than half of students enrolled in remedial college courses will eventually drop out of college (Hock & Deshler, 2003).

There is a strong correlation (r = .80) between 3^{rd} grade reading and 11th grade achievement (Denti & Guerin, 1999). Current American policymakers are aware of our lack of literacy achievement and have put forth great efforts, including federal initiatives, grants and legislation, to target early reading intervention and prevention (Hock & Deshler, 2003). Though this is a step in a positive direction, these early literacy efforts are doing little to nothing to support the struggling adolescent reader. The area of adolescent literacy is often neglected as evidenced through limited funding, limited research, and limited programming for this age group (Hock & Deshler, 2003; Moje, Young, Readence & Moore, 2000). Based on the current research, if struggling adolescent readers are not afforded reading assistance and do not master basic reading skills before they are promoted from high school, they will go on to be under-prepared for post-secondary education, employment, and life.

THE OHIO GRADUATION TEST

The literature reviewed up to this point has provided an overview of the relationships between language, literacy, and academic achievement. It is known that language and literacy play a major role in standardized test performance such as the NAEP and the ACT (ACT, 2006; Ehren et al., 2004; Grigg & Donahue, 2005). With this known, it may be presumed that language and literacy also play a part in outcomes on state mandated tests, specifically, the Ohio Graduation Test (OGT).

The OGT takes the place of the Ohio 9th grade proficiency test. It is a series of tests that are aligned to Ohio's state academic content standards (Ohio Department of Education, 2006a). The content standards reflect the academic subjects of English/language arts, mathematics, science, and social studies. According to the Ohio Department of Education, the standards were strategically designed to equip students with the knowledge necessary to be successful in post-secondary pursuits and to successfully function in society. Starting with the class of 2007, it was mandatory for students to pass all five portions of the OGT to be awarded a high school diploma (Ohio Department of Education, 2006b). The five sections of the test include reading, writing, mathematics, science,

and social studies. Students first take the OGT in the spring (March) of their sophomore year and are allowed up to seven attempts to take the test until all parts are successfully passed. They are allotted up to 2½ hours to take each portion of the test.

The OGT reading section tests students' skills involving the content standards of acquisition of vocabulary, concepts of print, comprehension strategies and self-monitoring, informational, technical, persuasive, and literary text. Reading passages presenting poetry, newspaper articles, essays, and short stories are a few of the types of selections utilized to allow students to answer 32 multiple choice questions, 4 short-answer questions, and 2 extended response questions (Ohio Department of Education, 2006a). Sample reading questions are as follows.

Multiple choice (following a reading passage):

Which thematic statement best applies to this passage?

A. Experience is more important than knowledge.B. Good can come out of bad situations.D. Decision-making is very difficult.

Extended Response (following a reading passage): Explain how the narrator's characterization of himself or herself is designed to convey his or her "message" of selfimprovement. Include four examples from the passage to support you explanation.

(ODE, 2006a, p.4)

The OGT writing section tests a student's ability to actively engage in the writing process. This section covers the content standards of writing process, writing

⁽ODE, 2006a, p.3)

applications, and writing conventions. The writing section presents 10 multiple choice questions, one short-answer question, and two writing prompts (Ohio Department of Education, 2006a). An example writing prompt follows.

Writing Prompt:

Think about a time when you faced a challenge and had to decide whether to accept it or not. Write a story about such a time. Make sure your story includes details about the challenge, an explanation of your decision and the consequences that followed.

(ODE, 2006a, p.7)

The mathematics portion of the OGT reflects the standards of numbers, number sense, and operations, measurement, geometry and spatial sense, patterns, functions and algebra, data analysis and probability, and mathematical processes. The OGT math test assesses the students' abilities of calculation, computation, and understanding word problems. There are 32 multiple choice questions, five short-answer questions and one extended response question (Ohio Department of Education, 2006a). Students are allowed to use calculators on this portion. A sample OGT math problem follows.

Math Problem:

Show how both Monique and Sean can be correct. Support your answer by showing work or providing an explanation. (ODE, 2006a, p.9)

Two years ago, Monique paid \$5.50 for the rookie baseball card of her favorite New York Yankees player. The card is now worth \$17.00. Sean, her brother paid \$12.00 for his favorite card, and it has a current value of \$27.00. Sean says that his card has increased more in value than Monique's card. Monique says that her card has increased more in value than Sean's card.

The OGT science test includes the science standards of earth and space science, life science, physical science, science and technology, scientific inquiry, and scientific ways of knowing. This test presents scientific information in a variety of formats including graphs and charts, reading passages, and maps. The science test taps into the students' ability to interpret, draw conclusion, and engage in data analysis. There are 32 multiple choice questions, four short-answer questions and two extended response questions (Ohio Department of Education, 2006a). Below is a sample OGT science extended response question.

Extended Response:

The picture above shows a make-believe, long furry animal. The animal's head is small compared to its long body. The head has two tiny ears, a flat nose, and a mouth with broad teeth. Its four long, slender legs end in large, webbed feet with four bulbous toes on each foot. The long tail has a tufted end. Describe the type of natural habitat for which the animal is best suited. Identify and explain four traits showing how the animal is best suited. Identify and explain four traits showing how the animal is best suited for its environment.

(ODE, 2006a, p.11)

The OGT social studies test includes 32 multiple choice items, four short-answer questions, and 2 extended response questions. World and American history are embedded within the content standards of history, people in societies, geography, economics, government, citizenship rights and responsibilities, and social studies skills and methods. Students are required to interpret tables, charts, graphs, and reading passages (Ohio Department of

Education, 2006a). A sample multiple choice question is

illustrated below.

Multiple choice:

During World War II, many Japanese-Americans living along the West Coast of the O.S. were relocated from their homes to government run internment camps.

Which of the statements below best summarizes the reason this occurred?

- A. the desire to avoid entering the war
- B. the need for workers in factories at the internment camps
- C. the desire of most Japanese-Americans to escape to Japan
- D. the fear that Japanese-Americans might betray the United States

(ODE, 2006a, p.13)

As demonstrated by the sample test questions, it is obvious that the OGT is a complex set of tests that aim to demonstrate student mastery of rigorous content standards across subject areas. The sample test questions also demonstrate that intricate levels of language and literacy competence are necessary to accomplish such tasks. The test items require students to perform a myriad of language and literacy tasks that include but are not limited to: problem-solving, critical thinking, making inferences, predicting, and compare/contrast. The test also requires students to have a grasp of content-specific vocabulary and to be able to analyze, explain, interpret, and summarize information presented to them in addition to other language operations (see Appendix A). For students with compromised language and/or literacy skills, the OGT can pose a threat to their academic progress.

This chapter has outlined theoretical perspectives that support the idea that reading/literacy is a language based process. Furthermore, it highlighted the reciprocal relationship between language and literacy and the vital role that language and literacy skills play in academic achievement. Students must possess adequate language and literacy skills to meet all curricular demands including mandated tests. To date, there are no studies that explore the relationship between language, literacy, and the OGT. The purpose of this study is to undertake this idea. The research questions and null hypotheses are outlined in Chapter I.

CHAPTER III

METHODOLOGY

PARTICIPANTS

The research participants selected for this study included two groups of students attending public high schools within and around a large city in Ohio. Participants in the two groups were matched by the designation/rating of the high school they attended using State of Ohio school designations/ratings (see Appendix B). Participants were between the ages of 15 years, 7 months and 18 years, 7 months and were in grades 10, 11, and 12. The participants took part in the Ohio Graduation Test (OGT) for the first time during either the March 2006 or March 2007 statewide testing periods. The participants were Caucasian (white) or African-America (black), were of average intelligence, and did not exceed 18 years of age (18 years, 11 months).

To prevent secondary factors from affecting the research findings and other data, students with the following conditions *were not* included in the study:

- Hearing impairment (all hearing losses)
- Visual impairment (i.e. legally blind)
- History of speech/language disorder

- History of receiving special education services (i.e. has an active or inactive Individualize Education
 Program or 504 plan)
- History of reading disability
- Limited English proficiency (i.e. ESL, ELL)
- Over 18 years of age

A description of the two groups follows.

Group 1-Pass group

The pass group was comprised of 56 students who passed all five sections of the OGT on their first attempt. The age range for this group of students was between 15 years, 8 months and 18 years, 4 months with a mean age of 16 years, 7 months. This group consisted of 17 male and 39 female students and 43 Caucasian and 13 African-American students. Additionally, 7 of the participants attended urban schools, 12 attended suburban schools, and 37 attended rural schools. With respect to school rating, there were 9 students from excellent schools, 44 from effective schools, and 3 participants from schools in continuous improvement.

Group 2-Fail group

The fail group was comprised of 40 students who failed 1 or more sections of the OGT on their first attempt. The age range for this group of students was between 15 years,

7 months and 18 years, 7 months with a mean age of 16 years, 8 months. This group consisted of 16 male and 24 female students and 27 Caucasian and 13 African-American students. As well, 8 of the participants attended urban schools, 9 attended suburban schools, and 23 attended rural schools. With respect to school designation, there were 3 students from excellent schools, 28 from effective schools, 8 from schools in continuous improvement, and 1 student from a school on academic watch.

It should be noted that this study originally began with 105 participants; however, 9 students withdrew from the study as a result of not meeting inclusion criteria, having scheduling conflicts or because they simply changed their minds and no longer desired to participate. Thus, this study was based on the remaining 96 participants. The breakdown of participants' characteristics is displayed in Table 1.

Group	*Age	Gender	Race	Schl	Dem.	Schl Rat.	
Pass	16:7	M:30% F:70%	AA:23% C:77%	Urb: Sub:	13% 21%	Excellent: Effective:	16% 79%
				Rur:	66%	Cont.Impr: Ac.Watch: Ac.Emrgcy:	5응 0응 0응
Fail	16:8	M:40% F:60%	AA:32% C:68%	Urb: Sub: Rur:	20% 23% 58%	Excellent: Effective: Cont.Impr: Ac.Watch: Ac.Emrgcy:	8% 70% 20% 2% 0%

Table 1. Characteristics of participants measured in percent

Schl Dem.: School Demographic; Schl Rat.: School Rating; M: Male; F: Female; AA: African-American; C: Caucasian; Urb: Urban; Sub: Suburban; Rur: Rural; Cont.Impr: Continuous Improvement; Ac.Watch: Academic Watch; Ac.Emrgcy: Academic Emergency. *Age denotes, mean age for group.

MATERIALS

Evaluation of Receptive and Expressive Language

The Clinical Evaluation of Language Fundamentals, 4th ed. (CELF-4) (Semel, Wiig & Secord, 2003), a standardized test that examines receptive and expressive oral language skills, was used to determine the language abilities of the participants. According to the test manual, the CELF-4 has a high sensitivity to detect language disorder. As a result, this assessment is widely used by speech-language pathologists to identify and diagnose language disorders among students ages 5-21. All receptive and expressive skills assessed are skills that are embedded throughout the Ohio Graduation Test as described below.

Receptive

The subtests that were utilized to examine receptive language ability were Word Classes-Receptive, Understanding Spoken Paragraph, and Semantic Relationships. Word Classes-Receptive was used to "evaluate the student's ability to understand and explain logical relationships in the meanings of associated words," (Semel, Wiig & Secord, 2003). The Understanding Spoken Paragraphs subtest assessed the participants listening comprehension skills and their ability to determine main idea and details, predict, and infer from information presented orally. The Semantic Relationships subtest tapped into the participants' ability to understand and interpret oral sentences that include location, time/sequence relationships, passive voice, and direction indicators.

Expressive

The subtests that were utilized to examine expressive language were Word Classes-Expressive (explained above), Recalling Sentences, and Formulating Sentences. Recalling sentences has traditionally been used to distinguish between typical and atypical language (Semel, Wiig & Secord, 2003). Participants had to repeat sentences presented to them orally without changing the word order (syntax) of the sentence. They also had to repeat the

sentences without adding, deleting, substituting or transposing words or word parts. Formulating sentences evaluated participants' ability to create complete sentences when given specific words (i.e. if, until, otherwise).

An additional subtest, *Word Definitions*, was also administered. Although this subtest did not contribute to the overall receptive and expressive language scores, this section tapped into semantic knowledge by measuring a student's ability to analyze and define words by conveying meaning and stating categories and features of given words. Previous research has indicated that knowledge of and the ability to produce/create word definitions is strongly related to literacy and academic achievement (Marinellie & Johnson, 2002).

Evaluation of Higher Level Language

The Test of Language Competence, Expanded Edition (TLC-E) (Wiig & Secord, 1989) was used to assess higherlevel language skills. This test is appropriate for students ages 9 to 18.11 and is typically used to identify persons who have not yet gained full linguistic competence in the areas of syntax, semantics and/or pragmatics. All four subtests were administered. The subtests are Understanding Ambiguous Sentences, Making Inferences,

Recreating Sentences, and Understanding Metaphoric Expressions.

In the Understanding Ambiguous Sentences subtest, participants were required to listen to sentences presented orally and explain how each sentence could have multiple meanings. After listening to brief scenarios, In the Making Inference section, participants were required to draw conclusions and make inferences about why the scenario happened after listening to brief scenarios. The Recreating Sentences subtest provided students with three single words and a picture and required them to construct sentences using the given words as if they were a character in the picture. Lastly, the Understanding Metaphoric Expressions subtest tested the participants' ability to interpret figurative language.

Evaluation of Reading Ability

The Gray Silent Reading Tests (GSRT-1) (Weiderholt & Blalock, 2000), was used to measure the silent reading comprehension ability of each participant. The publishers of this assessment describe the GSRT-1 as a "normreferenced reliable and valid test of silent reading comprehension," (p. 5). As the GSRT-1 measures silent reading ability, it was selected because it closely resembles the format of the OGT tests. This reading test

is norm-referenced for students ages 7-25 and provides readers with age and grade equivalents as well as a raw score and a standard score (Silent Reading Quotient) as measured by 13 reading passages and corresponding comprehension questions.

School Preparation Questionnaire

Because participant groups were matched by state designation/rating, it was assumed that schools may employ various OGT test preparation strategies to ensure the success of their students. As such, the school preparation questionnaire (see Appendix C) was utilized to gain a better understanding of how different schools (i.e. excellent vs. effective vs. continuous improvement) prepared their students to take the OGT tests.

PROCEDURES

Research Team

The research team consisted of the principal investigator, who is a state licensed speech-language pathologist, holding the Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP) from the Council for Clinical Certification (CFCC) of the American Speech Language Hearing Association (ASHA). The team also included 4 speech-language pathology graduate students. All team members were responsible for administering the CELF-4, TLC-

E, and the GSRT-1 to the participants. The graduate student members were required to attend a 30 minute orientation to the research study facilitated by the principal investigator. In addition, before the graduate student members were allowed to administer assessments to the participants, they were given two weeks to familiarize themselves with the testing materials, they participated in two hours of direct instruction and practice using the testing materials, and they observed the principal investigator administer all assessments. During the data collection phase of the study, the graduate students were supervised according to the CFCC and Ohio Board of Audiology and Speech-Language Pathology standards for supervision.

Recruitment

The student participants were recruited via word of mouth, in addition to the principal investigator talking to parents, teachers, building principals, and school district superintendents.

The principal investigator explained the purposes of the research study and procedures to parents, teachers, participants, and/or building principals. When explained to a building principal, consent was obtained to further discuss the project with students. Next, the project was

explained to students. If students showed interest in participating, they had to submit both parental consent and child assent forms if they were under 18 years of age. If students were 18 years of age, they were required to submit a consent form before they could participate (see Appendices D-F).

Data Collection

Once consent was obtained, each participant met oneon-one with a member of the research team for approximately two hours and 30 minutes. During this time, the team member obtained required information for the Intake Form (see Appendix G) and assigned an identification number to the participant for the purposes of anonymity. Next the participant was administered the CELF-4, TLC-E, and GSRT-1 in random order. Administration of the assessments took place within settings that were deemed to be most convenient for the participant, such as the participant's home, a public library, the speech and hearing clinic at the local University, or at the participant's school. Lastly, the principal investigator met with school personnel to obtain OGT scores for each participant and information for the school preparation questionnaire.

DATA ANALYSIS

Descriptive statistics such as means and standard deviations were calculated to describe and compare the OGT Pass group and the OGT Fail group on measures of receptive, expressive and higher level language, word definitions and reading ability. This is displayed in the form of tables and figures.

Descriptive statistics were also derived from the data collected via the school preparation questionnaire. This information is depicted in the form of tables.

Next, univariate analyses of variance (ANOVA) tests were performed to determine whether a significant difference exists between the OGT Pass group and the OGT Fail group on the individual measures of receptive language, expressive language, higher level language, and reading ability. These results were used to answer research questions 1 through 4.

To answer research question 5, a discriminant analysis (enter method) was used to determine whether the measures of receptive language, expressive language, word definitions, higher level language, and reading ability could individually or in combination, distinguish between participants who belonged to either the pass group or fail group.

Lastly, a binary logistic regression (enter method) was completed to determine what individual measure or combination of measures (receptive language, expressive language, word definitions, higher level language or reading ability) would most accurately predict the OGT performance outcomes of "pass" or "fail." This was used to answer research question 6.

CHAPTER IV

RESULTS

This chapter is a presentation of the results after analyzing for group differences. A combination of descriptive, univariate, and multivariate statistical analyses were utilized. Table 2 presents the overall scores, including means and ranges for both pass and fail groups across all measures obtained. Figures 1-15 provide a detailed visual interpretation of the data displayed in Table 2 as well as score distributions for each measure for both groups.

Min. St.Dev. Max. Mean Pass Group RLI 86 103.45 117 8.23 93 124 110.45 7.24 ELI *WD 6 17 12.64 2.21 HiL 80 135 102.91 12.32 SRO 57 135 104.34 14.15 Fail Group RLI 66 119 94.65 11.09 ELI 80 120 103.1 9.02 2.24 *WD 6 15 10.78 HiL 72 119 89.03 12.23 SRQ <55 113 88.36 12.50

Table 2. Minimum, maximum, means, and standard deviations for receptive language, expressive language, word definitions, higher level language, and reading ability standard scores.

RLI: receptive language index; ELI: expressive language index; WD: word definitions; HiL: higher level language; SRQ: silent reading quotient. *Denotes scaled score and not standard scores.

DESCRIPTIVE STATISTICS: LANGUAGE SKILLS

Receptive

The standard scores for receptive language skills on the CELF-4 fell between 86 and 117 for the pass group, with a group mean of 103.45 and a standard deviation of 8.23. For the fail group, receptive language scores fell within the range of 66 and 119 with a group mean of 94.65 and a standard deviation of 11.09. Figure 1 shows the comparison of mean receptive language standard scores on the CELF-4. Figure 2 shows the distribution of receptive language scores obtained by members of the pass group. Figure 3 shows the distribution of receptive language scores obtained by the fail group.

Figure 1. Group means for receptive language standard scores on the CELF-4.



Figure 2. Distribution of receptive language standard scores for pass group on the CELF-4.



Figure 3. Distribution of receptive language standard scores for fail group on the CELF-4.



Expressive

The standard scores for expressive language fell between 93 and 124 for the pass group, with a mean score of 110.45 and a standard deviation of 7.24. The expressive language skills for the fail group ranged from 80 to 118 with a group mean of 103.1 and a standard deviation of 9.02. Figure 4 shows the comparison of mean expressive language standard scores on the CELF-4. Figure 5 shows the distribution of expressive language scores obtained by members of the pass group. Figure 6 shows the distribution of expressive language scores obtained by the fail group.



Figure 4. Group means for expressive language standard scores on the CELF-4.

Figure 5. Distribution of expressive language standard scores for pass group on the CELF-4.



Figure 6. Distribution of expressive language standard scores for fail group on the CELF-4.



Word Definitions

The pass group's scaled scores for word definitions fell between 6 and 17, with a group mean of 12.64 and a standard deviation of 2.21. The fail group had a scale score range of 6 to 15, with a group mean of 10.78 and a standard deviation of 2.24. Figure 7 shows the comparison of mean word definition scaled scores on the CELF-4. Figure 8 shows the distribution of word definition scaled scores obtained by members of the pass group. Figure 9 shows the distribution of word definition scaled scores obtained by the fail group.





Figure 8. Distribution of word definitions scaled scores for pass group on the CELF-4.



Figure 9. Distribution of word definitions scaled scores for fail group on the CELF-4.



Higher Level Language

For higher level language skills as measured by the TLC-E, the standard scores for the pass group ranged from 80 to 135. The group mean was 102.91, and the standard deviation was 12.32. The fail group's higher level language scores fell within the range of 72 to 119 with a group mean of 89.03 and a standard deviation of 12.23. Figure 10 shows the comparison of mean higher level language standard scores on the TLC-E. Figure 11 shows the distribution of higher level language scores obtained by members of the pass group. Figure 12 shows the distribution of higher level language scores obtained by the fail group.



Figure 10. Group means for higher level language standard scores on the TLC-E.

Figure 11. Distribution of higher level language standard scores on the TLC-E for pass group.



Figure 12. Distribution of higher level language standard scores on the TLC-E for fail group.



DESCRIPTIVE STATISTICS: READING ABILITY

The reading comprehension standard scores of the pass group on the GSRT-1 ranged from 57 to 135. The group mean was 104.34, and the standard deviation was 14.15. For the fail group, the reading scores ranged from less than 55 to 113. The mean score for this group was 88.36, and the standard deviation was 12.50. Figure 13 shows the comparison of silent reading quotient mean scores on the GSRT-1. Figure 14 shows the distribution of silent reading quotient scores obtained by members of the pass group. Figure 15 shows the distribution of silent reading quotient scores obtained by the fail group.



Figure 13. Group means for silent reading quotient standard scores on the GSRT-1.

Figure 14. Distribution of silent reading quotient standard scores for pass group on the GSRT-1.



Figure 15. Distribution of silent reading quotient standard scores for fail group on the GSRT-1.


DESCRIPTIVE STATISTICS: SCHOOL PREPARATION QUESTIONNAIRE

The school preparation questionnaire was utilized to gain a better understanding of how schools with different state designations/ratings prepared their students to take the OGT. The participants in the study were recruited from 14 schools with the following breakdown of ratings: 3 excellent, 7 effective, 3 continuous improvement, and 1 academic watch. The school preparation questionnaire questions with responses from each of the school groups are listed in Table 3a-f.

Table 3a. School Groups Responses to School Preparation Questionnaire, Question A: Does your school offer any OGT preparation?

	None	Course	Class built into students'	schedule
Excellent	33%	33%	66%	
Effective	14%	86%	57%	
Cont.Imprv.	0%	66%	66%	
Ac. Watch*	0%	08	Yes	

*Academic watch responses are based on one school only.

Table 3b. School Groups Responses to School Preparation Questionnaire, Question B: Is an OGT preparation course mandatory for students to take?

	No	Yes	
 Excellent	66%	33%	
Effective	71%	29%	
Cont.Imprv.	66%	33%	
Ac. Watch*	0%	Yes	

*Academic watch responses are based on one school only.

Table 3c. School Groups Responses to School Preparation Questionnaire, Question C: For what subjects is OGT preparation designed?

	Reading	Math	Writing	Science	Soc.Studies
Excellent	100%	100%	100%	100%	100%
Effective	100%	100%	86%	86%	86%
Cont.Imprv.	100%	100%	100%	100%	100%
Ac. Watch*	Yes	Yes	Yes	Yes	Yes

*Academic watch responses are based on one school only.

Table 3d. School Groups Responses to School Preparation Questionnaire, Question D: Is it mandatory for teachers to incorporate OGT test preparation into their classes?

	No	Yes	
Excellent	0%	100%	
Effective	14%	86%	
Cont.Imprv.	33%	66%	
Ac. Watch*	0%	Yes	

*Academic watch responses are based on one school only.

Table 3e. School Groups Responses to School Preparation Questionnaire, Question E: How frequent is OGT preparation completed?

	Never	Monthly	Weekly	Daily	
 Excellent	0%	0%	100%	66%	
Effective	08	0 %	71%	29%	
Cont.Imprv.	08	0%	33%	66%	
Ac. Watch*	0응	0%	0 %	Yes	

*Academic watch responses are based on one school only.

Table 3f. School Groups Responses to School Preparation Questionnaire, Question F: What types of materials are used for OGT preparation?

	None	Curriculum Materials	Independently Published Prep Materials	State Published Prep Materials
Excellent	08	66%	33%	100%
Effective	0 %	86%	86%	71%
Cont.Imprv.	08	100%	66%	66%
Ac. Watch*	0%	Yes	Yes	Yes

*Academic watch responses are based on one school only.

In addition to the descriptive data results derived from the language/reading measures and the school preparation questionnaire, the overall description of OGT performance outcomes must also be considered. Figures 16-18 provide a breakdown of the OGT performance outcomes for the entire sample of participants.



Figure 16. Number of participants in each group.



Figure 17. Number of OGT tests failed by participants in the study.

Figure 18. Number of participants who failed specific content area OGT tests.



RESEARCH QUESTIONS/NULL HYPOTHESES

This portion of the results details the outcomes of the univariate and multivariate analyses. It should be noted that scores for each language/literacy measure were observed as a whole, and outliers were discarded from the analyses. As a result, assumptions of the Levene's test for homogeneity of variance (Levene, 1960) were met indicating that the variance within each group were comparatively equal.

Research Question 1

Is there a significant difference between the receptive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4^{th} ed. (CELF-4) (Semel, Wiig & Secord, 2003)?

Null Hypothesis 1

There is no significant difference between the receptive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, $4^{\rm th}$ ed. (CELF-4) (Semel, Wiig & Secord, 2003) except due to chance.

The average ages of the participants were 16 years, 7 months and 16 years, 8 months for the pass group and fail groups, respectively. Using these average ages and the mean standard score for each group, it was found that the receptive language skills of each group fell within normal limits according to the CELF-4 Examiner's Manual (Semel, Wiig & Secord, 2003). There was an 8.8 point difference

between group mean scores on the measure of receptive language. A univariate analysis of variance (ANOVA) using receptive language as the dependent variable was calculated. The ANOVA revealed that the 8.8 point observed difference between the groups was statistically significant [F (1, 91) =14.35, p <.001, η^2 =.136]. Thus the null hypothesis was rejected. There is a significant difference between the receptive language scores of the students who

passed the OGT and those who did not, with the pass group

exhibiting higher scores.

Research Question 2

Is there a significant difference between the expressive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4^{th} ed. (CELF-4) (Semel, Wiig & Secord, 2003)?

Null Hypothesis 2

There is no significant difference between the expressive language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Clinical Evaluation of Language Fundamentals, 4^{th} ed. (CELF-4) (Semel, Wiig & Secord, 2003) except due to chance.

On the measure of expressive language, both the pass and fail groups' skills were again, deemed to be appropriate for their age as the scores for each group fell within normal limits (Semel, Wiig & Secord, 2003). There was a 7.4 point difference between group means. A univariate ANOVA was computed using expressive language as the dependent variable. The ANOVA determined the 7.4 point difference to be statistically significant [F (1, 92) =15.86, p <.001, η^2 =.147]. As a result, the null hypothesis is rejected. The group of students who passed the OGT had significantly higher scores on the expressive language measures than those students who did not pass the OGT.

Research Question 3

Is there a significant difference between higher level language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Test of Language Competence, Expanded Edition (TLC-E) (Wiig & Secord, 1989)?

Null Hypothesis 3

There is no significant difference between higher level language skills of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Test of Language Competence, Expanded Edition (TLC-E) (Wiig & Secord, 1989) except due to chance.

According to the TLC-E Administration Manual (Wiig & Secord, 1989), both the pass group and fail group demonstrated group mean scores consistent with average skills and abilities in the area of higher level language. Despite these average abilities, a 13.9 point difference existed between the two group means. A univariate ANOVA was computed using higher level language as the dependent variable. Results from this analysis determined the 13.9 point difference between groups to also be statistically significant [F (1, 94) =29.81, p <.001, η^2 =.241] and

therefore, the null hypothesis was rejected. There was a significant difference between the higher level language scores of students who passed the OGT and students who did not pass the OGT, with the pass group demonstrating stronger higher level language skills.

Research Question 4

Is there a significant difference between the reading ability of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Gray Silent Reading Tests (GSRT-1) (Weiderholt & Blalock, 2000)?

Null Hypothesis 4

There is no significant difference between the reading ability of students who have passed all 5 sections of the OGT and of students who have not passed all 5 sections of the OGT as measured by the Gray Silent Reading Tests (GSRT-1) (Weiderholt & Blalock, 2000) except due to chance.

There was a 16 point difference between group mean scores on the silent reading comprehension measure. According to the GRST-1 Examiner's Manual (Weiderholt & Blalock, 2000), the pass group with a mean 104 demonstrated reading comprehension skills falling within the average range. Conversely, the manual explained that the fail group with a mean of 88, had silent reading comprehension skills falling within the below average range. After calculating a univariate ANOVA utilizing silent reading quotient as the dependent variable, it was confirmed that the 16 point difference between groups was a statistically significant

difference [F (1, 93) = 32.22, p <.001, η^2 =.257]. As such, the null hypothesis was rejected. There is a significant difference between the reading comprehension skills of the students who passed the OGT and those who did not, with the pass group exhibiting higher scores.

The results of all fours ANOVAs are displayed in Table 4 for ease of reference. The results of the ANOVAs suggest that the pass group possessed stronger receptive, expressive and higher level language skills as well as reading skills than did the fail group.

Table 4. Results of ANOVAs comparing pass group and fail group on receptive, expressive and higher level language measures and reading measures

Measure		F	P	value	Partial η^2	Power	
RLI	F	(1,91)=14.35	<	.001	 .136	 0.96	
ELI	F	(1, 92) = 15.86	<	.001	.147	0.98	
HiL	F	(1,94) = 29.81	<	.001	.241	1.0	
SRQ	F	(1, 93) = 32.22	<	.001	.257	1.0	

RLI: receptive language index; ELI: expressive language index; HiL: higher level language; SRQ: silent reading quotient.

Research Question 5

Is there a subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **discriminate** between students who have passed all 5 sections of the OGT and students who have not passed all five sections of the OGT (after controlling for school rating)?

Null Hypothesis 5

There is no subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **discriminate** between students who have passed all 5 sections of the OGT and students who have not passed all five sections of the OGT (after controlling for school rating) except due to chance.

Significant differences between group means on the individual measures of receptive language, expressive language, higher level language and reading comprehension have been established via analyses of variance, with students who passed the OGT performing better on all measures. Proceeding a step further, it must be determined which individual measure or combination of measures can be used to discriminate between the two groups. A discriminant analysis was performed, entering all language and reading variables simultaneously. Results of the analysis are depicted in Tables 5 through 7. Table 5 shows the statistic for Wilks' Lambda that demonstrates the fit of the discriminant analysis model. The higher the Wilks' Lambda value, the more likely the data will fit the model.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.711	29.85	5	< .001

Table 5. Wilks' Lambda for discriminant analysis of group membership

Wilks' lambda is significant indicating that the model produced is one of robustness and thus a good fit for the data. Furthermore, the beta scores and standardized coefficients indicate that silent reading comprehension, higher level language, expressive language, receptive language and word definitions, in this order, contribute to discriminating between the pass group and the fail group. The model was able to correctly classify group membership with 77.2% accuracy. Table 6 shows the language and reading measures that contribute to discriminating between groups in descending order. Table 7 shows the number and percent of participants correctly classified into the OGT pass group or OGT fail group based on language and reading measures.

Table 6. Discriminant analysis beta scores and standardized coefficients for language and reading measures used to determine group membership

Measure	β	Standardized Coefficients		
SRQ	.884	.632		
HiL	.780	.288		
ELI	.645	.209		
RLI	.596	.123		
WD	.577	.014		

SRQ: silent reading quotient; HiL: higher level language; ELI: expressive language index; RLI: receptive language index; WD: word definitions.

Table 7. Classification results of discriminant analysis showing the number and percent of students whose group membership was correctly classified based on language and reading scores

			Predicted Gr	oup Membership	
			Fail	Pass	Total
Original	Count	Fail	25	11	36
		Pass	10	46	56
	Percent	Fail Pass	69.4% 17.9%	30.6% 82.1%	100% 100%

*77.2% of original grouped cases correctly classified.

Research Question 6

Is there a subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **predict** student performance outcomes (i.e. passage/failure) on the OGT (after controlling for school rating)?

Null Hypothesis 6

There is no subset of language/literacy skills (i.e. receptive language, expressive language, higher level language, reading comprehension, word definitions) that will significantly **predict** student performance outcomes (i.e. passage/failure) on the OGT (after controlling for school rating) except due to chance.

Via discriminant analysis, it was revealed that the measures of reading comprehension and higher level language were the strongest variables that determined whether a participant belonged to the pass group or the fail group. To further validate the discriminant analysis and to determine which variables were significant predictors of OGT performance outcomes, a binary logistic regression was completed. The enter method was used in which all of the following variables were entered simultaneously: school rating 1, school rating 2, school rating 3, receptive language, expressive language, higher level language, reading comprehension and word definitions. The results of the regression analysis demonstrated that only the measure of reading comprehension was a significant predictor of OGT performance outcomes, accounting for 43% (Nagelkerke r^2 = .043) of the variance among participants passing or failing the OGT. The measure of reading comprehension can be considered a significant predictor of whether a participant passes or fails the OGT $[\chi^2 (8) = 35.06, p < .001]$. The results are summarized in tables seven and eight where beta scores and classifications are displayed. From these results, one can presume that for every 1 point increase in reading comprehension score, that a participant is 1.07 times (6.8%) more likely to pass the OGT. The model

predicted pass outcomes with 91.1% accuracy and fail outcomes with 66.7% accuracy. Overall, the model correctly predicted OGT performance outcomes with 81.5% accuracy. Table 8 displays the language and reading measures predictive of passing the OGT. Silent Reading Quotient (SRQ) was the only significant measure. Table 9 shows the number and percent of participants correctly classified into the OGT pass group or OGT fail group based on reading measures.

Measure		β	SE	Wald	df	Sig	Exp(B)
SchlRat	1	22.20	40192.97	.000	1	1.0	4396994926.77
SchlRat	2	22.01	40192.97	.000	1	1.0	3612106007.45
SchlRat	3	20.59	40192.97	.000	1	1.0	875795900.54
RLI		.006	.042	.023	1	.879	1.006
ELI		.061	.049	1.567	1	.211	1.063
HiL		.024	.031	.608	1	.435	1.024
SRQ		.064	.023	7.390	1	.007	1.066
WD		029	.166	.030	1	.862	.972

Table 8. Binary logistic regression predictors of OGT pass and OGT fail

Nagelkerke $r^2 = .043$

SchlRat: school rating; SRQ: silent reading quotient; HiL: higher level language; ELI: expressive language index; RLI: receptive language index; WD: word definitions.

Observed		Predic	ted Group	Membership
		Fail	Pass	
				% Correct
 Pass/Fail	. Fail	24	12	66.7
	Pass	5	51	91.1
Overall %	5			81.5

Table 9. Classification results of binary logistic regression based on reading comprehension scores

SUMMARY OF RESULTS

This section briefly summarizes the results obtained from the descriptive and inferential statistical analyses. The pass groups' mean scores on all language and reading measures were higher than the fail groups' mean scores on all language and reading measures. Significant differences between the pass group and the fail group on the measures of receptive, expressive, and higher level language and reading comprehension were found. The pass group demonstrated stronger skills on all measures than did the fail group. All language and reading measures could be used to discriminate between the two groups with 77% accuracy and the single measure of reading comprehension could be used to predict whether a participant passed or failed the OGT with 81.5% accuracy.

CHAPTER V

DISCUSSION

SUMMARY

The purpose of this study was to gain a better understanding of the relationship between high school students' language and literacy skills and their performance on state mandated assessments, specifically the Ohio Graduation Test (OGT). An additional goal of the research was to identify language/literacy skills that are predictive of OGT performance.

A total of 96 Ohio public high school students were enrolled in the study and were placed in one of two groups based on their OGT results: Group 1- pass group (N=56)or Group 2- fail group (N=40). The pass group passed all five sections of the OGT on their first attempt. The fail group failed one or more sections of the OGT on their first attempt.

All participants were administered two language (CELF-4, TLC-E) and one reading assessment (GSRT-1) during a 180 minute time period. Analyses of variance (ANOVA) were used to analyze scores for group differences. As well, discriminant analysis and binary logistic regression were used to classify groups and to identify language/literacy predictors, respectively.

Results of the analyses indicate that significant differences existed between the two groups on the measures of receptive, expressive and higher level language skills and reading ability. Furthermore, the discriminant analysis revealed that participants could be classified into their respective groups with 77.2% accuracy. Likewise, using the logistic regression function, it was determined that the measure of reading comprehension was the chief predictor of OGT success and could be used with 81.5% accuracy. School designation/rating appeared to have little bearing on how participants were prepared to take the OGT and subsequently, little to do with whether students were more likely to pass or fail.

LANGUAGE SKILLS COMPARED: OGT PASS GROUP VS. OGT FAIL GROUP

Receptive Language

Although the mean scores of both groups fell within normal limits, it was found that the pass group performed significantly better on the measure of receptive language than did the fail group. The scores for the pass group all fell within the low average to the above average range (86-117). Scores for the fail group ranged from significantly below average to above average (66-119).

As measured by the CELF-4 (Semel, Wiig & Secord, 2003), the pass group demonstrated stronger skills on the

following tasks: determining and identifying whether groups of words/meanings are associated; listening comprehension, including the identification of main idea and details; inferencing and prediction;, and understanding sentences/phrases that use time, spatial, passive voice and other cognitive-linguistically demanding concepts. Keeping in mind the nature of the OGT, it can be presumed that competency in the skills mentioned above are critical for OGT success. All five portions of the OGT are heavily loaded with content-specific vocabulary, as well as varied complexities of directions, and require students to use a number of language operations (see Appendix A) in addition to demonstrating the aforementioned skills.

Expressive Language

With regard to expressive language skills, both the pass and fail groups demonstrated mean scores within the average range. More specifically, the pass group's distribution of scores was average to above average (93-124) and the fail group's scores fell slightly below average to above average (80-120). It was found that the pass group performed significantly better on expressive language tasks. Again, using the CELF-4 (Semel, Wiig & Secord, 2003) measures for expressive language, this research suggests that members of the pass group exhibited stronger abilities

in expressing whether groups of words/meanings were associated, in verbal repetition of sentences of varying lengths (without syntactic errors), and in creating sentences when provided with a specific word and visual prompt.

Referring again, to the OGT format, the strong expressive language skills demonstrated by the pass group can be associated with better performance on OGT test items that require short and/or extended written responses. Both short and extended responses are test items seen within all five sections of the state assessment. Likewise, one could expect that participants rely heavily upon their expressive language abilities to successfully pass the OGT-writing test as it consists of lengthy writing prompts.

The better students perform on tasks that require expressive language skills, the higher their OGT scores will be. For OGT scoring purposes, short and extended response test items are assigned higher point values than are multiple choice items. Short and extended response items are often afforded two to four points, whereas correct multiple choice questions earn only one point (Ohio Department of Education, 2007a). Similarly, writing prompts on the OGT-writing test can account for approximately 75% of the total point value of the

assessment (Ohio Department of Education, 2007a). If students possess inadequate expressive language skills it can be expected that performance on short and extended responses, and on the OGT-writing assessment, which requires students to write at length, will be challenging. As short and extended responses are apart of each content area exam, this may result in poor performance on all OGT assessments.

Higher Level Language

On the measures of higher level language, there was an approximate difference of 14 points between the mean scores of the two participant groups. It was determined that the pass group performed significantly better on tasks requiring the use of higher level language skills than did the fail group. It should be noted, however, that the mean score for each group fell within the average range. More specifically, the pass group's distribution of scores ranged from slightly below average to greatly above average (80-135). The distribution of scores for the fail group ranged from below average to above average (72-119) with a majority of scores falling below 100.

Using the TLC-E (Wiig & Secord, 1989), this study demonstrated that participants in the pass group had stronger skills in the areas of interpreting sentences with

multiple meanings, making inferences, explaining figurative language, and orally expressing various situations using another's point of view.

The skills of higher level language can be explained by the concept of perceptual-language distance first introduced by Blank, Rose and Berlin (1978) to describe discourse during the preschool years. This conceptual framework has also been used in subsequent studies and/or dialogues to discuss the language of school instruction and to investigate book reading behaviors of parents (Berlin, Blank & Rose, 1980; van Kleeck & Beckley-McCall, 2002; van Kleeck, Gillam, Hamilton & McGrath, 1997; Wolf-Nelson, 2005). The basic premise of perceptual-language distance is that language is formulated "along a continuum of abstraction," (Berlin, Blank & Rose, 1980, p. 50) which includes four levels ranging from concrete to abstract (see Table 10).

Table 10. Perceptual-language distance: Levels of abstraction

Level

1. Matching perception

Questions/Statements

At this level, the simplest level, the child must be able to apply language to what he or she sees in the everyday world (identifying, naming, or imitating).

What is this? What did you see? Show me the circle.

2. Selective analysis of perception

At this level the child must focus more specific aspects of material and integrate separate components in a unified whole (describing, completing a sentence, giving an example, or selecting an object by two characteristics).

What is happening? Name something that is... Finish the sentence...

3. Reordering perception

The child must restructure or reorder Find the things that perceptions according to constraints are not... imposed through language (excluding, What will happen next? assuming, role of another, or following What would she say? directions in correct sequence).

4. Reasoning about perception

The formulations at this level, the What will happen if? most complex level, require the child Why should we use that? to go beyond immediate perception and What could you do? talk about logical relationships between objects and events (predicting, explaining, or finding a logical solution).

Adapted from Blank, M., Rose, S. A., & Berlin, L. J. (1978). The language of learning: The preschool year. New York: Grune & Stratton from (Berlin, Blank & Rose, 1980).

In turn, it is thought that individuals demonstrate understanding along this same continuum. Although the previous research in this area was directed toward children who are younger than those in the current study, it is clear that academic success is strongly impacted by the development of adequate abstract language abilities (higher level language) (Heath, 1983; Taylor & Dorsey-Gaines, 1988; van Kleeck & Beckley-McCall, 2002; van Kleeck et al., 1997; Wells, 1985).

Higher level language skills are embedded throughout all sections of the OGT, and all levels of abstraction are represented. The OGT requires students to describe, sequence, evaluate, and infer, as well as perform other language operations (see Appendix A). At the preschool level, it is suggested that parents and teachers direct 70% of their discourse and/or instruction within abstraction levels 1 and 2 and 30% of their interactions within abstraction levels 3 and 4 to foster greater success in the development of abstract language skills (Blank, Rose, & Berlin, 1978; van Kleeck et al., 1997). Many of the participants in the current study presented with below average higher level language skills. Viewing these results through the lens of perceptual-language distancing may be indicative of adolescents who have yet to master abstraction levels 3 (reordering perception) and 4 (reasoning about perception). As a result, possessing weaker higher level language skills places students in a less than optimal position for academic success and furthermore, for positive OGT performance outcomes.

OBSERVED BEHAVIORS DURING TESTING

Qualitative differences between the two groups were evidenced during the research testing sessions for all language measures. When asked questions, participants in the pass group tended to be better able to express themselves thoroughly and more quickly than did members of the fail group. They provided clear and concise answers to the research team and appeared to approach challenging questions with a pattern of logical thought. Pass group members also appeared to possess more general knowledge in the areas of vocabulary, content area topics, and current events than did the fail group.

In contrast, the responses of the fail group tended to be less thought out and less complex than those of members of the pass group. Participants in the fail group tended to second guess themselves and give up easily when queried for responses. Fail group members also tended to be less reflective in their responses, and they tended to have less overall general knowledge than members of the pass group.

Many of the behaviors demonstrated by the fail group were also detailed by Wiig and Secord (1989) to be behaviors characteristic of students with language disorders. This is not labeling all members of the fail group as "language disordered;" however, it is reasonable

to consider that the behaviors exhibited by the fail group during the research testing sessions were also demonstrated when these students participated in the OGT. These behaviors, in combination with lower receptive and higher level language skills, may have attributed to unsuccessful outcomes on the OGT. Additionally, this research suggests that a weak ability to thoroughly express oneself may yield less than optimal performance on the OGT as a whole. READING SKILLS COMPARED: OGT PASS GROUP VS. OGT FAIL GROUP

Members of the pass group demonstrated significantly stronger silent reading comprehension skills than did members of the fail group. An approximate 16 point difference existed between the mean scores of the two groups on the measure of reading comprehension. The distribution of scores fell within the very poor to very superior range for the pass group (57-135). The mean score for this group was average (104.34). The distribution of scores for the fail group ranged from very poor to above average (<55-113) with a majority of the scores falling below 100. The mean score for this group was below average (88.36).

Findings from this study indicate that members of the pass group were better able to answer literal, inferential, evaluative, and affective questions that were passage-

dependent (Weiderholt & Blalock, 2000) and therefore, presented with better reading comprehension skills than did members of the fail group as measured by the GSRT-1. As previous research highlights reading comprehension as a prominent factor in state-test assessment outcomes (Gordon Pershey, 2003b; Hull & Tache, 1993; Noel, 1994; Stroud, 1995), it is logical to conclude that it is an important factor for the OGT. Numerous factors may play into why students struggle in the area of reading comprehension. Oakhill and Yuill (1996), Perfetti and colleagues (1996), and Duke et al., (2004) consider the following factors to possibly impact reading comprehension:

- making inferences;
- 2. understanding text structures;
- 3. comprehension self-monitoring;
- 4. working memory;
- 5. lexical processing (i.e. pseudo word naming, word recognition);
- 6. word meanings;
- 7. domain knowledge;
- 8. fluency;
- 9. oral-language;

10.second language learning and dialectal differences; 11.motivation.

The premise of this research is based on the connection between language and reading and the notion that reading is a language based skill. As such, the overlap between higher level language skills and the tasks utilized to measure reading comprehension cannot be ignored. In many instances these skills are one in the same as evidenced by Share and Leikin (1994). The language operations needed for abstract language use are the very skills necessary to comprehend at proficient levels. This view is further emphasized by Morris and Tchudi (1996) who discuss literacy in terms of three inter-related domains: basic, critical, and dynamic. These are featured in Figure 19.

Figure 19. Circles of Literacy.



Taken from Morris, P. J. & Tchudi, S. (1996). *The New Literacy: Moving Beyond the 3Rs.* San Francisco: Jossey-Bass Publishers.

Basic literacy describes fundamental skills that include word decoding and a basic understanding of what is read. Critical literacy moves beyond basic skill and literal understanding to encompass skills such as analyzing, explaining, and interpreting texts and producing written samples that demonstrate these same skills. Lastly, dynamic literacy calls for application of basic and critical literacies throughout various settings including the different subject areas (i.e. science, mathematics, etc.).

If students have basic or below basic reading comprehension skills it is almost certain that taking on tasks that require critical or dynamic literacies will be challenging. This factor may be related to the performance of the fail group in the current study.

CLASSIFICATION AND PREDICTORS OF OGT SUCCESS

To date, few studies have investigated factors that predict student success on state assessments. Studies have been conducted in Indiana (Nichols, 2003), North Carolina (Smith, 1982), and Ohio (Hull & Tache, 1993; Lanese, 1992; Noel, 1994; Robinson & Moore, 1992; Stroud, 1995) using both demographic information and information from achievement tests (California and Metropolitan Achievement Tests; Iowa Test of Basic Skills) (Balow, Farr, & Hogan,

1992; CTB/McGraw-Hill, 1992; Hoover, Hieronymus, Frisbie, & Dunbar, 1996) to attempt to predict state proficiency test outcomes in high school students. Although these studies found that demographic information and/or scores on standardized tests were highly correlated with performance on state proficiency tests, none of them examined the underlying language/literacy skills that are intermingled throughout the state assessments measured. In addition, none of them targeted the Ohio Graduation Tests. Gordon Pershey (2003b, 2006) investigated the language/literacy components of Ohio state assessments; however, her research targeted students in the elementary grades.

The current study classified participants who passed or failed the OGT into their respective groups with approximately 77% accuracy. The measures of reading comprehension, which was the strongest classifier, and higher level language, the next strongest classifier, were the primary measures used to classify students into their corresponding groups. Given the findings of previous similar studies, the results of the current research are not surprising. What is surprising, however, is the fact that the receptive language measures were not significant predictors of the OGT performance outcomes of the participants in the current study. Gordon Pershey (2003b)

found several receptive language tasks to predict performance outcomes on state reading and writing assessments for students in grades four and six. It remains unclear as to why receptive language skills were not predictive of OGT outcomes in the present study; however, the nature of the OGT could be a possible rationale. The current study not only examined performance on state reading and writing subtests but also explored performance on mathematics, science, and social studies. As stated earlier, higher level language tasks are embedded throughout the entire OGT series and are heavily concentrated within the math, science and social studies subtests. Perhaps the current findings were produced by a lack of higher level language skills which were required on the OGT rather than a reduction in more basic receptive language skills.

For members of the OGT fail group, what appears to exist is a lack of ability to adequately use language to critically think about information that is read. This is not only evidenced through the scores for higher level language, but also for scores in reading comprehension. The findings from the current study revealed that, of the measures investigated, reading comprehension was the sole predictor (81.5% success) of whether students passed or

failed the OGT. This echoes the findings of previous research (Gordon Pershey, 2003b; Hull & Tache, 1993; Lanese, 1992; Nichols, 2003; Noel, 1994; Robinson & Moore, 1992; Smith, 1982; Stroud, 1995). Due to the design of the current study, it should be noted, that this finding is contrary to previous research in that the predictor variable is not correlated to any one specific OGT subtest. Better stated, although reading comprehension can predict OGT outcomes, it does not predict performance on individual OGT subtests (i.e. reading, mathematics, writing, science, or social studies) as it has been correlated to subtest outcomes in earlier studies (Hull & Tache, 1993; Lanese, 1992; Noel, 1994; Robinson & Moore, 1992; Smith, 1982; Stroud, 1995).

As this study used discriminant analysis and logistic regression to classify and predict performance, this could also be responsible for the difference in findings between the current study and the results of Gordon Pershey (2003b). In that study, linear and multiple regressions were used to identify the subsections of standardized language and reading tests that predicted performance on state assessments (Gordon Pershey, 2003b). Using discriminant analysis in the present study, all measures of language and reading could be used to classify participants

into either the pass or fail group with a high level of accuracy. The logistic regression in the current study identified the skill of reading comprehension as the only predictor of OGT performance outcomes. Both discriminant analysis and logistic regression were used to reinforce one another in the present study. The difference in findings between the current study and that of Gordon Pershey (2003b) could be derived from different statistical analyses that hold different assumptions or from the fact that the two studies utilized samples of different populations to answer different research questions. Another explanation could be that measures of oral language are not adequate indicators of academic success for adolescents. While there are no definitive explanations for the current findings, these results may also be explained by student preparation which will be discussed below.

SCHOOL PREPARATION QUESTIONNAIRE

It was noted earlier that individual schools and school districts in Ohio are given designations/ratings by the state department of education (see Appendix B). The researcher considered this factor and attempted to control for it. For example, if five participants who passed the OGT attended effective schools, then the researcher also

obtained five participants who failed the OGT from that same school.

As designations are partially based on how well students of a particular school or district perform on state assessments, it was considered that schools with different ratings may also differ in how they prepare their students to participate in high-stakes testing. The school preparation questionnaire (see Appendix C) was used for this purpose. As the results indicate, schools with different designations did not vary greatly in how they prepared their students to take the OGT. This finding is similar to that of Noel (1994) who found that students enrolled in two different middle schools did not differ significantly when measures of grade point average, California Achievement Test (CTB/McGraw-Hill, 1992) scores, and scores on Ohio proficiency tests were compared.

With regard to OGT test preparation for the current research, only two of the 14 schools did not offer any preparation for the OGT such as an OGT course. Nevertheless, because the OGT is a standards based assessment, teachers inherently prepared students through daily instruction. This may be a rationale for why most schools did not make specific OGT courses mandatory for students. The schools did, however, make it mandatory for

teachers to cover the content standards. All of the schools in the current study provided some sort of preparation for the areas of reading and mathematics. All but one school provided preparation in the areas of writing, science, and social studies. All the schools engaged in preparation at least weekly, and many of them engaged in daily OGT test preparation. All the schools in the present study utilized curriculum materials, independently published materials and state published materials to assist in preparing their students for the OGT. Overall, the OGT test preparation provided by successful schools was similar to the preparation provided by schools with lower state designations/ratings.

As many schools have systematic test preparation programs in place, it is plausible to look toward other factors that may contribute to limited success on OGT performance. It is fair to state that students in this study, whether they passed or failed the OGT were afforded the same test preparation. With this in mind, the question must be posed: why is test preparation ineffective for many students? Though not directly addressed by the present research, several studies have suggested historical and/or demographic issues such as poor attendance, lack of student motivation, socio-economic status, gender, ethnicity, grade

point average, and test results from previous years (Grigg & Donahue, 2005; Guthrie, 2002; National Center for Educational Statistics, 2007; Nichols, 2003; Smith, 1982). Others may suggest that test preparation should not be a "one-size-fits-all" phenomenon but should be individualized. Still, others point to a mismatch between preparation and the skills necessary for successful testing outcomes.

Guthrie (2002) detailed and discussed the elements of positive reading test performance in relationship to successful reading test preparation based on correlational research. These elements are measured in percent and are displayed in Figures 20 and 21. These figures provide a visual representation of the elements necessary to perform well on reading assessments and the knowledge and skills that should be included in thorough test preparation.

Figure 20. Components of reading test performance and percent of contribution of each.



Taken from Guthrie, J. T. (2002). Preparing students for high-stakes test taking in reading. In A. E. Farstrup & S. J. Samuels, (Eds.), *What Research Has to Say About Reading Instruction* (3rd. ed., pp. 370-391). Newark, Del: International Reading Association.

Figure 21. Components of reading test preparation and percent of each that should be included in preparation.



Taken from Guthrie, J. T. (2002). Preparing students for high-stakes test taking in reading. In A. E. Farstrup & S. J. Samuels, (Eds.), What Research Has to Say About Reading Instruction (3rd. ed., pp. 370-391). Newark, Del: International Reading Association.
Data from the school preparation questionnaire indicated that schools did not differ widely in the way they prepared students to take the OGT series. Many schools confessed to drilling students with content knowledge, test taking strategies, and with familiarizing students with the testing formats. Hock and Deshler (2003) stated that students fail standardized tests, not because of a lack of knowledge or intelligence, but because of a lack of reading skill. This may be the case for participants of the current study. These schools may have missed the vital component of reading instruction as a means to prepare students for high-stakes testing, and it seems that test preparation could be misaligned to the skills necessary for success. As a result, not only are OGT reading scores affected but so also are OGT mathematics, writing, science, and social studies.

IMPLICATIONS

The findings from the current study are not only reflective of previous research (Wiig & Secord, 1989; Share & Leikin, 1994) but also add new insights to our knowledge of factors that contribute to successful outcomes on the Ohio Graduation Tests (OGT) in Ohio high school students.

It appears that a lack of language and reading skill adversely affects success on state mandated assessments

such as the OGT (Gordon Pershey, 2003a & 2003b; Hull & Tache, 1993; Lanese, 1992; Nichols, 2003; Noel, 1994; Robinson & Moore, 1992; Smith, 1982; Stroud, 1995). An inability to adequately use language to critically think about information that is heard and/or read is a likely culprit of negative OGT outcomes. As well, this research implicates that, at some point during adolescence, measures of oral language are no longer adequate or strong enough to predict academic success.

Poorer expressive language skills may be related to poorer performance on written responses. Also, the results support previous findings that academic success is related to the development of adequate higher level language abilities (Health, 1983; Taylor & Dorsey-Gaines, 1988; van Kleeck & Beckley-McCall, 2002; van Kleeck, Gillam, Hamilton & McGrath, 1997; Wells, 1985). Research using the perceptual-language distancing framework (Blank et al, 1978) suggests that, during the early years, 70% of instruction and conversation with children occur within abstraction levels 1 and 2 and 30% of instruction and discourse occur within levels 3 and 4 to cultivate higher level language development (Blank et al., 1978; van Kleeck et al., 1997). The perceptual-language distancing practices in Ohio high schools are undetermined. Despite

this, pairing the above suggestion with the higher level language outcomes of the fail group, it appears that as children mature, the need for interaction in levels 1 and 2 should possibly decrease with age and interaction in levels 3 and 4 should, conversely, increase with maturity to enhance abstract language skills.

It would appear that students should also be directly taught abstract language skills in addition to increasing the instruction at levels 3 and 4 beyond 30%. For example, students may need to learn and understand what it means to "evaluate" or "infer" and the steps necessary to produce an adequate evaluation or inference. Students may need to view what a good evaluation or inference looks like. As stated previously, abstract language skills are embedded throughout the OGT but are heavily concentrated within the OGT math (Carlson, Gruenewald, & Nyberg, 1980; Ohio Department of Education 2006a, 2007a; Shafttel, Belton-Kocher, Glasnapp, & Poggio, 2006), science and social studies sections (Ohio Department of Education 2006a, 2007a). As such, creating ways to incorporate abstract language training into math, science, and social studies instruction is suggested.

Further, this research indicates that the skill of reading comprehension is the primary factor in positive

high-stakes testing outcomes (Gordon Pershey, 2003b; Hull & Tache, 1993; Noel, 1994; Stroud, 1995) and that measures of reading comprehension could perhaps be used to identify students who may be at-risk for failure of the OGT.

With respect to test preparation, the current research points to a mismatch between the elements of test preparation and the skills necessary for successful test performance. If schools are to prepare students for highstakes testing and post-secondary pursuits, this research provides evidence to support the need for a more balanced approach to literacy instruction. Similar to the discussion regarding levels of abstraction, it is suggested that as students mature and become more competent in basic literacy, that more emphasis be placed on critical and dynamic literacies as these are the skills necessary for positive academic and testing outcomes.

RECOMMENDATIONS FOR ADOLESCENTS

Based on the findings and implications of the present study, recommendations to enhance the language and literacy experiences for the adolescent population are highlighted below.

 The fail group in the current study presented with below average reading comprehension skills. Taking what is known about struggling adolescent readers, as

a whole, and the impact of reading throughout school and life, the first and likely most ambitious recommendation, is for schools (i.e. policymakers, administration) to mandate the extension of reading instruction throughout the middle and high school grades. With the need for literacy skills on the rise and America's reading skills remaining stagnant (Snow, 2002) it is suggested that schools be proactive in combating the issues surrounding adolescent literacy. There are governmental mandates to target early literacy, specifically for kindergarten to third grade (No Child Left Behind, 2001); however, for students who are expected to "read to learn" and are assumed to have the "know how;" there is minimal support even though the long-term effects of poor literacy skills are known.

2. Failure to move beyond basic literacy skills into critical and dynamic literacy (Morris & Tchudi, 1996) was a possible reason for OGT failure in the present study. It appears that the skills of some adolescent readers are fixed at basic levels. Thus, the second recommendation would be for reading instructors to use more balanced approaches to literacy by integrating research based strategies that scaffold students in

attaining critical and dynamic literacy skills. For example, building students' schema prior to reading and supporting students in using their world knowledge to make connections to their personal lives (Irvin, Buehl, & Kemp, 2007) is often helpful. Regardless of the strategies that are used, there is a need to target all layers of literacy, not in isolation, but in an integrated and systematic manner.

3. Using language to think critically about information that is read was a weakness of students in the fail group in this study. Due to the clear overlap between higher level language skills and reading comprehension, it is recommended that training in abstract language skills be embedded throughout reading instruction. Research suggests that these skills foster critical literacy (van Kleeck et al., 1997; van Kleeck & Beckley-McCall, 2002). These skills may be taught implicitly or explicitly (Guthrie, 2002). Additionally, although the current practices of perceptual-language distancing are unclear, it is suggested that teachers incorporate perceptual-language distancing (Berlin, Blank & Rose, 1980) strategies into classroom instruction and discourse, specifically using levels 3 (reordering

perception) and 4 (reasoning about perception) greater than 30% of the time. Students may benefit from teachers modeling specific strategies, including explanations on how and when to use the strategies, and multiple opportunities to practice strategies independently and with teacher feedback (Guthrie, 2002). Lastly, it is suggested that teacher teams find creative ways to incorporate the training of abstract language across the curriculum in all content areas (i.e. language-arts, mathematics, science, social studies).

- 4. It is also recommended that schools employ a transdisciplinary approach to reading instruction by promoting reading across the curriculum. This includes the aforementioned strategies being utilized in all settings. This may warrant intensive and on-going professional development for school districts.
- 5. The next recommendation is for adolescent literacy programs to incorporate strategies that build student motivation for reading and learning (Guthrie, 2002; Irvin, Buehl, & Kemp, 2007; Snow, Porche, Tabors, & Harris, 2007). Qualitative differences between the two groups in the current study were noted. Overall, failing students tended to be less confident in their

skill level. The more students practice and sharpen their skills, the more comfortable they will become. This is viewed as a motivation building process.

- 6. As discussed by Guthrie (2002) and also evidenced by this study, schools need to ensure that the manner in which students are prepared for high-stakes testing is in line with the skills necessary to be successful. Test preparation should be individualized. Moreover, less time should be spent on test strategies and format and more time should be spent on reading instruction and practice. This may include teaching students about text structures, giving them strategies, and allowing them concentrated time to practice those strategies.
- 7. Lastly, with the current emphasis placed on responsiveness to intervention, measures of reading comprehension could serve as universal screenings at the middle and high school levels to identify students who may benefit from targeted language and literacy interventions.

LIMITATIONS OF THE STUDY

Due to several limitations of the current study, caution must be used in generalizing the results and the implications noted above to other Ohio high school students

and students in other states. First, the sample of participants was from a small region in southwestern Ohio and was not representative of the entire state. The sample did not represent all ethnicities of students across the state. There were more Caucasian/white participants than African-American, and no representation from other ethnic groups. Furthermore, this study did not account for or control for demographic and inherent factors such as race, gender, income, grade point average, or attendance. It would be important to consider these factors because they are known to have ill effects on academic and test performance (Nichols, 2003).

The distribution of students from urban, suburban, and rural schools was unequal. Also, the two study groups were not equal in size as there were more participants in the pass group than in the fail group. Only four of the five school designations/ratings were represented in this study. There were no schools designated as "academic emergency" included in the study.

With regard to the language and literacy measures used, it must be mentioned that the CELF-4 assessment is a test of oral language abilities. Although the CELF-4 provided adequate measures of the participants' language abilities, it did not examine their writing abilities which

was a skill evaluated by the OGT. Finally, the greatest limitation of the study is that the findings are unable to be used to determine performance on individual subtests of the OGT.

FUTURE RESEARCH

To date, few studies have explored the relationship between language/literacy skills and performance on state mandated assessments, particularly the Ohio Graduation Test. The current study has contributed to an area of research that is minimal within the existing literature and although the findings broaden the knowledge base about the interplay of language and literacy on the OGT, future research should incorporate the implications and limitations of this study as well as target additional ideas as specified below.

The results of this study indicated that members of the pass group had significantly stronger skills in the areas of receptive, expressive, and higher level language and reading comprehension than the fail group. Future research efforts should explore these findings further and perhaps pinpoint a rationale for why this difference has occurred. For example, investigating the diverse academic histories or home lives of participants may aid our understanding of this finding. Additionally, the apparent

overlap between higher level language skills and reading comprehension was indicated and should also be further explored. It may be helpful to investigate the types of comprehension questions with which the participants struggled. The findings from this study were unable to determine performance outcomes on specific OGT subtests. As such, future research could be designed to identify the factors that contribute to performance on individual subtests of the OGT (i.e. reading, writing, mathematics, science, social studies) as was done in previous studies (Hull & Tache, 1993; Lanese, 1992; Noel, 1994; Robinson & Moore, 1992; Smith, 1982; Stroud, 1995).

With respect to the current study limitations, future projects investigating students' performance on high stakes testing should include a greater number of participants that are more representative of the Ohio high school composition. Specifically, there should be equal numbers of participants in the pass and fail groups as well as equal numbers of participants from urban, suburban, and rural schools, and from schools that represent all five state designations/ratings. Lastly, the ethnicities represented in future studies should be reflective of the ethnicities that represent the state being examined.

Some additional ideas for future research include expanding and/or making the language and literacy measures more specific. For example, in the area of reading, only comprehension was investigated in the present study. Perhaps, measures of reading fluency should also be incorporated into future research to determine whether this skill plays a role in positive OGT outcomes or the extent to which it affects reading comprehension. With regard to language, future research could attempt to identify specific receptive, expressive, or higher level language skills that contribute to poor OGT outcomes. For instance, examining whether a single skill or combination of skills such as making inferences or describing contributes more or less to performance on individual OGT subtest is an idea. Further, the current study used only oral language measures. It would be of value to investigate how written language plays into performance outcomes on the OGT by using written language measures of receptive and expressive It would also be beneficial to investigate language. language/literacy and state assessments in states that have yet to be researched. Investigating different grade levels and types of tests are also ideas for future research as well as more exploration into the OGT. Looking at the

language/literacy demands of the OGT in comparison to other tests such as the SAT and ACT may be useful.

CONCLUSION

High-stakes testing has become a reality for many students nationwide. These standards-based assessments may not only be difficult for the average student but especially so, for the student with compromised language and/or literacy skills. In this study the Ohio high school students who passed the OGT and those who did not possessed average receptive and expression language skills; however, moving beyond basic language skills into higher level language use seemed to be a challenge for students who failed the OGT. What's more, although linguistic competence is essential for success on high stakes testing (Gordon Pershey, 2003b), it appears that the skill of reading comprehension is the best predictor of pass versus fail for the adolescents participating in the Ohio Graduation Tests.

As suggested by the school preparation questionnaire (see Appendix C), in many instances, it appeared that traditional teaching and learning has been replaced by the drilling of facts, test strategies and test preparation. As such, it seems that many Ohio high school students are often being taught how to take tests instead of how to think and how to use language to engage in critical and

dynamic literacies. The findings from this study not only highlight the importance of underlying language and literacy skills necessary for positive OGT outcomes but they implicate the need for the continuation of reading instruction beyond the third grade.

As graduation requirements and curriculum standards become increasingly more rigorous (see Appendices H-I), it is imperative that school administrators, policy makers, and staff rethink how language and literacy is addressed at each grade level and across the curriculum to ensure the academic success of all students.

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APPENDIX A

LANGUAGE OPERATIONS

Reading Test	Math Test	Writing Test		
Describe	Show	Write		
Emphasize	Determine	Explain		
Explain	Explain	Support		
Characterize	Represent	Decide		
Support	Sketch	Organize		
Summarize	Calculate	Convey		
Infer	Arrange	Revise		
Conclude	Support	Edit		
Identify	Compute	Arrange		
	If, then	Link		
	Conclude	Develop		
	Order			
	Approximate			
	Translate			
	Relate			
	Find			
Science		Social Studies		
Differ		Associate		
Summarize		Explain		
Describe		Employ		
Expect		Identify		
Observe		Consider		
Conclude		Describe		
Identify		Support		
Respond				
Explain				
Speculate				
Question				
Compare				
Assume				

(ODE, 2007a)

APPENDIX B

State of Ohio School Designations/Ratings

Designations/Ratings

Excellent Effective Continuous Improvement Academic Watch Academic Emergency

Designations are determined by a combination of the five factors listed below.

A. State (performance) Indicators- There are 30 indicators that schools and districts can earn by meeting or exceeding the requirements below: a. Meet 75% proficiency or better in i. 3rd grade achievement tests 1. Reading 2. Mathematics ii. 4^{th} grade achievement tests 1. Reading 2. Mathematics 3. Writing iii. 5th grade achievement tests 1. Reading 2. Mathematics 3. Science 4. Social Studies iv. 6th grade achievement tests 1. Reading 2. Mathematics v. 7^{th} grade achievement tests 1. Reading 2. Mathematics 3. Writing vi. 8th grade achievement tests 1. Reading 2. Mathematics 3. Science 4. Social Studies vii. 10th grade Ohio Graduation Tests 1. Reading 2. Mathematics 3. Writing 4. Science

5. Social Studies b. Meet 85% proficiency or better in i. 11th grade Ohio Graduation Tests 1. Reading 2. Mathematics 3. Writing 4. Science 5. Social Studies c. Meet 90% state requirement graduation rate d. Meet 93% state requirement attendance rate (ODE, p.3, 2006c) B. Performance Index- Schools/districts earn points based on how well students perform on grades 3-8 achievement tests and grade 10 OGT. The performance index ranges from 0-120. a. Advanced level earns 1.2 points b. Accelerated level earns 1.1 points c. Proficient level earns 1.0 points

- d. Basic level earns 0.6 points
- e. Below Basic level earns 0.3 points
- f. Students not tested earn 0 points

Index scores are multiplied by the percent of students' scores at that level to create an index score.

(ODE, p.3, 2006a)

- C. <u>Growth Calculation</u>- The growth calculation is only applied to schools/districts designated as Academic Watch or Academic Emergency that have made significant improvements from the previous testing year. Schools/districts falling within this category must have improved their performance index by 10 points or more over two years. As a result, they may move up one designation but no higher than Continuous Improvement. (ODE, p.4, 2006c)
- D. <u>Adequate Yearly Progress (AYP)</u> The AYP measure allows schools/district to earn credit for meeting or exceeding the federal AYP requirements for graduation, participation, and for student groups performing at proficient levels or higher in reading and math. Schools/districts must test 95% of students enrolled and 95% of students in each group. The student groups are:

All Students	African-American				
Native American	Asian/Pacific Islander				

Hispanic	Students with Disabilities
White	Economically Disadvantaged
Multi-Racial	Limited English Proficiency

Schools/districts who do not meet the participation, proficiency, or graduation and attendance goals will "miss AYP." Schools/districts who meet AYP goals will earn a rating no lower than Continuous Improvement. (ODE, p.4-5, 2006c)

E. <u>Value Added (beginning 2007-08 school year)</u> - Value added is a measure that will incorporate individual student grade-to-grade gains in achievement to assist in determining schools/districts designations. For the 2007-2008 school year, the value added measure will replace the growth calculation for grades 3-8 only. Grades 9-12 will continue to use the growth calculation measure.

(ODE, p.6, 2006c)

APPENDIX C

University of Cincinnati School Preparation Questionnaire College of Allied Heath Sciences / Department Communication Sciences and Disorders Dawn M. Betts, M.A. CCC-SLP 513-405-xxxx (bettsdm@email.uc.edu)

Title of Study:

Exploring the Relationship between Language Skills, Reading Levels, and Ohio Graduation Test Performance in High School Students

- A. Does your school offer any OGT preparation?
 - (0) None (1) Course (2) Class built into student schedule
- B. Is an OGT preparation course mandatory for students to take?
 - (0) No (1) Yes
- C. For what subjects is OGT preparation designed?
 - (1) Reading (1) Math (1) Writing (1) Science (1) Soc. Studies
- D. Is it mandatory for teachers to incorporate OGT test preparation into their classes?

(0) No (1) Yes

- E. How frequent is OGT preparation completed?
 - (0) Never (1) Monthly (2) Weekly (3) Daily
- F. What types of materials are used for OGT preparation?
 - (0) None
 - (1) Curriculum materials
 - (2) Independently published prep materials (i.e. ETS)
 - (3) State published prep materials

APPENDIX D

University of Cincinnati Parent Permission for Child to Participate in a Research Study College of Allied Heath Sciences / Department Communication Sciences and Disorders Dawn M. Betts, M.A. CCC-SLP 513-405-xxxx (bettsdm@email.uc.edu)

Title of Study:

Exploring the Relationship between Language Skills, Reading Levels, and Ohio Graduation Test Performance in High School Students

Introduction:

I am looking for 52 10th grade students to take part in a research study. I am doing this project as part of a graduate school assignment. Please read this form carefully. Please ask me any questions about this form or my project. I have permission to find students at your child's school.

Purpose:

The purpose of this study is to understand how reading, writing, listening, and speaking skills affect your Ohio Graduation Test scores.

Duration:

Your child will participate for about 2 hours.

Procedures:

Your child will meet with me or a member of my research team. We will me at the UC speech and hearing clinic. We can also meet at a place that you choose. I will give them 3 formal assessments (2 for language and 1 for reading). I will compare their scores on the assessments to their OGT scores.

Risks/Discomforts:

There are no physical or economical risks if your child participates. If their assessment scores are lower than I expect I will refer them to their school specialist to determine if they need more academic help. This will be free to you and your child.

Benefits:

Your child will get free language and reading assessments. When they participate they will be helping researchers and teachers better understand how reading, writing, listening, and speaking skills affect OGT scores and why some students may be failing. There are no incentives for your child's participation.

Alternatives:

There are no other activities planned for students who do not participate in this study.

Confidentiality:

Your child's personal information will be kept in a locked drawer in my office. Only my faculty advisor, Dr. Creaghead, and I will be able to see it. Their name will not be on any papers. All their information will have "code names/numbers". When I am finished with my study, the information will be locked away for 3 years then shredded and thrown away. I may publish the information from the study but no one will ever know that your child participated.

Offer to Answer Questions:

If you have any questions about your child participating in this study, you may call me. My phone number is 405-xxxx. You can also call Dr. Nancy Creaghead. She is my advisor. Her phone number

is 558-8502. When your child participates, they have rights. If you have questions about their rights you can call the Chair of the Institutional Review Board – Social and Behavioral Sciences. That phone number is 558-5784.

Voluntary Participation:

Your child does NOT have to participate in this study. Their participation is completely voluntary. You may choose to not have them participate or they may quit participating AT ANY TIME.

Agreement:

I have read this permission form. I agree to have my child participate in this study. I will receive a copy of this form for my records.

My child's name

Parent/Legal Guardian Signature

Signature and Title of Person Obtaining Consent

Identification of Role in the Study

Date

Date

APPENDIX E

University of Cincinnati Child Assent to Participate in a Research Study College of Allied Heath Sciences /Department Communication Sciences & Disorders Dawn M. Betts, M.A. CCC-SLP 513-405-xxxx (<u>bettsdm@email.uc.edu</u>)

Title of Study:

Exploring the Relationship between Language Skills, Reading Levels, and Ohio Graduation Test Performance in High School Students

Introduction:

I am looking for 52 10th grade students to take part in a research study. I am doing this project as part of a graduate school assignment. Please read this form carefully. Please ask me any questions about this form or my project.

Purpose:

The purpose of this study is to understand how reading, writing, listening, and speaking skills affect your Ohio Graduation Test scores.

Duration:

You will participate for about 2 hours.

Procedures:

You will meet with me or a member of my research team. We will me at the UC speech and hearing clinic. We can also meet at a place that you choose. I will give you 3 formal assessments (2 for language and 1 for reading). I will compare your scores on the assessments to your OGT scores.

Risks/Discomforts:

There are no physical or economical risks if you participate. If your assessment scores are lower than I expect I will refer you to your school specialist to determine if you need more academic help. This will be free to you.

Benefits:

You will get free language and reading assessments. When you participate you will be helping researchers and teachers better understand how reading, writing, listening, and speaking skills affect your OGT scores and why some students may be failing. There are no incentives for your participation.

Alternatives:

There are no other activities planned if you do not want to participate.

Confidentiality:

Your personal information will be kept in a locked drawer in my office. Only my faculty advisor, Dr. Creaghead, and I will be able to see it. Your name will not be on any papers. All your information will have "code names/numbers". When I am finished with my study, the information will be locked away for 3 years then shredded and thrown away. I may publish the information from the study but no one will ever know that you participated.

Offer to Answer Questions:

If you have any questions about participating in this study, you may call me. My phone number is 405-xxxx. You can also call Dr. Nancy Creaghead. She is my advisor. Her phone number is 558-

8502. When you participate you have rights. If you have questions about your rights you can call the Chair of the Institutional Review Board – Social and Behavioral Sciences. That phone number is 558-5784.

Voluntary Participation:

You do NOT have to participate in this study. Your participation is completely voluntary. You may choose not to participate or you may quit participating AT ANY TIME.

PERMISSION:

IF YOU WANT TO PARTICIPATE AND YOU ARE UNDER 18 YEARS OLD, YOU <u>MUST</u> HAVE A PARENT PERMISSION FORM SIGNED BY YOUR PARENT/GUARDIAN.

Agreement:

I have read this consent form. I agree to participate in this study. I will receive a copy of this form for my records.

Participant Signature

Signature and Title of Person Obtaining Consent

Date

Date

Identification of Role in the Study

APPENDIX F

University of Cincinnati Consent to Participate in a Research Study College of Allied Heath Sciences / Department Communication Sciences and Disorders Dawn M. Betts, M.A. CCC-SLP 513-405-xxxx (bettsdm@email.uc.edu)

Title of Study:

Exploring the Relationship between Language Skills, Reading Levels, and Ohio Graduation Test Performance in High School Students

Introduction:

I am looking for 52 10th grade students to take part in a research study. I am doing this project as part of a graduate school assignment. Please read this form carefully. Please ask me any questions about this form or my project.

Purpose:

The purpose of this study is to understand how reading, writing, listening, and speaking skills affect your Ohio Graduation Test scores.

Duration:

You will participate for about 2 hours.

Procedures:

You will meet with me or a member of my research team. We will me at the UC speech and hearing clinic. We can also meet at a place that you choose. I will give you 3 formal assessments (2 for language and 1 for reading). I will compare your scores on the assessments to your OGT scores.

Risks/Discomforts:

There are no physical or economical risks if you participate. If your assessment scores are lower than I expect I will refer you to your school specialist to determine if you need more academic help. This will be free to you.

Benefits:

You will get free language and reading assessments. When you participate you will be helping researchers and teachers better understand how reading, writing, listening, and speaking skills affect your OGT scores and why some students may be failing. There are no incentives for your participation.

Alternatives:

There are no other activities planned if you do not want to participate.

Confidentiality:

Your personal information will be kept in a locked drawer in my office. Only my faculty advisor, Dr. Creaghead, and I will be able to see it. Your name will not be on any papers. All your information will have "code names/numbers". When I am finished with my study, the information will be locked away for 3 years then shredded and thrown away. I may publish the information from the study but no one will ever know that you participated.

Offer to Answer Questions:

If you have any questions about participating in this study, you may call me. My phone number is 405-xxxx. You can also call Dr. Nancy Creaghead. She is my advisor. Her phone number is 558-8502. When you participate you have rights. If you have questions about your rights you can call the Chair of the Institutional Review Board – Social and Behavioral Sciences. That phone number is 558-5784.

Voluntary Participation:

You do NOT have to participate in this study. Your participation is completely voluntary. You may choose not to participate or you may quit participating AT ANY TIME.

Agreement:

I have read this consent form. I agree to participate in this study. I will receive a copy of this form for my records.

Participant Signature

Date

Signature and Title of Person Obtaining Consent

Date

Identification of Role in the Study

APPENDIX G

University of Cincinnati Intake Form College of Allied Heath Sciences /Department Communication Sciences & Disorders Dawn M. Betts, M.A. CCC-SLP 513-405-xxxx (<u>bettsdm@email.uc.edu</u>)

Title of Study: Exploring the Relationship between Language Skills, Reading Levels, and Ohio Graduation Performance in High School Students	Test
Today's Date:	
Name: Last 4 digits of Social Security #:	
DOB: Age: Grade:	
Ethnicity: Afr.Am./BI AsianAm. Hispanic White Other:	
GPA:	
Please answer the following:	
-Are you 18 years or younger?Yes Network	0
-Do you have a hearing impairment?Yes No.	0
-Do you have a visual impairment (i.e. blindness)?Yes No	0
-Do you have or have you ever had a speech and/or language impairment?Yes No	0
-Do you have or have you ever had an IEP or 504 plan?Yes No	С
-Do you have a reading disability?Yes No	0
-Is English your second language?Yes No	0

To be answered following OGT results:

Reading		Writing		Math		Science		Social Studies	
Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Score:		Score:		Score:		Score:		Score:	
APPENDIX H

Alternative Routes to Graduation

Students meeting <u>all</u> of the following requirements may graduate with a state of Ohio diploma <u>without</u> passing all five sections of the OGT:

- Past four out of five tests and have missed passing the fifth test by no more than 10 points;
- Have had a 97% attendance rate through all four years of high school and must not have had an expulsion in high school;
- 3. Have a grade point average of at least 2.5 out of 4.0 in the subject area missed and have completed the curriculum requirement in the subject area missed;
- 4. Have participated in any intervention programs offered by the school and must have had a 97% attendance rate in any program offered outside the normal school day;
- 5. Obtain letters of recommendation from each teacher in the subject area not yet passed, as well as the principal.

(ODE, p.17, 2006a)

APPENDIX I

State of Ohio Curriculum Requirements

Students Graduating between 2007 and 2010

Curriculum Requirements State Minimum English Language Arts 4 units Health ½ unit Mathematics 3 units Physical Education ⅓ unit 3 units* Science Social Studies 3 units** Electives 6 units*** *Science units must include 1 unit of biological science and 1 unit of physical science. **Social studies units must include ½ unit of American history and ¹/₂ unit of American government. ***Electives units must include 1 unit or 2 half units in business/technology, fine arts or foreign language. (ODE, p.18, 2006a) Students Graduating in 2014 and after State Minimum Curriculum Requirements English Language Arts 4 units Health ½ unit Mathematics 4 units* Physical Education ½ unit Science 3 units**

> 3 units*** 5 units****

*Mathematics units must include 1 unit of Algebra II or its equivalent.

Social Studies

Electives

All science units must include a laboratory component and must include 1 unit of physical science, 1 unit of life science, and 1 unit of advanced science such as chemistry, physics or other physical science, advanced biology or other life science, astronomy, physical geology, or other space or earth science. *Social studies units must include ½ unit of American Government and ½ unit of American history.

****Electives must include one or any combination of foreign language, fine arts, business, career-technical education, family and consumer sciences, technology, agricultural education, or English language arts, mathematics, science, or social studies courses not otherwise specified.

(ORC ch. 3313, § 3313.603, 2007)

APPENDIX J

Ohio Graduation Test Achievement Levels

	Reading	Math	Writing	Science	Soc.Studies
Limited	<383	<384	<378	<372	<382
Basic	383	384	378	372	382
Proficient	400	400	400	400	400
Accelerated	429	425	430	425	429
Advanced	448	444	476	445	446

(ODE, 2008)

APPENDIX K School Profiles for the 2006-2007 School Year School A

School Designation: Continuous Improvement School Setting: Urban Enrollment: 440 Attendance Rate: 96.9% Graduation Rate: N/A

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
92.1%	N/A	N/A	N/A	N/A	5.3%

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
63.2	N/A	42.8	N/A

OGT Results

10^{th} Grade

Test	Percent of Students At or	Percent of Ohio Students At or
	ADOVE PROLICIENCY	ADOVE PROLICIENCY
Reading	74.2	86.9
Mathematics	49.2	81.2
Writing	86.4	89.2
Science	32.3	72.4
Social Studies	52.5	76.4

*State requirement is 75%

11	th	Gr	ade	2

II GIAGE					
Test	Percent of	Percent of Ohio			
	Students At or	Students At or			
	Above Proficiency	Above Proficiency			
Reading	70.0	92.8			
Mathematics	64.3	88.8			
Writing	73.2	93.4			
Science	47.2	83.6			
Social Studies	65.2	87.6			

*State requirement is 85%

School Designation: Effective
School Setting: Rural
Enrollment: 603
Attendance Rate: 92.4
Graduation Rate: 88.3

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
3.1	N/A	N/A	N/A	2.3	94

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
27.8	N/A	10	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	92.7	86.9		
Mathematics	88.2	81.2		
Writing	94.7	89.2		
Science	77.6	72.4		
Social Studies	78.3	76.4		

*State requirement is 75%

Test	Percent of Students At or	Percent of Ohio Students At or
	Above Proficiency	Above Proficiency
Reading	96.5	92.8
Mathematics	96.5	88.8
Writing	98.6	93.4
Science	92.3	83.6
Social Studies	90.8	87.6

^{*}State requirement is 85%

School Designation: Excellent School Setting: Suburban Enrollment: 2324 Attendance Rate: 95.9% Graduation Rate: 98.5%

Student Demographics by Percent Asian or Hispanic Multi-African American White Pacific American Indian Racial Islander or Native Alaskan 10.8 N/A 1.8 3.0 2.6 81.6

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
6.5	2.2	14.9	N/A

OGT Results

10th Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	93.4	86.9		
Mathematics	89.9	81.2		
Writing	94.2	89.2		
Science	79.4	72.4		
Social Studies	83.7	76.4		

*State requirement is 75%

11^{th} Grade

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	96.3	92.8
Mathematics	92.9	88.8
Writing	96.6	93.4
Science	87.0	83.6
Social Studies	92.2	87.6

^{*}State requirement is 85%

School Designation: Effective School Setting: Rural Enrollment: 376 Attendance Rate: 92.4% Graduation Rate: 79.6%

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
N/A	N/A	N/A	N/A	N/A	97.6

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
37.7	N/A	12.3	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	86.7	86.9	
Mathematics	83.1	81.2	
Writing	84.1	89.2	
Science	78.6	72.4	
Social Studies	77.4	76.4	

*State requirement is 75%

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	95.1	92.8
Mathematics	94.1	88.8
Writing	95.0	93.4
Science	85.1	83.6
Social Studies	84.2	87.6

^{*}State requirement is 85%

School Designation: Effective School Setting: Suburban Enrollment: 950 Attendance Rate: 94.2% Graduation Rate: 88.5%

Student Demographics by Percent Asian or Hispanic Multi-African American White Pacific American Indian Racial or Islander Native Alaskan N/A N/A 3.9 34.8 N/A 59.7

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
22.4	N/A	14.3	N/A

OGT Results

10th Grade

Percent of	Percent of Ohio		
Students At or	Students At or		
Above Proficiency	Above Proficiency		
93.0	86.9		
80.4	81.2		
92.4	89.2		
69.4	72.4		
75.2	76.4		
	Percent of Students At or Above Proficiency 93.0 80.4 92.4 69.4 75.2		

*State requirement is 75%

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	96.2	92.8
Mathematics	91.7	88.8
Writing	96.8	93.4
Science	87.9	83.6
Social Studies	86.6	87.6

^{*}State requirement is 85%

School Designation: Effective School Setting: Rural Enrollment: 770 Attendance Rate: 94.6% Graduation Rate: 92.5%

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
N/A	N/A	N/A	N/A	N/A	97.1

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
30.1	N/A	16.9	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	91.2	86.9	
Mathematics	87.8	81.2	
Writing	95.0	89.2	
Science	71.3	72.4	
Social Studies	77.3	76.4	

*State requirement is 75%

 11^{th} Grade

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	96.7	92.8
Mathematics	90.6	88.8
Writing	97.8	93.4
Science	87.8	83.6
Social Studies	91.1	87.6

^{*}State requirement is 85%

School Designation: Effective School Setting: Suburban Enrollment: 976 Attendance Rate: 94.3% Graduation Rate: 93.2%

beadene bemographics by rereene					
African American	American Indian or Native	Asian or Pacific Islander	Hispanic	Multi- Racial	White
	Alaskan				
71.5	N/A	N/A	1.2	3.0	23.8

Student Demographics by Percent

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
43.1	N/A	19.2	N/A

OGT Results

10^{th} Grade

Dorgont of		
Percent Or	Percent of Ohio	
Students At or	Students At or	
Above Proficiency	Above Proficiency	
84.0	86.9	
77.8	81.2	
92.0	89.2	
59.5	72.4	
66.2	76.4	
	Students At or Above Proficiency 84.0 77.8 92.0 59.5 66.2	

*State requirement is 75%

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	87.7	92.8	
Mathematics	82.3	88.8	
Writing	88.7	93.4	
Science	71.9	83.6	
Social Studies	81.8	87.6	

^{*}State requirement is 85%

School H

School Designation: Continuous Improvement School Setting: Suburban Enrollment: 750 Attendance Rate: 93.3 Graduation Rate: 88.9

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
71.3	N/A	N/A	N/A	4.1	23.9

Student Demographics by Percent

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
52.0	N/A	19.9	N/A

OGT Results

10^{th} Grade

Percent of Ohio	
At or	
iciency	
i	

*State requirement is 75%

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	88.9	92.8	
Mathematics	73.5	88.8	
Writing	90.6	93.4	
Science	70.9	83.6	
Social Studies	78.6	87.6	

^{*}State requirement is 85%

School Designation: Excellent School Setting: Rural Enrollment: 772 Attendance Rate: 94.2 Graduation Rate: 85.7

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
N/A	N/A	N/A	N/A	N/A	98.0

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
23.0	N/A	12.9	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	89.1	86.9		
Mathematics	90.5	81.2		
Writing	91.0	89.2		
Science	82.5	72.4		
Social Studies	83.6	76.4		

*State requirement is 75%

11^{th} Grade

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	89.7	92.8
Mathematics	89.7	88.8
Writing	92.4	93.4
Science	83.8	83.6
Social Studies	84.9	87.6

^{*}State requirement is 85%

School Designation: Effective School Setting: Suburban Enrollment: 1762 Attendance Rate: 94.1 Graduation Rate: 96.3

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African	American	Asian or	Hispanic	Multi-	White
American	Indian	Pacific Islander		Racial	
	Nativo	10101001			
	Alaskan				
54.0	N/A	2.9	3.3	2.4	37.4

Student Demographics by Percent

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
35.0	2.9	16.0	N/A

OGT Results

10^{th} Grade

Test	Percent of Students At or Above Proficiency	Percent of Ohio Students At or Above Proficiency
Reading	89.2	86.9
Mathematics	82.7	81.2
Writing	94.3	89.2
Science	75.6	72.4
Social Studies	81.6	76.4

*State requirement is 75%

 11^{th} Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	92.9	92.8		
Mathematics	90.3	88.8		
Writing	94.4	93.4		
Science	83.4	83.6		
Social Studies	91.0	87.6		

*State requirement is 85%

School Designation: Effective School Setting: Rural Enrollment: 555 Attendance Rate: 94.4 Graduation Rate: 95.5

Student Demographics by Percent

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
N/A	N/A	N/A	N/A	N/A	97.8

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
29.7	N/A	15.2	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	84.6	86.9		
Mathematics	84.6	81.2		
Writing	93.8	89.2		
Science	73.8	72.4		
Social Studies	83.1	76.4		

*State requirement is 75%

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	91.9	92.8	
Mathematics	93.2	88.8	
Writing	96.0	93.4	
Science	87.8	83.6	
Social Studies	93.2	87.6	

^{*}State requirement is 85%

School L

School Designation: Continuous Improvement School Setting: Urban Enrollment: 299 Attendance Rate: 95.6 Graduation Rate: N/A

African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
98.4	N/A	N/A	N/A	N/A	N/A

Student Demographics by Percent

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
13.7	N/A	N/A	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio		
	Students At or	Students At or		
	Above Proficiency	Above Proficiency		
Reading	N/A	86.9		
Mathematics	N/A	81.2		
Writing	N/A	89.2		
Science	N/A	72.4		
Social Studies	N/A	76.4		

*State requirement is 75%

Test	Percent of	Percent of Ohio	
	Students At or	Students At or	
	Above Proficiency	Above Proficiency	
Reading	N/A	92.8	
Mathematics	N/A	88.8	
Writing	N/A	93.4	
Science	N/A	83.6	
Social Studies	N/A	87.6	

^{*}State requirement is 85%

School Designation: Excellent School Setting: Urban Enrollment: 713 Attendance Rate: 97.5 Graduation Rate: 90.2

Student Demographics by Percent Asian or Hispanic Multi-African American White Pacific American Indian Racial or Islander Native Alaskan N/A N/A 94.5 N/A 2.0 3.0

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
49.7	N/A	15.7	N/A

OGT Results

10th Grade

Test	Percent of	Percent of Ohio				
	Students At or	Students At or				
	Above Proficiency	Above Proficiency				
Reading	93.3	86.9				
Mathematics	84.7	81.2				
Writing	98.9	89.2				
Science	77.5	72.4				
Social Studies	86.5	76.4				

*State requirement is 75%

11^{th} Grade

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	95.1	92.8
Mathematics	89.2	88.8
Writing	97.3	93.4
Science	88.1	83.6
Social Studies	89.7	87.6

^{*}State requirement is 85%

School Designation: Academic Watch School Setting: Urban Enrollment: 1099 Attendance Rate: 93.9 Graduation Rate: N/A

		eme gr apin			
African American	American Indian or Native Alaskan	Asian or Pacific Islander	Hispanic	Multi- Racial	White
95.0	N/A	N/A	N/A	1.9	2.3

Student Demographics by Percent

Economically Disadvantaged	Limited English Proficiency	Students with Disabilities	Migrant
59.0	N/A	32.9	N/A

OGT Results

10^{th} Grade

Test	Percent of	Percent of Ohio				
	Students At or Students A					
	Above Proficiency	Above Proficiency				
Reading	63.7	86.9				
Mathematics	51.0	81.2				
Writing	75.9	89.2				
Science	37.8	72.4				
Social Studies	45.7	76.4				

*State requirement is 75%

11th Grade

Test	Percent of	Percent of Ohio
	Students At or	Students At or
	Above Proficiency	Above Proficiency
Reading	74.5	92.8
Mathematics	63.5	88.8
Writing	85.7	93.4
Science	39.8	83.6
Social Studies	59.1	87.6

*State requirement is 85%

(ODE, 2007b)

APPENDIX L

Participant	1	2	3	4	5	6
#						
Pass/Fail	Fail	Pass	Pass	Pass	Pass	Pass
Gender	Female	Female	Female	Female	Female	Female
*Age	17:3	16:2	17:1	16:2	16:1	15:10
**Grade	10	10	10	10	10	10
Ethnicity	White	White	White	Black	Black	Black
School	Effective	Effective	Effective	Excellent	Excellent	Excellent
Rating						
School	Suburban	Suburban	Suburban	Urban	Suburban	Urban
Demographic						
Assessment						
Scores						
RLI	101	107	105	90	105	101
ELI	105	110	112	93	120	110
WD	11	14	15	7	14	12
HiL	109	122	105	65	113	92
SRQ	99	110	121	83	111	84
OGT Scores						
Reading	418	434	429	408	443	430
	Proficient	Accelerated	Accelerated	Proficient	Accelerated	Accelerated
Mathematics	408	448	430	417	404	428
	Proficient	Advanced	Accelerated	Proficient	Proficient	Accelerated
Writing	442	430	428	423	447	438
	Accelerated	Accelerated	Proficient	Proficient	Accelerated	Accelerated
Science	385	445	442	416	405	409
	Basic	Advanced	Accelerated	Proficient	Proficient	Proficient
Social	409	449	478	406	403	433
Studies	Proficient	Advanced	Advanced	Proficient	Proficient	Accelerated

Participant #	7	8	9	10	11	12
Pass/Fail	Pass	Pass	Pass	Fail	Pass	Fail
Gender	Female	Female	Female	Male	Male	Female
Age	15:10	15:8	16:7	15:10	15:11	16:4
Grade	10	10	10	10	10	10
Ethnicity	Black	Black	Black	Black	White	White
School	Excellent	Excellent	Effective	Continuous	Effective	Effective
Rating				Improvement		
School	Urban	Suburban	Suburban	Suburban	Suburban	Suburban
Demographic						
Assessment						
Scores						
RLI	109	109	107	101	99	119
ELI	114	118	110	108	98	108
WD	13	15	14	12	14	13
HiL	97	110	113	87	104	108
SRQ	98	112	101	100	100	113
OGT Scores						
Reading	434	426	455	412	419	423
	Accelerated	Proficient	Advanced	Proficient	Proficient	Proficient
Mathematics	420	491	424	429	427	401
	Proficient	Advanced	Proficient	Accelerated	Accelerated	Proficient
Writing	447	434	445	430	419	442
	Accelerated	Accelerated	Accelerated	Accelerated	Proficient	Accelerated
Science	432	442	436	378	419	389
	Accelerated	Accelerated	Accelerated	Basic	Proficient	Basic
Social	443	447	463	396	429	445
Studies	Accelerated	Advanced	Advanced	Basic	Accelerated	Accelerated

Participant	13	14	15	16	17	18
#						
Pass/Fail	Fail	Fail	Fail	Pass	Pass	Pass
Gender	Female	Male	Female	Male	Female	Male
Age	15:10	16:9	16:0	17:0	17:1	16:7
Grade	10	10	10	10	10	10
Ethnicity	Black	Black	White	Black	Black	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Suburban	Suburban	Suburban	Suburban	Suburban	Suburban
Demographic						
Assessment						
Scores						
RLI	96	109	99	115	96	99
ELI	105	110	112	118	112	114
WD	13	13	14	15	13	13
HiL	100	102	100	108	89	93
SRQ	98	91	100	105	105	95
OGT Scores						
Reading	419	428	423	463	421	409
	Proficient	Proficient	Proficient	Advanced	Proficient	Proficient
Mathematics	401	429	409	463	400	422
	Proficient	Accelerated	Proficient	Advanced	Proficient	Proficient
Writing	411	452	426	426	432	403
	Proficient	Accelerated	Proficient	Proficient	Accelerated	Proficient
Science	368	394	405	423	421	412
	Limited	Basic	Proficient	Proficient	Proficient	Proficient
Social	390	422	373	426	433	445
Studies	Basic	Proficient	Limited	Proficient	Accelerated	Accelerated

Participant	19	20	21	22	23	24
#						
Pass/Fail	Pass	Fail	Pass	Fail	Pass	Fail
Gender	Female	Female	Female	Female	Female	Male
Age	16:7	16:0	16:7	16:2	16:5	16:4
Grade	10	10	10	10	10	10
Ethnicity	White	Black	White	White	Black	Black
School	Effective	Effective	Effective	Effective	Continuous	Continuous
Rating					Improvement	Improvement
School	Suburban	Suburban	Suburban	Suburban	Urban	Urban
Demographic						
Assessment						
Scores						
RLI	101	94	105	101	105	98
ELI	114	105	112	114	120	105
WD	13	14	14	12	13	11
HiL	110	87	108	119	108	88
SRQ	105	70	115	85	95	89
OGT Scores						
Reading	416	418	422	432	436	384
	Proficient	Proficient	Proficient	Accelerated	Accelerated	Basic
Mathematics	439	397	452	419	445	398
	Accelerated	Basic	Advanced	Proficient	Advanced	Basic
Writing	436	434	452	426	413	Did Not
	Accelerated	Accelerated	Accelerated	Proficient	Proficient	Attempt
Science	419	412	429	394	416	334
	Proficient	Proficient	Accelerated	Basic	Proficient	Limited
Social	428	449	416	409	443	417
Studies	Proficient	Advanced	Proficient	Proficient	Accelerated	Proficient

Participant	25	26	27	28	29	30
#						
Pass/Fail	Fail	Fail	Fail	Fail	Pass	Pass
Gender	Female	Female	Female	Female	Male	Female
Age	15:10	15:8	16:5	15:7	15:9	17:0
Grade	10	10	10	10	10	10
Ethnicity	Black	Black	Black	Black	Black	Black
School	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Rating	Improvement	Improvement	Improvement	Improvement	Improvement	Improvement
School	Urban	Urban	Urban	Urban	Urban	Urban
Demographic						
Assessment						
Scores						
RLI	112	101	76	94	107	98
ELI	118	101	91	96	108	108
WD	14	10	10	6	15	12
HiL	99	87	72	80	110	103
SRQ	98	71	87	84	121	113
OGT Scores						
Reading	410	401	411	397	442	420
	Proficient	Proficient	Proficient	Basic	Accelerated	Proficient
Mathematics	428	409	392	398	456	427
	Accelerated	Proficient	Basic	Basic	Advanced	Accelerated
Writing	442	401	406	379	430	406
	Accelerated	Proficient	Proficient	Basic	Accelerated	Proficient
Science	393	371	354	374	412	402
	Basic	Limited	Limited	Basic	Proficient	Proficient
Social	428	382	370	362	435	433
Studies	Proficient	Basic	Limited	Limited	Accelerated	Accelerated

Participant	31	32	33	34	35	36
#						
Pass/Fail	Pass	Pass	Fail	Fail	Pass	Fail
Gender	Female	Male	Female	Female	Male	Female
Age	15:9	16:7	16:9	15:11	16:7	17:1
Grade	11	11	11	11	11	11
Ethnicity	Black	Black	Black	Black	White	White
School	Excellent	Effective	Continuous	Continuous	Excellent	Excellent
Rating			Improvement	Improvement		
School	Urban	Suburban	Urban	Urban	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	105	103	90	72	103	105
ELI	112	120	96	114	116	110
WD	14	13	9	9	11	15
HiL	102	108	82	77	118	98
SRQ	101	107	66	75	127	103
OGT Scores						
Reading	423	432	417	390	444	409
	Proficient	Accelerated	Proficient	Basic	Accelerated	Proficient
Mathematics	434	455	398	390	474	392
	Accelerated	Advanced	Basic	Basic	Advanced	Basic
Writing	426	457	425	411	438	413
	Proficient	Accelerated	Proficient	Proficient	Accelerated	Proficient
Science	407	430	376	359	451	405
	Proficient	Accelerated	Basic	Limited	Advanced	Proficient
Social	406	429	368	387	443	403
Studies	Proficient	Accelerated	Limited	Basic	Accelerated	Proficient

Participant	37	38	39	40	41	42
#						
Pass/Fail	Pass	Pass	Fail	Fail	Fail	Pass
Gender	Female	Female	Female	Male	Female	Female
Age	16:11	16:6	17:1	16:1	17:4	17:0
Grade	11	11	12	11	11	11
Ethnicity	White	White	White	White	White	White
School	Excellent	Excellent	Excellent	Excellent	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	115	107	86	96	86	86
ELI	118	110	98	110	95	99
WD	15	13	13	13	9	6
HiL	116	107	93	97	77	80
SRQ	125	121	83	113	87	89
OGT Scores						
Reading	456	432	411	427	419	419
	Advanced	Accelerated	Proficient	Proficient	Proficient	Proficient
Mathematics	466	481	419	438	424	416
	Advanced	Advanced	Proficient	Accelerated	Proficient	Proficient
Writing	445	440	434	421	350	423
	Accelerated	Accelerated	Accelerated	Proficient	Limited	Proficient
Science	446	432	396	398	385	403
	Advanced	Accelerated	Basic	Basic	Basic	Proficient
Social	457	437	416	428	396	409
Studies	Advanced	Accelerated	Proficient	Proficient	Basic	Proficient

Participant	43	44	45	46	47	48
#						
Pass/Fail	Fail	Fail	Pass	Pass	Pass	Pass
Gender	Male	Female	Male	Female	Female	Female
Age	16:4	16:2	16:9	16:11	16:3	16:10
Grade	11	11	11	11	11	11
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	101	94	112	101	99	94
ELI	95	108	114	118	112	101
WD	13	8	11	13	12	9
HiL	82	78	102	105	103	86
SRQ	91	81	107	125	93	77
OGT Scores						
Reading	409	406	430	461	421	430
	Proficient	Proficient	Accelerated	Advanced	Proficient	Accelerated
Mathematics	452	409	459	454	442	422
	Advanced	Proficient	Advanced	Advanced	Accelerated	Proficient
Writing	395	426	430	438	423	434
	Basic	Proficient	Accelerated	Accelerated	Proficient	Accelerated
Science	418	396	464	446	440	451
	Proficient	Basic	Advanced	Advanced	Accelerated	Advanced
Social	416	396	433	447	457	429
Studies	Proficient	Basic	Accelerated	Advanced	Advanced	Accelerated

Participant	49	50	51	52	53	54
#						
Pass/Fail	Pass	Fail	Fail	Pass	Pass	Fail
Gender	Male	Female	Female	Female	Female	Female
Age	16:4	16:7	16:2	17:11	17:6	16:2
Grade	11	11	11	11	11	11
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	103	98	103	98	107	94
ELI	105	99	114	108	110	103
WD	6	9	12	12	12	8
HiL	84	93	93	86	82	108
SRQ	107	89	81	95	101	79
OGT Scores						
Reading	416	436	426	433	458	415
	Proficient	Accelerated	Proficient	Accelerated	Advanced	Proficient
Mathematics	422	418	425	473	423	416
	Proficient	Proficient	Proficient	Advanced	Proficient	Proficient
Writing	428	428	426	451	446	430
	Proficient	Proficient	Proficient	Accelerated	Accelerated	Accelerated
Science	412	393	398	423	433	391
	Proficient	Basic	Basic	Proficient	Accelerated	Basic
Social	400	403	414	417	417	377
Studies	Proficient	Proficient	Proficient	Proficient	Proficient	Limited

Participant	55	56	57	58	59	60
#						
Pass/Fail	Fail	Pass	Pass	Pass	Fail	Fail
Gender	Male	Male	Female	Male	Female	Female
Age	18:2	18:4	18:2	16:10	16:5	17:0
Grade	12	12	12	11	11	11
Ethnicity	White	White	White	White	White	Black
School	Effective	Effective	Effective	Effective	Effective	Academic
Rating						Watch
School	Rural	Rural	Rural	Rural	Rural	Urban
Demographic						
Assessment						
Scores						
RLI	105	107	101	115	107	88
ELI	112	103	93	124	101	112
WD	9	13	13	14	11	10
HiL	97	102	103	122	97	86
SRQ	105	108	121	135	100	100
OGT Scores						
Reading	439	428	448	448	398	421
	Accelerated	Proficient	Advanced	Advanced	Basic	Proficient
Mathematics	429	420	456	448	405	375
	Accelerated	Proficient	Advanced	Advanced	Proficient	Limited
Writing	391	422	470	442	426	411
	Basic	Proficient	Accelerated	Accelerated	Proficient	Proficient
Science	415	429	441	479	393	356
	Proficient	Accelerated	Accelerated	Advanced	Basic	Limited
Social	420	432	478	451	417	388
Studies	Proficient	Accelerated	Advanced	Advanced	Proficient	Basic

Participant	61	62	63	64	65	66
#						
Pass/Fail	Fail	Pass	Pass	Fail	Pass	Fail
Gender	Female	Male	Female	Male	Male	Male
Age	18:3	16:10	17:0	17:5	17:0	17:7
Grade	12	11	11	11	11	12
Ethnicity	White	White	White	Black	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Suburban	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	86	94	117	92	117	66
ELI	95	96	103	103	110	80
WD	9	13	14	10	14	11
HiL	87	100	108	84	102	74
SRQ	81	100	101	103	89	96
OGT Scores						
Reading	401	430	450	412	432	405
	Proficient	Accelerated	Advanced	Proficient	Accelerated	Proficient
Mathematics	389	445	477	418	416	413
	Basic	Advanced	Advanced	Proficient	Proficient	Proficient
Writing	416	426	457	416	434	401
	Proficient	Proficient	Accelerated	Proficient	Accelerated	Proficient
Science	370	427	457	390	457	391
	Limited	Accelerated	Advanced	Basic	Advanced	Basic
Social	384	437	449	397	449	395
Studies	Basic	Accelerated	Advanced	Basic	Advanced	Basic

Participant	67	68	69	70	71	72
#						
Pass/Fail	Fail	Pass	Pass	Pass	Fail	Fail
Gender	Male	Female	Female	Female	Male	Male
Age	17:6	18:3	17:2	16:6	18:2	17:2
Grade	12	12	11	11	12	12
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	92	98	109	88	86	70
ELI	110	108	110	110	80	87
WD	11	11	12	12	8	7
HiL	74	98	100	105	65	75
SRQ	70	69	109	99	<55	77
OGT Scores						
Reading	380	435	448	427	424	380
	Limited	Accelerated	Advanced	Proficient	Proficient	Limited
Mathematics	413	400	459	471	412	401
	Proficient	Proficient	Advanced	Advanced	Proficient	Proficient
Writing	397	433	419	447	430	406
	Basic	Accelerated	Proficient	Accelerated	Accelerated	Proficient
Science	391	426	442	432	408	382
	Basic	Accelerated	Accelerated	Accelerated	Proficient	Basic
Social	377	413	475	437	394	343
Studies	Limited	Proficient	Advanced	Accelerated	Basic	Limited

Participant	73	74	75	76	77	78
#						
Pass/Fail	Fail	Fail	Pass	Pass	Pass	Pass
Gender	Male	Male	Female	Male	Male	Male
Age	18:1	16:6	17:0	17:3	16:11	16:9
Grade	12	11	11	11	11	11
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	103	94	94	103	121	112
ELI	105	101	105	116	108	114
WD	13	9	13	15	13	12
HiL	84	78	123	99	105	108
SRQ	87	84	101	119	101	111
OGT Scores						
Reading	412	387	440	417	438	416
	Proficient	Basic	Accelerated	Proficient	Accelerated	Proficient
Mathematics	429	409	437	453	452	468
	Accelerated	Proficient	Accelerated	Advanced	Advanced	Advanced
Writing	419	392	452	403	423	423
	Proficient	Basic	Accelerated	Proficient	Proficient	Proficient
Science	398	352	421	440	442	402
	Basic	Limited	Proficient	Accelerated	Accelerated	Proficient
Social	428	383	451	481	447	414
Studies	Proficient	Basic	Advanced	Advanced	Advanced	Proficient

Participant	79	80	81	82	83	84
#						
Pass/Fail	Fail	Pass	Fail	Pass	Pass	Pass
Gender	Female	Male	Male	Female	Female	Male
Age	17:0	17:1	16:7	17:0	17:3	17:5
Grade	11	11	11	11	11	11
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	98	112	103	96	98	88
ELI	99	118	116	98	108	107
WD	11	15	14	10	13	9
HiL	85	118	108	88	86	84
SRQ	79	117	82	107	57	105
OGT Scores						
Reading	422	446	417	437	429	428
	Proficient	Accelerated	Proficient	Accelerated	Accelerated	Proficient
Mathematics	434	452	406	427	459	498
	Accelerated	Advanced	Proficient	Accelerated	Advanced	Advanced
Writing	434	440	410	426	430	434
	Accelerated	Accelerated	Proficient	Proficient	Accelerated	Accelerated
Science	393	464	396	429	407	421
	Basic	Advanced	Basic	Accelerated	Proficient	Proficient
Social	390	478	355	429	424	441
Studies	Basic	Advanced	Limited	Accelerated	Proficient	Accelerated

Participant	85	86	87	88	89	90
#						
Pass/Fail	Fail	Pass	Pass	Pass	Pass	Fail
Gender	Female	Female	Female	Female	Female	Male
Age	18:3	17:3	16:7	17:8	17:1	18:7
Grade	12	11	11	12	11	12
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	90	101	105	115	98	82
ELI	103	114	105	116	110	95
WD	9	10	13	15	10	10
HiL	74	103	103	108	103	95
SRQ	99	102	100	101	103	89
OGT Scores						
Reading	417	422	440	435	433	407
	Proficient	Proficient	Accelerated	Accelerated	Accelerated	Proficient
Mathematics	376	433	433	452	442	425
	Limited	Accelerated	Accelerated	Advanced	Accelerated	Accelerated
Writing	430	442	442	437	442	416
	Accelerated	Accelerated	Accelerated	Accelerated	Accelerated	Proficient
Science	383	430	436	429	434	414
	Basic	Accelerated	Accelerated	Accelerated	Accelerated	Proficient
Social	386	414	429	418	439	392
Studies	Basic	Proficient	Accelerated	Proficient	Accelerated	Basic

Participant	91	92	93	94	95	96
#						
Pass/Fail	Pass	Pass	Pass	Pass	Pass	Fail
Gender	Female	Female	Female	Female	Female	Male
Age	17:1	16:5	16:5	17:2	17:1	16:4
Grade	11	11	11	11	11	11
Ethnicity	White	White	White	White	White	White
School	Effective	Effective	Effective	Effective	Effective	Effective
Rating						
School	Rural	Rural	Rural	Rural	Rural	Rural
Demographic						
Assessment						
Scores						
RLI	107	115	109	86	96	98
ELI	112	120	124	103	116	105
WD	13	15	17	12	14	8
HiL	103	135	119	108	101	82
SRQ	89	119	105	113	113	61
OGT Scores						
Reading	424	448	437	413	448	417
	Proficient	Advanced	Accelerated	Proficient	Advanced	Proficient
Mathematics	434	439	474	418	486	441
	Accelerated	Accelerated	Advanced	Proficient	Advanced	Accelerated
Writing	430	452	434	430	469	400
	Accelerated	Accelerated	Accelerated	Accelerated	Accelerated	Proficient
Science	410	434	434	414	448	380
	Proficient	Accelerated	Accelerated	Proficient	Advanced	Basic
Social	422	449	449	426	455	392
Studies	Proficient	Advanced	Advanced	Proficient	Advanced	Basic

(ODE, 2007b; ODE, 2008)