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Differences in Reading Skills by Ethnicity/Race for Texas High School Students: A Statewide, Multiyear Examination

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Keywords: critical -thinking skills, ethnicity/race, exit level, literacy, reading skills.

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Differences in Reading Skills by Ethnicity/Race for Texas High School Students: A Statewide, Multiyear Examination

Lee Alan Wright [α], John R. Slate [σ] & George W. Moore [ρ]

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I. Introduction

Although ethnic achievement gaps have narrowed considerably in the last one-half century, White students continue to score 0.75 standard deviations above Black and Hispanic students in reading while Asian students continue to post higher overall scores than White students on state assessments (Reardon, 2011; Reardon, Valentino, Kalogrides, Shore, & Greenberg, 2013; Texas Education Agency Academic Excellence Indicator System, 2005, 2007, 2009, 2011; Texas Education Agency Texas Academic Performance Report, 2014). Of the 5,135,880 students enrolled in public schools in Texas during the 2013-2014 school year, the majority student population was Hispanic at 51.8% (Texas Education Agency Texas Academic Performance Report, 2014). White students comprised 29.4%, Black students 12.7%, and Asian students 3.7% of the total student enrollment (Texas Education Agency Texas Academic Performance Report, 2014). Although the Hispanic population has increased from 2004-2005 to 2013-2014 (44.7% to 51.8%), Hispanic student achievement on state assessments has remained near the bottom of the four ethnic/racial groups (Texas Education Agency Academic Excellence Indicator System, 2005, 2012; Texas Education Agency Texas Academic Performance Report, 2014).

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White students consistently scored 5-8% higher than Hispanic students on state high school Exit Level English Language Arts assessments during the 2004-2005 through the 2013-2014 school years and 4-10% higher than Black students (Texas Education Agency Academic Excellence Indicator System, 2005, 2007, 2009, 2011; Texas Education Agency Texas Academic Performance Report, 2014). Asian students scored 1-3% below White students with just a slight change (+0.7%) in their percentage of state enrollment (Texas Education Agency Academic Excellence Indicator System, 2005, 2007, 2009, 2011; Texas Education Agency Texas Academic Performance Report, 2014). However, Asian students did achieve a higher Commended percentage than White students (43% to 33%) and far exceeded Hispanic (17%) and Black (14%) Commended scores (Texas Education Agency Texas Academic Performance Report, 2014).

II. Literacy and Reading Skills

Reading comprehension as a skill has noteworthy merit for students at all levels of education because it advances opportunities to learn in other subjects (Grimm, 2008). Just as improving reading skills can advance a students' progress through multiple levels of schooling, students who are not proficient readers often experience negative effects outside the classroom, as well (Grimm, 2008). Snow, Burns, and Griffin (1998) commented that students who are struggling to read at the level of their peers frequently also exhibit lower performance in other academic subjects. Benner, Nelson, Stage, and Ralston (2011) discussed less than proficient nationwide outcomes in reading and declared that "reading achievement remains a critical priority to schools" (p. 79).

Fuchs, Fuchs, and Kazdan (1999) noted that in secondary grade levels, little time or effort is devoted to teaching basic reading skills to students, and the achievement gap continues to exist and even get larger. Goldman (2012) suggested that secondary teachers' focus on course content over skills has led to many teachers "de-emphasizing the literacy practices central to comprehending the content" (p. 93). Most secondary teachers lack the skills and resources to teach students to read effectively, but inferred that lessons created and taught by teachers should have a balance between emphasizing content knowledge and the advancement

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of literacy (Goldman, 2012). Teachers often focused on creating lessons aligned to course curriculum documents related to content standards and did not generally allocate time to provide direct instruction for basic reading skills (Mercer, Campbell, Miller, Mercer, & Lane, 2000; Salinger, 2003).

McArdle and Hamagami (2001) established that students who are not proficient readers are more prone to disciplinary actions and problems related to inappropriate behavior in school. Students who struggle with reading comprehension in school were more apt to drop out of school and to remain in lower wage jobs for the majority of their lives (U.S Department of Education, 2003). Sadly, long-term consequences for struggling readers include poor performance in school, less motivation to read and continue learning, and less self-confidence (Armbuster, Lehr, & Osborn, 2001).

III. Critical-Thinking Skills

Aloqaili (2012) concluded that an interdependent relationship exists between students' reading comprehension abilities and their critical-thinking skills. Elder and Paul (2013) defined critical thinking as "the art of analyzing and evaluating thinking with a view to improving it" and summed that critical thinking "attempts to reason at the highest level of quality" (p. 17). Wright and Slate (2015) indicated that as reading skills and critical thinking become more central features of the learning process after elementary school grades, the achievement gap becomes more apparent. Critical-thinking skills are measured on state assessments in Grades 3-8 on only one of four reading objectives, but once students begin high school, two of the three reading objectives assess students' critical-thinking skills (Texas Education Agency Student Assessment Division, 2004). Goldman (2012) proclaimed that the teacher bears the burden of refining students' critical-thinking skills.

Limbach and Waugh (2010) and Zabit (2010) discussed relating certain ideas, such as prior knowledge, making inferences, and critical-thinking skills to reading comprehension. Facione (1984, 2015) declared that arguments are evaluated and defended using critical-thinking skills, which is a key component of the comprehension of what one reads. Beck (1989) asserted "there is no reading without reasoning" which strengthens the argument for interdependence (p. 677). Furthermore, Broek and Kremer (2000) suggested that connections existed between critical thinking and making inferences which promoted increased comprehension in reading. Aloqaili (2012) summed up his research on critical thinking and the relationship to reading comprehension when he proclaimed that "comprehension itself has been seen as a critical-thinking process" (p. 38).

IV. Ethnicity

Hawley and Nieto (2010) pronounced that ethnicity/race affects learning opportunities and how students respond to classroom instruction. A common misconception, according to Hawley and Nieto (2010), is that the successful instructional strategies for Asian and White students will work for Black and Hispanic students, if only those strategies are used with more frequency. Black and Hispanic students nationwide were four grade levels behind White students in academic achievement by Grade 12, a widening of the two grade level gap from Grade 4 (U.S. Department of Education, 2000). Barnes and Slate (2014) reported that for the academic year 2006-2007, college readiness among all students was 44.76%, with White students being higher (53.21%), Hispanic students being lower (37.04%), and Black students being lowest (33.97%).

Ethnic achievement gaps differ as students progress through each grade with the Black-White gap widening, the Hispanic-White gap narrowing, and the Asian-White gap closely aligned (Lee, 2002). Ang (2014) compared existing achievement gaps between Hispanic and White students and Black and White students, which originate in the early grades. Many Hispanic and Black students begin their educational career academically behind White students (Ang, 2014; Lee, 2002; Reardon & Galindo, 2008).

Davis-Kean and Sexton (2009) contended that Asian students have more emphasis placed on educational involvement in the home over other ethnic groups. Parents of Asian students are more involved in students' homework and attend school functions with more frequency than parents of other ethnic groups (Davis-Kean & Sexton, 2009). Additionally, Davis-Kean and Sexton (2009) remarked that a strong predictor for student academic achievement is the level of parental involvement.

Reardon, Valentino, and Shores (2012) commented that the gap in reading skills between Black and White students has decreased over time, narrowing by as much as 50% from 1970 to 2008. Since 1990, the Black-White reading gap fluctuated with a wider gap in the beginning of the 1990's decade and a slow narrowing for the next 18 years (Lee, 2002; Reardon et al., 2012). Interestingly, achievement gaps between Blacks and Whites grow the most during the first six years of school (Reardon et al., 2013). Therefore a downward trend in academic achievement among Black students compared to Whites in elementary grades is followed by an upward trend in intermediate and high school grades (Reardon et al., 2013). This achievement gap widens in the early years much further than it closes in the latter years; if the gap could narrow in the early school years as opposed to widening, the chances increase for continued narrowing of the Black-White gap after completion of elementary school. Barnes and

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Slate (2014) documented thatd from 2002 to 2009, the White-Black college-readiness gap in Texas increased from 15% to 21%.

Ang (2014) attributed the narrowing of the Hispanic-White achievement gap to the efforts and progress made during early schooling as Hispanic students engage in more English language acquisition. Hispanic students' academic growth has been hindered by high student mobility rates as parents have moved in search of steady employment (Ang, 2014). Not only academic achievement gaps have developed though, as challenges exist in student motivation among Hispanic students. Additional conclusions by Ang (2014) were that even though parents may move for work, "it is not parents' values or behaviors that drive the achievement gap between Hispanics and Whites" (para. 11).

Hispanic students comprised 16% of the nation's population and are the second largest racial/ethnic group in the United States, only behind Whites (U.S. Department of Education, 2011). Although Hispanic students in several states closed the reading gap in small 2-3 year periods, the overall reading gap between Hispanic and White students had not changed in any state by 2009 compared to National Center for Educational Statistics data collected in 1998 (U.S. Department of Education, 2011). Hispanic students were 17% below White students during the years 2002 to 2009, a clear indicator of an ethnic gap, yet also displayed the gap did not grow during that time (Barnes & Slate, 2014). Additionally, Lee (2002) affirmed a stable three-decade gap related to Hispanic-White achievement. Hispanic students also experienced similar trends in their reading gap between themselves and White students during the 40 years prior to 2008 (Reardon et al., 2012).

Problems discussed by Valenzuela (1999) centered on the idea that lack of caring relationships between ethnic minority students and teaching staff, as well as the structure of educational organizations are more negatively influential than students' ethnicity/race or even socioeconomic status. Hawley and Nieto (2010) suggested to build trusting relationships between students of ethnic/racial minorities and staff, professional learning communities are effective to "provide the structure, shared respect, and trust needed for collaboratively addressing" the issue facing achievement (p. 70). Hawley and Nieto (2010) encouraged educational leaders and teachers to improve relationships and positively affect academic achievement by: (a) consistently communicating and learning about students' families, (b) becoming familiar with available community resources, and (c) engaging families about the education of their child and seek ways to provide a culturally enriching curriculum. Hildalgo, Sui, and Epstein (2004) espoused for educators to listen to the families about what they want their child's educational experience to provide.

Davis-Kean and Sexton (2009) commented that cultural parenting beliefs may play a factor in reading achievement among all ethnic groups. Bradley and Corwyn (2002) and Lee (2002) discussed difficulties analyzing differences among student academic performance by ethnicity/race. Research challenges emerged when determining if reading gaps were present related to racial/ethnic trends or socioeconomic differences between minority student groups and White student groups (Bradley & Corwyn, 2002; Lee, 2002). Factors determined by Lee (2002) that also affected the ethnic achievement gap included: (a) economic status, (b) student motivation, (c) school culture and conditions, (d) alcohol or drug use, (e) crime, and (f) instructional resources. To reach and teach students of ethnic minorities more effectively, Hawley and Nieto (2010) suggested educators adhere to the following steps: (a) gain an understanding into how ethnic differences impact learning outcomes, (b) learn and utilize culturally responsive instructional strategies, and (c) promote social conditions on campus that support the individual needs of each student.

V. Statement of the Problem

School districts and campuses in Texas have focused efforts in the 21st century on differences in student performance by ethnicity/race among other concerns. Campus accountability ratings under the No Child Left Behind Act of 2001 (NCLB) were partially determined by student growth in poorly performing demographic groups (U.S. Department of Education, Office of the Under Secretary, 2003). When accountability measures are considered, whether achievement gaps have developed between ethnic/racial groups over time is important and if those gaps have narrowed, widened, closed, or stagnated. A common problem cited by researchers examining student performance by ethnicity/race is that other factors within each ethnic group, or common across all, seem to affect results more than the students' ethnicity/race itself (Bradley & Corwin, 2002; Davis-Kean & Sexton, 2009; Hawley & Nieto, 2010; Valenzuela, 1999).

a) Purpose of the Study

The purpose of this study was to examine the extent to which differences were present in student academic achievement in reading among Texas high school students as a function of their ethnicity/race. Specifically, each year of the Texas Assessment of Knowledge and Skills (TAKS) Exit Level English Language Arts assessment data was examined separately to determine whether differences were present in academic achievement among four ethnic/racial groups (Asian, White, Hispanic, and Black). Finally, the extent to which a trend was present in reading skills among students in these four ethnic/racial groups was determined.

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b) Significance of the Study

This study will provide essential information on the differences between reading skills among student of different ethnic/racial groups (i.e., Asian, White, Hispanic, and Black). Research gathered and synthesized in this study will offer educational leaders more insight into the trials they face regarding differences in student reading achievement by ethnicity/race. Ideally, these research findings could assist policymakers in local or state education agencies in their search to provide a culturally responsive and diverse educational experience for students in all ethnic/racial groups. Additional research could be beneficial regarding the variety of reading skills, from basic understanding and reading comprehension skills to higher-order critical-thinking skills, and the effect that differences in ethnicity/race has on these required skills. Conclusions from this study may create awareness related to differences that exist on high school state assessments as a function of ethnicity/race and their levels of reading skills.

Students of each ethnic/racial group advance from Kindergarten through Grade 12 with different expectations at each level. In the early grade levels, curriculum standards are created that promote basic reading skills and phonetic awareness (Feldman, 2015; Joseph 2008). Once students move past Grade 2, learning expectations change to where students are reading to learn using basic reading skills to examine and analyze various culturally diverse texts (Feldman, 2015). During this time, many ethnic/racial differences are apparent between Hispanic and White students and between Black and White students, as reported by Ang (2014).

Differences in the achievement of student demographic populations are delineated by local and state education agencies using state assessment data. As students complete elementary school and move into intermediate grade levels (Grades 5-8), the expectation is that each student should be able to demonstrate basic reading comprehension skills. Those reading skills also provide opportunities for the improvement of students' thinking and processing skills. To meet the standard of the Exit Level English Language Arts exam and eventually graduate, students must demonstrate mastery of the content and skills outlined in the three TAKS Objectives for the assessment:

Objective 1: The student will demonstrate a basic understanding of culturally diverse written texts; *Objective 2:* The student will demonstrate an understanding of the effects of literary elements and techniques in culturally diverse written texts; and *Objective 3:* The student will demonstrate the ability to analyze and critically evaluate culturally diverse written texts and visual representations. (Texas Education Agency Student Assessment Division TAKS Information Booklet, 2004, p. 5)

VI. Research Questions

The following overarching research question was addressed in this investigation: What is the difference in the reading skills of Texas high school students as a function of ethnicity/race for the 2004-2005 school year? Specific sub questions under this overarching research question were: (a) What is the difference in basic understanding of written texts of Texas high school students as a function of ethnicity/race for the 2004-2005 school year?; (b) What is the difference in understanding of literary elements and techniques of Texas high school students as a function of ethnicity/race for the 2004-2005 school year?; (c) What is the difference in analysis and critical evaluation of written texts of Texas high school students as a function of ethnicity/race for the 2004-2005 school year?; and (d) What is the extent to which a trend is present in the reading skills of Texas high school students as a function of ethnicity/race for the 2004-2005 through the 2011-2012 school years? Each of the first three research questions was repeated for each of the 8 school years whereas the last research question, a trend question, was repeated for the three reading objectives. Thus, a total of 27 research questions constituted this research investigation.

VII. Method

a) Research Design

Acausal comparative longitudinal investigation research design (Johnson, 2001) was used for this study. Independent variables have already occurred in this study design and extraneous variables were not controlled. Past assessment results were represented by the archival data that were utilized (Johnson & Christensen, 2012).As such, the independent variables involved in this research article were student ethnic/racial groupings (i.e., Asian, White, Hispanic, and Black) and the three dependent variables were the TAKS Exit Level English Language Arts scores in the three reading objectives for the 2004-2005 through the 2011-2012 school years.

b) Participants and Instrumentation

For all students who took the TAKS Exit Level English Language Arts exam for the 2004-2005 through the 2011-2012 school years, archival data were obtained from the Texas Education Agency Public Education Information Management System. Information was requested using a Public Information Request form to obtain these data for a Basic Statistics course. Objectives 1-3 scores derived from the TAKS Exit Level English Language Arts reading objectives were analyzed. Within Objectives 2 and 3 of the TAKS Exit Level English Language Arts exam are expectations for students related to the demonstration of critical-thinking skills. Students are required to make connections

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between information previously learned and new information presented on the exam, and then students are expected to use critical-thinking skills to make predictions (Texas Education Agency Curriculum Assessment, and Technology, 2002, p. 2). Contained in the Exit Level English Language Arts exam are eight multiple choice questions each for Objective 1 (reading - basic understanding) and 2 (reading – literary elements and techniques), with one short-answer response requirement in Objective 2 (Texas Education Agency Curriculum, Assessment and Technology, 2002). Twelve multiple choice items on the assessment pertain to Objective 3 (reading – analysis and critical evaluation) as well as two short-answer items (Texas Education Agency Curriculum, Assessment and Technology, 2002).

Furthermore, students are asked to make connections between literature and "historical contexts and current events" and to use various written texts to compare and contrast items (Texas Education Agency Curriculum Assessment, and Technology, 2002, p. 2). State exit level assessments align with high school content and thinking standards (Texas Essential Knowledge and Skills) and both require students to "explore literary and expository texts with a greater depth of understanding" (Texas Education Agency Student Assessment Division, 2004, p. 4). Included in the assessment is the expectation for students to use critical-thinking skills to analyze "how literary elements and techniques contribute to a text's meaning" and to make connections between previously learned knowledge and different written texts (Texas Education Agency Student Assessment Division, 2004, p. 4). Readers are directed to the Texas Education Agency website for information regarding the score reliability and score validity of this assessment.

VIII. Results

Results of statistical analyses for ethnic/racial groupings will be described by Reading Objective. The TAKS Exit Level ELA Reading Objectives are as follows: (a) Objective 1: basic understanding of texts; (b) Objective 2: apply knowledge of literary elements and techniques; and (c) Objective 3: analysis and critical evaluation of texts. Results will be presented in chronological order beginning with the 2004-2005 school year and concluding with the 2011-2012 school year.

Prior to conducting a multivariate analysis of variance (MANOVA) for Texas high school students who took the TAKS Exit Level English Language Arts assessment in each of the 2004-2005 through the 2011-2012 school years, its underlying assumptions were checked. Specifically examined were data normality, Box's Test of Equality of Covariance, and the Levene's Test of Equality of Error Variances. Although these assumptions were not met, the robustness of a MANOVA procedure made it appropriate to use on the data in this study (Field, 2009).

With respect to the 2004-2005 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .92$, $p < .001$, partial $\eta^2 = .03$, by ethnicity/race in their assessed TAKS Exit Level Reading skills. Using Cohen's (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, F (1, 207583) = 1803.15, $p < .001$, partial $\eta^2 = .03$, small effect size; TAKS Reading Objective 2, F (1, 207583) = 2691.64, $p < .001$, partial $\eta^2 = .04$, small effect size; and TAKS Reading Objective 3, F (1, 207583) = 4597.51, $p < .001$, partial $\eta^2 = .06$, moderate effect size.

Scheffe`post hoc procedures revealed that statistically significant differences were present by ethnicity/race for all three Reading Objectives. Of the 37 questions on the assessment contained in these three Reading Objectives, average scores were highest for Asian students, followed by White, Hispanic, and then Black students. For the eight questions related to Reading Objective 1, the 11 questions related to Reading Objective 2, and the 18 questions related to Reading Objective 3, results were similar. Readers are referred to Table 1 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2004-2005 school year.

Table 1: Descriptive Statistics for TAKS Exit Level English Language Arts Scores by Reading Objective and by Ethnicity/Race for the 2004 2005 and 2005 2006 School Years

School Year, Reading Objective, and Ethnicity/Race	n	M	SD
2004-2005			
Reading Objective 1	101,698	6.63	2.32
White	73,727	5.96	2.64
Hispanic	26,463	5.58	2.92
Black	5,699	6.80	2.30
Asian			

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Reading Objective 2			
White	101,698	7.29	2.78
Hispanic	73,727	6.34	3.02
Black	26,463	5.81	3.27
Asian	5,699	7.66	2.80
Reading Objective 3			
White	101,698	11.67	4.37
Hispanic	73,727	9.54	4.68
Black	26,463	8.89	5.01
Asian	5,699	12.07	4.43
2005-2006			
Reading Objective 1			
White	100,526	6.64	2.25
Hispanic s	76,728	6.06	2.51
Black	28,828	5.76	2.81
Asian s	6,000	6.72	2.30
Reading Objective 2			
White	100,526	8.24	2.74
Hispanic	76,728	7.36	3.07
Black	28,828	7.05	3.42
Asian	6,000	8.28	2.82
Reading Objective 3			
White	100,526	12.54	4.17
Hispanic	76,728	11.29	4.61
Black	28,828	10.73	5.18
Asian	6,000	12.72	4.35

Concerning the 2005-2006 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .97$, $p < .001$, partial $\eta^2 = .01$, small effect size, by ethnicity/race in their assessed TAKS Exit Level Reading skills. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 212078) = 1451.48$, $p < .001$, partial $\eta^2 = .02$, small effect size; TAKS Reading Objective 2, $F(1, 212078) = 1963.74$, $p < .001$, partial $\eta^2 = .03$, small effect size; and TAKS Reading Objective 3, $F(1, 212078) = 1863.05$, $p < .001$, partial $\eta^2 = .05$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives with two exceptions. White and Asian students for Reading Objectives 1 and 2 did not differ in their average scores. Of the 37 questions on the assessment contained in these three Reading Objectives, average scores were highest for Asian students, followed by White, Hispanic, and then Black students. For the eight questions related to Reading Objective 1, the 11 questions related to Reading Objective 2, and the 18 questions related to Reading Objective 3, results were similar. Readers are referred to Table 1 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2005-2006 school year.

In the 2006-2007 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .95$, $p < .001$, partial $\eta^2 = .02$, small effect size, by ethnicity/race in their assessed TAKS Exit Level Reading skills. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 218990) = 2534.04$, $p < .001$, partial $\eta^2 = .03$, small effect size; TAKS Reading Objective 2, $F(1, 218990) = 3308.01$, $p < .001$, partial $\eta^2 = .04$, small effect size; and TAKS Reading Objective 3, $F(1, 218990) = 1725.94$, $p < .001$, partial $\eta^2 = .02$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives, with three exceptions. White and Asian students did not differ in their average scores on Reading Objectives 1, 2, and 3. Of the 37 questions on the assessment contained in these three Reading Objectives, average scores were highest for Asian students, followed by White, Hispanic, and then Black students. For the eight questions related to Reading Objective 1, the 11 questions related to Reading Objective 2, and the 18 questions related to Reading Objective 3, results were similar. Readers are referred to Table 2 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2006-2007 school year.

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Table 2: Descriptive Statistics for TAKS Exit Level English Language Arts Scores by Reading Objective and by Ethnicity/Race for the 2006-2007 and 2007-2008 School Years

School Year, Reading Objective, and Ethnicity/Race	n	M	SD
2006-2007			
Reading Objective 1			
White	101,162	6.63	2.25
Hispanic	82,314	5.85	2.46
Black	29,526	5.53	2.69
Asian	5,992	6.19	2.43
Reading Objective 2			
White	101,162	7.74	2.66
Hispanic	82,314	6.69	2.87
Black	29,526	6.26	3.10
Asian	5,992	7.78	2.78
Reading Objective 3			
White	101,162	12.50	4.02
Hispanic	82,314	11.49	4.39
Black	29,526	10.70	4.90
Asian	5,992	12.61	4.28
2007-2008			
Reading Objective 1			
White	92,016	7.44	1.39
Hispanic	80,743	7.05	1.61
Black	26,034	7.07	1.64
Asian	5,991	7.32	1.71
Reading Objective 2			
White	92,016	8.30	1.78
Hispanic	80,743	7.66	2.02
Black	26,034	7.56	2.06
Asian	5,991	8.23	2.10
Reading Objective 3			
White	92,016	13.24	2.69
Hispanic	80,743	12.37	3.08
Black	26,034	12.18	3.14
Asian	5,991	13.27	3.28

Regarding the 2007-2008 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .97$, $p < .001$, partial $\eta^2 = .01$, small effect size,by ethnicity/race in their assessed TAKS Exit Level Reading skills. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 204780) = 1090.11$, $p < .001$, partial $\eta^2 = .02$, small effect size; TAKS Reading Objective 2, $F(1, 204780) = 1998.21$, $p < .001$, partial $\eta^2 = .03$, small effect size; and TAKS Reading Objective 3, $F(1, 204780) = 1725.89$, $p < .001$, partial $\eta^2 = .03$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives, with three exceptions. White and Asian students did not differ in their average scores on Reading Objectives 2 and 3 and Hispanic students did not differ in their average scores from Black students on Reading Objective 1. For the eight questions related to Reading Objective 1 and the 11 questions related to Reading Objective 2, average scores were highest for White students, followed by Asian, Hispanic, and then Black students. For the 18 questions related to Reading Objective 3, average scores were highest for Asian students, followed by White, Hispanic, and then Black students. Readers are referred to Table 2 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2007-2008 school year.

With respect to the 2008-2009 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .97$, $p < .001$, partial $\eta^2 = .01$, small effect size, by ethnicity/race in their assessed TAKS Exit Level Reading skills. Using Cohen's (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 215340) = 1256.65$, $p < .001$, partial $\eta^2 = .02$, small effect size; TAKS Reading Objective 2, $F(1, 215340) = 2085.09$, $p < .001$, partial $\eta^2 = .03$, small effect size; and TAKS Reading Objective 3, $F(1, 215340) = 2202.54$, $p < .001$, partial $\eta^2 = .03$, small effect size.

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Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives, with three exceptions. White and Asian students did not differ in their average scores on Reading Objectives 1 and 2 and Hispanic and Black students did not differ in their average scores on Reading Objective 1. For the eight questions related to Reading Objective 1, average scores were highest for White students, followed by Asian, Hispanic, and then Black students. For the 11 questions related to Reading Objective 2 and the 18 questions related to Reading Objective 3, average scores were highest for Asian students, followed by White, Hispanic, and then Black students. Readers are referred to Table 3 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2008-2009 school year.

Table 3: Descriptive Statistics for TAKS Exit Level English Language Arts Scores by Reading Objective and by Ethnicity/Race for the 2008-2009and 2009-2010 School Years

School Year, Reading Objective, and Ethnicity/Race	n	M	SD
2008-2009			
Reading Objective 1			
White	91,951	7.25	1.46
Hispanic	89,488	6.82	1.66
Black	27,435	6.81	1.70
Asian	6,470	7.20	1.80
Reading Objective 2			
White	91,951	8.71	1.87
Hispanic	89,488	8.08	2.13
Black	27,435	7.85	2.21
Asian	6,470	8.72	2.25
Reading Objective 3			
White	91,951	13.56	2.90
Hispanic	89,488	12.56	3.31
Black	27,435	12.23	3.42
Asian	6,470	13.73	3.50
2009-2010			
Reading Objective 1			
White	90,241	7.27	1.44
Hispanic s	96,232	6.93	1.60
Black	28,688	6.83	1.68
Asian	7,001	7.22	1.71
Reading Objective 2			
White	90,241	8.81	1.78
Hispanic	96,232	8.19	1.99
Black	28,688	8.13	2.07
Asian	7,001	8.67	2.10
Reading Objective 3			
White	90,241	13.69	2.88
Hispanic	96,232	12.68	3.17
Black	28,688	12.38	3.36
Asian	7,001	13.74	3.34

Concerning the 2009-2010 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .97$, $p < .001$, partial $\eta^2 = .01$, small effect size,by ethnicity/race in their assessed TAKS Exit Level Reading skills. Using Cohen's (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 222158) = 1024.31$, $p < .001$, partial $\eta^2 = .01$, small effect size; TAKS Reading Objective 2, $F(1, 222158) = 1900.96$, $p < .001$, partial $\eta^2 = .03$, small effect size; and TAKS Reading Objective 3, $F(1, 222158) = 2292.04$, $p < .001$, partial $\eta^2 = .03$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives, with one exception. White and Asian students did not differ in their average scores on Reading Objective 3. For the eight questions related to Reading Objective 1 and the 11 questions related to Reading Objective 2, average scores were highest for White students, followed by Asian, Hispanic, and then Black students. For the 18 questions related to Reading Objective 3,

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average scores were highest for Asian students, followed by White, Hispanic, and then Black students. Readers are referred to Table 3 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2009-2010 school year.

Regarding the 2010-2011 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .97$, $p < .001$, partial $\eta^2 = .01$, small effect size,by ethnicity/race in their assessed TAKS Exit Level Reading skills. Using Cohen's (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 221164) = 468.99$, $p < .001$, partial $\eta^2 = .01$, small effect size; TAKS Reading Objective 2, $F(1, 221164) = 1092.63$, $p < .001$, partial $\eta^2 = .02$, small effect size; and TAKS Reading Objective 3, $F(1, 221164) = 1419.10$, $p < .001$, partial $\eta^2 = .02$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present among ethnic/racial groupings for all three Reading Objectives, with two exceptions. Asian students did not differ in their average scores from the average scores of Black and Hispanic students on Reading Objective 1. Of the 37 questions on the assessment contained in these three Reading Objectives, average scores were highest for White students, followed by Asian, Hispanic, and then Black students. For the eight questions related to Reading Objective 1, the 11 questions related to Reading Objective 2, and the 18 questions related to Reading Objective 3, results were similar. Readers are referred to Table 4 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2010-2011 school year.

Table 4: Descriptive Statistics for TAKS Exit Level English Language Arts Scores by Reading Objective and by Ethnicity/Race for the 2010-2011and 2011-2012 School Years

School Year, Reading Objective, and Ethnicity/Race	n	M	SD
Reading Objective 1			
White	85,319	7.46	1.46
Hispanic	103,110	7.21	1.57
Black	26,250	7.18	1.65
Asian	6,489	7.23	1.97
Reading Objective 2			
White	85,319	8.60	1.86
Hispanic	103,110	8.12	2.01
Black	26,250	8.04	2.09
Asian	6,489	8.34	2.43
Reading Objective 3			
White	85,319	13.66	2.85
Hispanic	103,110	12.86	3.07
Black	26,250	12.61	3.21
Asian	6,489	13.42	3.77
2011-2012			
Reading Objective 1			
White	84,517	7.23	1.49
Hispanic	110,517	6.93	1.59
Black	26,903	6.84	1.65
Asian	7,184	7.14	1.81
Reading Objective 2			
White	84,517	8.92	1.83
Hispanic	110,517	8.51	1.91
Black	26,903	8.47	2.00
Asian	7,184	8.79	2.22
Reading Objective 3			
White	84,517	13.88	2.87
Hispanic	110,517	13.20	3.06
Black	26,903	12.93	3.18
Asian	7,184	13.73	3.53

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Finally, in the 2011-2012 school year, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .99$, $p < .001$, partial $\eta^2 = .01$, small effect size, by ethnicity/race in their assessed TAKS Exit Level Reading skills. Using Cohen's (1988) criteria, the effect size was small. Univariate follow-up analysis of variance procedures yielded statistically significant differences in student performance on TAKS Reading Objective 1, $F(1, 229117) = 751.01$, $p < .001$, partial $\eta^2 = .01$, small effect size; TAKS Reading Objective 2, $F(1, 229117) = 843.84$, $p < .001$, partial $\eta^2 = .01$, small effect size; and TAKS Reading Objective 3, $F(1, 229117) = 1116.25$, $p < .001$, partial $\eta^2 = .01$, small effect size.

Scheffe` post hoc procedures revealed that statistically significant differences were present by ethnicity/race for all three Reading Objectives. Of the 37 questions on the assessment contained in these three Reading Objectives, average scores were highest for White students, followed by Asian, Hispanic, and then Black students. For the eight questions related to Reading Objective 1, the 11 questions related to Reading Objective 2, and the 18 questions related to Reading Objective 3, results were similar. Readers are referred to Table 4 for the descriptive statistics for students' TAKS Exit Level ELA scores by Reading Objective and ethnic/racial grouping for the 2011-2012 school year.

IX. Discussion

The extent to which differences were present in the reading skills of Texas high school students as a function of ethnicity/race was examined in this investigation. Eight years of statewide data on three TAKS Exit Level ELA Reading Objectives were analyzed by ethnicity/race. In each school year, statistically significant results were present. Following these statistical analyses, the presence of trends for the three reading skill objectives by ethnicity/race was determined. Results will be summarized in the next section.

Reading Objective 1: Basic Understanding of Texts

Reading Objective 1 contained eight questions on the TAKS Exit Level ELA assessment during each of the 2004-2005 through 2011-2012 school years. Asian students scored higher on Reading Objective 1 than White, Hispanic, and Black students during the 2004-2005 through the 2006-2007 school years. White students scored higher on Reading Objective 1 than Asian, Hispanic, and Black students during the 2008-2009 through the 2011-2012 school years. Hispanic students scored higher on Reading Objective 1 than Black students in each year of the 8-year span. Carpenter, Ramirez, and Severn (2006) referred to this multi-layered achievement gap as a "stair-step of achievement" (p. 117).

Reading Objective 2: Apply Knowledge of Literary Elements and Techniques

Reading Objective 2 contained 11 questions on the TAKS Exit Level ELA assessment during each of the 2004-2005 through 2011-2012 school years. Asian students scored higher on Reading Objective 2 than White, Hispanic, and Black students during the 2004-2005 through the 2006-2007 school years, and again in the 2008-2009 school year. White students scored higher on Reading Objective 2 than Asian, Hispanic, and Black students during the 2007-2008 school year and again during the 2009-2010 through the 2011-2012 school years. Hispanic students scored higher on Reading Objective 2 than Black students in each year of the eight year span. Again, the "stair-step of achievement" mentioned by Carpenter et al. (2006, p. 117) aligns with these results.

Reading Objective 3: Analysis and Critical Evaluation of Texts

Reading Objective 3 contained 18 questions on the TAKS Exit Level ELA assessment during each of the 2004-2005 through 2011-2012 school years. Asian students scored higher on Reading Objective 3 than White, Hispanic, and Black students during the 2004-2005 through the 2009-2010 school years. White students scored higher on Reading Objective 3 than Asian, Hispanic, and Black students during the 2010-2011 and 2011-2012 school years. Hispanic students scored higher on Reading Objective 3 than Black students in each year of the eight year span. Finally, the "stair-step of achievement" is again relevant when analyzing the data from Reading Objective 3 (Carpenter et al., 2006, p. 117).

a) Connection with Existing Literature

When reading achievement is analyzed, differences by ethnicity/race exist (Ang, 2014; Hawley & Nieto, 2010; Lee, 2002; U.S. Department of Education, 2000). Various reasons exist related to the achievement gap in reading by ethnicity/race, including differing cultural norms leading to students' poor reading skills at an early age (Ang, 2014; Lee, 2002; Reardon & Galindo, 2008). Differences by ethnicity/race have been analyzed for decades and trends have developed in which students and parents rely solely on the school for reading assistance, or place high importance on supporting the local school (Davis-Kean & Sexton, 2009; Reardon et al., 2013). Differences by ethnicity/race are apparent in reading at many levels of education, including affecting college readiness (Barnes & Slate, 2014). Specified in this investigation was the effect of ethnicity/race on three reading objectives. Results of this research investigation are commensurate with the findings of other researchers (Ang, 2014; Hawley & Nieto, 2010; Lee, 2002; U.S. Department of Education, 2000) who have documented the presence of lower

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reading achievement scores for Black and Hispanic students, when compared to Asian and White students.

b) Implications for Policy and Practice

Asian and White students outperformed Hispanic and Black students on TAKS Exit Level ELA assessments and on all three Reading Objectives for the 2004-2005 through the 2011-2012 school years. Although ethnicity/race is not commonly regarded as having a negative influence on academic achievement in reading, it is evident in the analysis of these students reading scores in this longitudinal investigation that certain ethnic/racial groupings of students consistently perform lower than others. As such, an ethnic/racial achievement gap exists and because of detailed data recording and analysis programs, state and local education agencies are fully aware and have been for decades of the disturbing ethnic/racial achievement gap.

According to current state accountability indexes, to be considered eligible for meeting the required standards, student subpopulations in a district or campus must show progress on state assessments. Districts and campuses are not only evaluated on overall performance of students, but also on the two largest minority ethnic/racial student groups on campus. Closing the achievement gap between student subpopulations is measured annually and assessed on the school's report card and publicized in local media entities. Proper progress monitoring and targeted intervention for struggling ethnic/racial student groupings is essential for meeting state accountability requirements.

To meet students' instructional needs, teachers are required to be highly qualified and certified in Reading. However, teachers in Texas are not required to obtain a Reading certification in secondary grades (7-12). Many teachers on elementary campuses have a Reading certification and most campuses hire a Reading Specialist who works with teachers and students to close existing achievement gaps. As students move to Grade 7 and above, many schools do not have the literacy resources to provide adequate interventions and reading gapswiden. Although programs such as Response to Intervention provide a framework and flowchart for how struggling readers are to receive targeted intervention, the teachers tasked with implementing the interventions are not properly trained to teach basic reading skills. Local districts could provide effective research-based professional development to teachers related to teaching basic reading skills to secondary students.

c) Suggestions for Future Research

Examined in this study was the relationship between ethnic/racial groupings and the reading performance of each group as determined by the TAKS Exit Level ELA assessment. Results from this investigation could provide a groundwork for future researchers to expand this study by examining other content areas. Additionally, other grade levels could be examined as the TAKS assessments were administered to students in Grades 3-8 from 2002-2003 through 2011-2012. Reading performance of elementary students could be examined to determine the degree of the ethnic/racial achievement gap as students begin annual required state assessments. Moreover, in a more exhaustive study, the ethnic/racial achievement gap in reading of elementary students in Texas compared to the ethnic/racial gap of secondary students could be conducted. Additional research regarding ethnic/racial groupings would be beneficial in examining the relationship between these students' reading skills and dropout rate, completion rate, and postsecondary opportunities. Students are more likely to not complete high school if they struggle to read below grade level expectations (Benner et al., 2011). Students who do not graduate from high school could face the reality of severely diminished postsecondary employment opportunities.

The newer STAAR (State of Texas Assessment of Academic Readiness) could be considered as a source of assessment data for future investigations. Reporting and accountability of STAAR test results was inconsistent during the first three years of its existence. Scores from the STAAR assessments may yield valid data from which researchers can gather and interpret to determine whether statistically significant results exist between ethnic/racial groups. In this investigation, statistically significant differences were evident among reading skills of ethnic/racial groupings. Readers are encouraged to analyze further the relationship between reading skills and ethnicity/race. Other variables that could be considered if differences exist would be between gender groups and economic groups.

X. Conclusion

The purpose of this research study was to determine the extent to which differences were present in the reading achievement of Texas high school students as a function of ethnicity/race. After obtaining and analyzing eight school years of Texas statewide data, statistically significant differences were revealed in the reading achievement of ethnic/racial groupings. In each school year between 2004-2005 and 2011-2012, Asian and White students had higher average reading scores than Hispanic and Black students. Reading scores for Asian and White students were closely aligned and almost identical across the 8- year time span. Hispanic students outperformed Black students across all eight years of data.

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