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Differences in College-Readiness by Disability Category for Texas High School Students in Special Education: A Multiyear Statewide Analysis

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Abstract

The extent to which differences were present in college-readiness rates in reading, mathematics, and both subjects by disability category for students who were enrolled in special education in Texas public high schools for 2008-2009 through 2010-2011 school years were determined in this investigation. Statistically significant differences were revealed in reading, mathematics, and both subjects college-readiness in each school year. No students who were Emotionally Disturbed or had a Speech or Language Impairment met the college-readiness standard in reading, mathematics, or both subjects. Of importance were extremely low college-readiness rates in reading, mathematics, and both subjects for students who were enrolled in special education for the 2008-2009 through the 2010-2011 school years.

1. Introduction

Public Law 94-142 [1] was enacted in 1975 to require public schools to provide free access for all students with disabilities from ages 3 to 21. Congress amended the act in 1986, 1990, and then again in 2004 to clarify and to increase the emphasis on the appropriate education students with disabilities should be receiving, including the least restrictive environment. Of particular interest to this article is the increased emphasis placed on promoting college-readiness for students with disabilities. Even with an emphasis to promote college-readiness for students with disabilities, only 7.6% of students who had been enrolled in special education attended 4-year universities, compared to 29.2% of students who had not been enrolled in special education [2]. Of those students who attended 4-year universities, only 34.2% of students who qualified for special education services completed their degree within eight years of graduating high school, compared to 51.2% of students who not receiving special education services who graduated within eight years [2]. Ten years after students enrolled in postsecondary education, only 44% of students with disabilities had completed their degree compared to 68% of students without disabilities [3]. The gap in graduation rates for students with disabilities may reflect that students with disabilities require different approaches to their education than students without disabilities in public schools [4].

College-readiness, academic success, and persistence in postsecondary institutions have been analyzed by numerous researchers [5, 6, 7, 8, 9, 10, 11, 12]. The rigor of high school course selection is correlated to the persistence of a 4-year degree. The more rigorous the high school course selection, the greater the odds are that students will attain a postsecondary degree [13, 14].

With respect to students enrolled in special education, one group of students relevant to this investigation is students with a Learning Disability. Students with a Learning Disability constitute the largest group of students in the United States who receive special education services [15]. In the 2010-2011 school year, 5.7 million students were served in special education nationally. Of those students, 42% were students with a Learning Disability [15]. In Texas, students with a Learning Disability constitute 43.2% of students who qualify for special education services [15]. Even though students who have a Learning Disability comprise the largest group of students who receive special education services, they attend 4-year universities at half the rate of the general population, and only 17% of those students receive accommodations or support [15]. Readers should note; however, that college students with disabilities are responsible for initiating any accommodations and support that they may require. Also, [15] noted 33% of students with a Learning Disability had been retained at least one year and 50% of students with a Learning Disability in the 2011 school year received a disciplinary consequence, such as suspension or expulsion. These two events are negatively related with high school completion [15].

Also addressed in this article are the college-readiness rates of Other Health Impaired students. The Other Health Impairment disability category is often used as a last resort when a student does not qualify for special education services because it has a wide range of classifications under the definition [16]. School staff members receive pressure from parents to identify their children as needing special education services to receive modifications or accommodations for state testing [16]. Of these students with disabilities, the [17] reported, in the 2011-2012 school year, 11.6% of students who received special education services in the United States were classified as Other Health Impaired. The [18] reported that 13.5% of students who qualified for special education services were Other Health Impaired in the 2015-2016 school year.

Students receiving services for Speech or Language Impairment constitute a third group of students in this investigation. Nationally, in the 2010-2011 school year, students with a Speech or Language Impairment accounted for 19% of students who received special education services [15]. This group of students represent about 20% of students with disabilities in Texas [19]. As noted by the [20], 5% of children were diagnosed with a Speech Disorder by the time they reach the first-grade. Children with Speech Impairments performed lower than did students without Speech Impairments on literacy tasks and in other content areas [21].

For example, [22] suggested preschool children with language impairments had lower mathematic skills at a later age than did students without language impairments. [23] analyzed the assessment results of students who had Speech Impairments. According to [23], students whose Speech Impairment persisted performed below those students without a Speech Impairment on the reading, spelling, and mathematics assessment. However, students who successfully resolved their Speech Impairments performed at the same rate as students without Speech Impairments on the reading, spelling, and mathematics assessment [23].

The fourth group of students who receive special education services are students who are determined to be Emotionally Disturbed. Nationally, 6% of students receiving special education services were determined to be Emotionally Disturbed [15]. Of note, students who are Emotionally Disturbed represented 5.8% of special education students in Texas in the 2015-2016 school year [18]. Students who were Emotionally Disturbed enroll in postsecondary education at a rate of 34.7% compared to 62.6% of the general population [24]. For students who were Emotionally Disturbed, 33% attended an alternative postsecondary institution, 38% attended a 2-year college, and only 11% attended a 4-year college. Of these students, less than one half, 45.9%, attained a postsecondary degree [25]. Less than 20% of the students who were Emotionally Disturbed received supports or accommodations in their postsecondary environments [25].

More startling is the rate at which young adults who are Emotionally Disturbed are arrested. The arrest rate in 2009 for persons who were Emotionally Disturbed was 60.5%, much higher than any other disability category [24, 25]. Wagner et al. [26] noted more than one third of this population had been arrested at least once before leaving high school.

Specific to two groups in this study, students who were Emotionally Disturbed were disproportionately disciplined in the 1999-2000 to the 2001-2002 school years and students with a Learning Disability were disciplined more often than all students with disabilities during the same time [27]. When analyzing the effects of disciplinary consequences on students who were Emotionally Disturbed, Learning Disabled, or Other Health Impairment, [28, 29] documented that students with disabilities who received an in-school suspension, out-of-school suspension, or a disciplinary alternative education program placement had statistically significantly lower academic achievement than their peers who had not received a discipline consequence.

With the amendment to Public Law 94-142 in 2004, in which an emphasis was placed on college enrollment for students with disabilities, a definition of what constitutes college-readiness is needed [30]. Conley [31, 32] defined college-readiness as students successfully making the transition from high school to the college environment equipped to manage the demands of college without remediation. To meet the needs of the global economy a vast range of skills are needed [2]. Conley [31, 32] described four

key components upon which college-readiness is built: (a) key cognitive knowledge, (b) key content knowledge, (c) academic behaviors, and (d) contextual skills and knowledge. Cognitive knowledge consists of students having the capability to analyze, interpret, and problem solve. With respect to content knowledge, students must have key content knowledge to be considered college-ready [31, 32]. Academic behaviors are noncognitive behaviors such as time management skills and study skills that require students to have self-control in a college environment [31, 32]. For students with disabilities, focusing on the noncognitive aspects of college-readiness is critical [2]. Lastly, for students to be college-ready and successful, they need contextual skills and knowledge to apply and acculturate in the unknown world of college [31, 32]. However, as noted in [6], in the State of Texas, college-readiness indicators were specific to the following standardized assessments: (a) Texas Assessment of Knowledge and Skills, (b) SAT, and (c) ACT.

Almost 60 years of federal legislation has resulted in efforts to improve the college-readiness of high school graduates beginning with the National Defense Education Act in 1958 through the newest piece of legislation, Every Student Success Act in 2016. These legislative acts have created an environment of high-stakes testing. Barnes and Slate [7] coined the term one-size-fits-all college-readiness agenda, created by the government. This agenda is believed to have resulted in ineffective and uncreative learning environments. The shift to high-stakes testing could force teachers and schools to focus on test preparation instead of academic preparation for postsecondary education [7].

Researchers [e.g., 5, 6, 8, 10] have documented that students graduate high school without the skills necessary to be successful in postsecondary settings. In particular reference to this investigation, [10] examined college-readiness rates of students who were (a) economically disadvantaged, (b) Limited English Proficient, or (c) enrolled in special education. Of the five consecutive school years of data they analyzed, students who were Limited English Proficient or enrolled in special education performed lower than those students who were economically disadvantaged. Statistically significant findings were determined, with 13 large effect sizes and two moderate effect sizes being present. Chandler et al. [10] established an almost 20 percentage point increase in reading college-readiness rates between the 2006-2007 and the 2010-2011 school years for all students; however, during the same period, students who were enrolled in special education had only a little over 2 percentage point increase in their reading college-readiness rates. With respect to mathematics college-readiness rates for all students, an increase of 13.15 percentage points was present, whereas students who were enrolled in special education had relatively no change in their mathematics college-readiness rates from the 2006-2007 through the 2010-2011 school years [10]. When analyzing college-readiness in both subjects, students who were not in special education experienced an increase of 17.14 percentage points compared to a slight decrease in the college-readiness rates in both

subjects for students who were enrolled in special education [10].

In a recent investigation in Texas, [12] provided empirical evidence that small percentages of students receiving special education services were college-ready. In this study, their percentages of students who received special education services and who were college-ready in reading, mathematics, and in both subjects were commensurate with the percentages reported by [10]. As such, clear evidence exists that low percentages of students in special education are college-ready. In the [10] and in the [12] investigations, results were based on aggregated school level data and not on individual students.

1.1. Statement of the Problem

The [33] reported 11% of undergraduate students had a disability in the 2007-2008 and 2011-2012 academic years. Of the students enrolled in a 4-year university, only 59% graduated within six years of beginning their course work [34]. In 2014, employment rates: (a) for people holding a bachelor degree or higher was 88.1%, (b) for people completing some college 75%, (c) for people with a high school diploma 63.7%, and (d) for people who did not graduate high school 46.6% [35]. The United States [36] determined that 17.1% of people who have any reported disability are employed compared to people who do not have a disability.

1.2. Purpose of the Study

The purpose of this study was to determine the extent to which differences were present in college-readiness in reading by disability category for students enrolled in special education. A second purpose for this study was to determine the degree to which differences were present in college-readiness in mathematics by disability category for students enrolled in special education. The third purpose of this study was to determine the extent to which differences were present in college-readiness in both subjects by disability category for students enrolled in special education. Finally, the fourth purpose of this statewide empirical investigation was to ascertain the degree to which trends were present in college-readiness in reading, mathematics, and in both subjects by special education enrollment categories over time. The disability categories for which data were analyzed were: (a) Learning Disability, (b) Emotional Disturbance, (c) Other Health Impairment, and (d) Speech or Language Impairment. These four disability categories were selected because they comprise the four largest categories of students in Texas who received special education services and for whom college-readiness may be an appropriate academic goal.

1.3. Significance of the Study

With the enactment of the amendment of the [30], federal mandates increased the emphasis on college-readiness for students who qualify for special education. Therefore, this research investigation has practical implications for

legislators and educators. Extensive research exists on college-readiness; however, the literature is lacking with regard to college-readiness by special education category that might be used to determine trends and provide an understanding of the specific needs of each group of students enrolled in special education. Practitioners may utilize the trends and new understandings to provide specific support for each group of students who receive special education services.

1.4. Research Questions

The following research questions were addressed in this empirical investigation: (a) What is the difference in college-readiness in reading by disability category for students enrolled in special education?; (b) What is the difference in college-readiness in mathematics by disability category for students enrolled in special education?; (c) What is the difference in college-readiness in both subjects by disability category for students enrolled in special education?; and (d) What trends are present in college-readiness in reading, mathematics, and in both subjects over time by disability category for students enrolled in special education? The first three research questions were repeated for the 2008-2009, 2009-2010, and 2010-2011 school years whereas the fourth research question was repeated for the three college-readiness measures. Therefore, a total of 12 research questions were present in this study.

2. Method

2.1. Research Design

This nonexperimental, quantitative study was a causal comparative design [37]. In this study, the outcomes of student reading and mathematics performance had already occurred. Archival data were used to examine the difference in academic performance of students who were enrolled in special education in public Texas high schools in the 2008-2009, 2009-2010, and 2010-2011 school years. The independent variable in this investigation was special education enrollment categories (i.e., Learning Disability, Other Health Impairment, Speech and Language Impairment, and Emotionally Disturbed) and the dependent variables were college-readiness in reading, in mathematics, and in both subjects.

2.2. Participants and Instrumentation

Examined in this study were three college-readiness variables for students who were enrolled in special education. Participants were evaluated on their performance on the Higher Education Readiness Component (HERC) standard for college-readiness. The HERC was mandated under the Texas Assessment of Knowledge and Skills by Senate Bill 103. A performance standard was required to identify students who were college-ready under this legislation. The HERC standard is the Texas Assessment of Knowledge and Skills scale score system, which was established by Texas

Higher Education Coordinating Board, and the Texas Education Agency is responsible for implementing and facilitating the assessment with fidelity [38].

Archival data were requested and obtained for the 2008-2009, 2009-2010, and 2010-2011 school years from the Texas Education Agency Public Education Information Management System for all Grade 11 and 12 high school students who were enrolled in special education. These data included (a) grade span configuration of each high school campus, (b) student special education enrollment categories, (c) reading college-readiness, (d) mathematics college-readiness, and (e) both subjects college-readiness.

The population whose data were analyzed herein were for students who were enrolled in special education in Texas high schools. In this study,

Special Education refers to the population of students served in special education programs. Assessment decisions for students in special education programs are made by their Admission, Review, and Dismissal (ARD) committee. The ARD committee is made up of the parent(s) or guardian, teachers, administrator, and other concerned parties. In the 2012-13 school year, a student in special education may have been administered the STAAR, STAAR Modified, or STAAR Alternate. Results from all these assessments are included in the STAAR performance shown on the TAPRs. Other indicators that include the performance of students in special education are: advanced course/dual enrollment longitudinal, (b) attendance rate, (c) annual dropout rates, (d) college-ready graduates, (e) longitudinal rates, (f) RHSP/DAP, (g) TAKS exit-level cumulative pass rate, and (h) the Texas Success Initiative. Information that would allow the separation of performance of students in special education on college admissions tests and on Advanced Placement and International Baccalaureate examinations is not available [39, pp. 20-21].

Data on four specific special education categories (i.e. Learning Disabled, Other Health Impairment, Speech or Language Impairment, and Emotionally Disturbed) were examined in this investigation. These four categories are the four largest categories in special education in which the majority of students are assessed at the standard state level. The [40] defined *Learning Disabled* students as the following:

(A) Prior to and as part of the evaluation described in subparagraph (B) of this paragraph and 34 CFR, §§300.307-300.311, and in order to ensure that underachievement in a student suspected of having a specific Learning Disability is not due to lack of appropriate instruction in reading or mathematics, the following must be considered: (i) data that demonstrates the student was provided appropriate instruction in reading (as described in 20 United States Code (USC), §6368(3)), and/or mathematics within general education settings delivered by qualified personnel; and (ii) data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal evaluation of student progress during instruction. Data-based documentation of repeated assessments may include, but is not limited to, response to intervention progress monitoring

results, in-class tests on grade-level curriculum, or other regularly administered assessments. Intervals are considered reasonable if consistent with the assessment requirements of a student's specific instructional program.

(B) A student with a Learning Disability is one who: (i) has been determined through a variety of assessment tools and strategies to meet the criteria for a specific Learning Disability as stated in 34 CFR, §300.8(c)(10), in accordance with the provisions in 34 CFR, §§300.307-300.311; and (ii) does not achieve adequately for the student's age or meet state-approved grade-level standards in oral expression, listening comprehension, written expression, basic reading skill, reading fluency skills, reading comprehension, mathematics calculation, or mathematics problem solving when provided appropriate instruction, as indicated by performance on multiple measures such as in-class tests; grade average over time (e.g. six weeks, semester); norm- or criterion-referenced tests; statewide assessments; or a process based on the student's response to scientific, research-based intervention; and (I) does not make sufficient progress when provided a process based on the student's response to scientific, research-based intervention as defined in 20 USC, §7801(37).

The following criteria were set by the [40] for students with *Other Health Impairment*.

A student with Other Health Impairment is one who has been determined to meet the criteria for Other Health Impairment due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, sickle cell anemia, and Tourette's Disorder as stated in 34 CFR, §300.8(c)(9).

The [40] set the following criteria for students with a *Speech or Language Impairment*, "A student with a Speech Impairment is one who has been determined to meet the criteria for Speech or Language Impairment as stated in 34 CFR, §300.8(c)(11)."

Students are labeled *Emotionally Disturbed* by using the following criteria set by the [40], "A student with an Emotional Disturbance is an individual who has been determined to meet the criteria for Emotional Disturbance as stated in 34 CFR, §300.8(c)(4)" (p. 5). For further clarification, 34 CFR, §300.8(c)(4) is defined by United States Department of Education (2016) as the following:

Emotional disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors. (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers. (C) Inappropriate types of behavior or feelings under normal circumstances. (D) A general pervasive mood of unhappiness or depression. (E) A tendency to develop physical symptoms or fears associated with personal or school problems.

(ii) Emotional disturbance includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance under paragraph (c)(4)(i) of this section.

College-readiness is defined by the Texas Education Agency as the following: To be considered college-ready as defined by this indicator, a graduate must have met or exceeded the college-ready criteria on the TAKS exit-level test, or the SAT test, or the ACT test. Readers are directed to Table 1 in [6] for the breakdown of the specific scores to be deemed college-ready in Texas.

3. Results

To determine whether differences were present in reading, mathematics, and both subjects college-readiness rates (i.e., met standard or did not meet standard) for Texas high school students for students enrolled in special education by their disability category (i.e., Learning Disability, Other Health Impairment, Speech and Language Impairment, and Emotionally Disturbed), Pearson chi-square statistics were calculated. Frequency data were present for the college-readiness variables and special education categories; therefore, this procedure is viewed as the appropriate statistical procedure [41, 42]. When both variables are nominal, chi-squares are the statistical procedure of choice. The available sample size per cell was more than five; therefore, the assumptions were met for using the Pearson chi-square procedure. Results will now be discussed in order of the research questions by school year.

3.1. Research Question One

The focus in the first research question was on whether differences were present in reading college-readiness rates for students who were enrolled in special education by their disability category for the 2008-2009 through the 2010-2011 school years. The sample size for the 2008-2009 school year was 1,220 for students who had a Learning Disability, 118 students with an Other Health Impairment, 3 students who had a Speech or Language Impairment, and 102 students who had an Emotional Disturbance ($N = 1,443$). With respect to the research question, the Pearson chi-square procedure revealed the presence of a statistically significant difference in reading college-readiness rates among the disability categories, $\chi^2(3) = 10.09$, $p = .02$, Cramer's V of .08, trivial effect size [43]. Students who had a Learning Disability had the highest Met Standard percentage, 8.8%, of the four disability groups. Of concern was that no students who had a Speech and Language Impairment or who had an Emotional Disturbance met the standard for college-readiness in reading. Furthermore, less than 10% of students in these four disability categories met the college-readiness standard in reading. Frequencies and percentages for reading college-readiness rates by disability category are presented in Table 1.

Table 1. Frequencies and Percentages of the HERC Reading Met Standard by Disability Category for the 2008-2009, 2009-2010, and 2010-2011 School Years.

	Met Standard	Met Standard	Met Standard
Disability Category	2008-2009	2009-2010	2010-2011
Learning Disability	(n = 107) 8.8%	(n = 0) 0%	(n = 91) 6.9%
Other Health Impairment	(n = 9) 7.6%	(n = 0) 0%	(n = 6) 5.8%
Speech or Language Impairment	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%
Emotional Disturbance	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%

Concerning the 2009-2010 school year, a statistically significant difference was not yielded in reading college-readiness rates by disability category. In this school year, not a single student in these four special education categories met the reading college-readiness standard. Readers are directed to Table 1 for the frequencies and percentages by disability category for reading college-readiness rates.

With respect for the 2010-2011 school year, a statistically significant difference in reading college-readiness rates was not present, $\chi^2(3, N = 1,501) = 6.50, p = .09$. Readers should note that very low rate of students who met the HERC standard in reading. Only 6.9% of students with a Learning Disability met the HERC Reading standard and no students who were Emotionally Disturbed or had a Speech or Language Impairment met this reading college-readiness standard.

3.2. Research Question Two

The second research question was on whether differences

Table 2. Frequencies and Percentages of the HERC Mathematics Met Standard by Disability Category for the 2008-2009, 2009-2010, and 2010-2011 School Years.

	Met Standard	Met Standard	Met Standard
Disability Category	2008-2009	2009-2010	2010-2011
Learning Disability	(n = 54) 5.6%	(n = 2) 0.1%	(n = 84) 7.7%
Other Health Impairment	(n = 4) 4.1%	(n = 0) 0%	(n = 5) 5.3%
Speech or Language Impairment	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%
Emotional Disturbance	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%

Concerning the 2009-2010 school year, a statistically significant difference was not yielded in mathematics college-readiness rates by disability category, $\chi^2(3) = 0.54, p = .91$. In the 2009-2010 school year, of the four disability categories analyzed in this investigation, only 0.1% of students who had a Learning Disability met the HERC Mathematics standard. No other disability grouping had a single student who met this standard. Readers are directed to Table 2 for the frequencies and percentages by disability category for this school year.

With respect to the 2010-2011 school year, a statistically significant difference in mathematics college-readiness rates was not present, $\chi^2(3) = 5.96, p = .11$. Only 7.7% of students who had a Learning Disability and 5.3% of student with an Other Health Impairment were college-ready in mathematics. The frequencies and percentages of mathematics college-readiness rates by disability category are delineated in Table 2.

3.3. Research Question Three

The third research question involved the degree to which

were present in mathematics college-readiness rates by disability category for students who were enrolled in special education in the 2008-2009 through the 2010-2011 school years. The sample size for the 2008-2009 school year was 972 students who had a Learning Disability, 97 students who were diagnosed with an Other Health Impairment, two students who had a Speech or Language Impairment, and 73 students who had an Emotional Disturbance ($N = 1,144$). With respect to the research question, the Pearson chi-square procedure did not reveal the presence of a statistically significant difference in mathematics college-readiness rates among the disability categories, $\chi^2(3) = 4.66, p = .20$. For students who had a Learning Disability, only 5.6% met the HERC Mathematics standard for the 2008-2009 school year, followed by 4.1% of students who had an Other Health Impairment. Frequencies and percentages for mathematics college-readiness rates by disability category are located in Table 2.

differences were present in both subjects college-readiness rates by disability category for students who were enrolled in special education in the 2008-2009 through the 2010-2011 school years. For the 2008-2009 school year, 2,247 students had a Learning Disability, 406 students were diagnosed with an Other Health Impairment, six students had a Speech or Language Impairment, and 233 students had an Emotional Disturbance ($N = 2,992$).

With respect to the research question, the Pearson chi-square procedure did not reveal the presence of a statistically significant difference in both subjects college-readiness rates among the disability categories, $\chi^2(2) = 1.30, p = .52$. Extremely low percentages of students who were Learning Disabled or Other Health Impairment were college-ready in both subjects. No students who were Emotionally Disturbed or Speech or Language Impairment were college-ready in both subjects in the 2008-2009 school year. Frequencies and percentages for both subjects college-readiness rates by disability category are revealed in Table 3.

Table 3. Frequencies and Percentages of the HERC Both Subjects Met Standard by Disability Category for the 2008-2009, 2009-2010, and 2010-2011 School Years.

	Met Standard	Met Standard	Met Standard
Disability Category	2008-2009	2009-2010	2010-2011
Learning Disability	(n = 9) 1.4%	(n = 0) 0%	(n = 12) 1.6%
Other Health Impairment	(n = 1) 3.8%	(n = 0) 0%	(n = 2) 7.7%
Speech or Language Impairment	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%
Emotional Disturbance	(n = 0) 0%	(n = 0) 0%	(n = 0) 0%

For the 2009-2010 school year, the Pearson chi-square procedure did not reveal a statistically significant difference in both subjects college-readiness rates by disability category. Of note for this school year was that no students in the four disability categories were college-ready in both subjects. Table 3 contains the frequencies and percentages for both subjects college-readiness rates by disability category.

With respect to the 2010-2011 school year, a statistically significant difference in both subjects college-readiness rates was not present, $\chi^2(3) = 5.84, p = .12$. Only 7.7% of students who were labeled as Other Health Impairment were college-ready in both subjects and only 1.6% of students who were Learning Disabled were college-ready in both subjects. Presented in Table 3 are the frequencies and percentages for

both subjects college-readiness rates by disability category.

4. Discussion

In this investigation, differences in reading, mathematics, and both subjects college-readiness rates by disability category for students in special education were analyzed using Texas Education Agency Public Education Information Management System data for the 2008-2009 through the 2010-2011 school years. Inferential statistical analyses yielded only one statistically significant difference in reading, and no statistically significant differences in mathematics, and both subjects college-readiness rates for the four groups of students in special education. Effect sizes are delineated in Table 4.

Table 4. Cramer's Vs for Statistically Significant College-Readiness Rates Among Disability Categories for Special Education Students in Reading, Mathematics, and Both Subjects.

School Year	Reading	Mathematics	Both Subjects
2008-2009	Trivial	Not Statistically Significant	Not Statistically Significant
2009-2010	Not Statistically Significant	Not Statistically Significant	Not Statistically Significant
2010-2011	Not Statistically Significant	Not Statistically Significant	Not Statistically Significant

For the three school years of data analyzed, students who were Learning Disabled had the highest college-readiness rates followed by students who were diagnosed with Other Health Impairment. For every year in this investigation, not a single

student who was diagnosed with a Speech or Language Impairment or an Emotional Disturbance were college-ready in reading. Reading college-readiness rates for special education students by disability category are depicted in Figure 1.

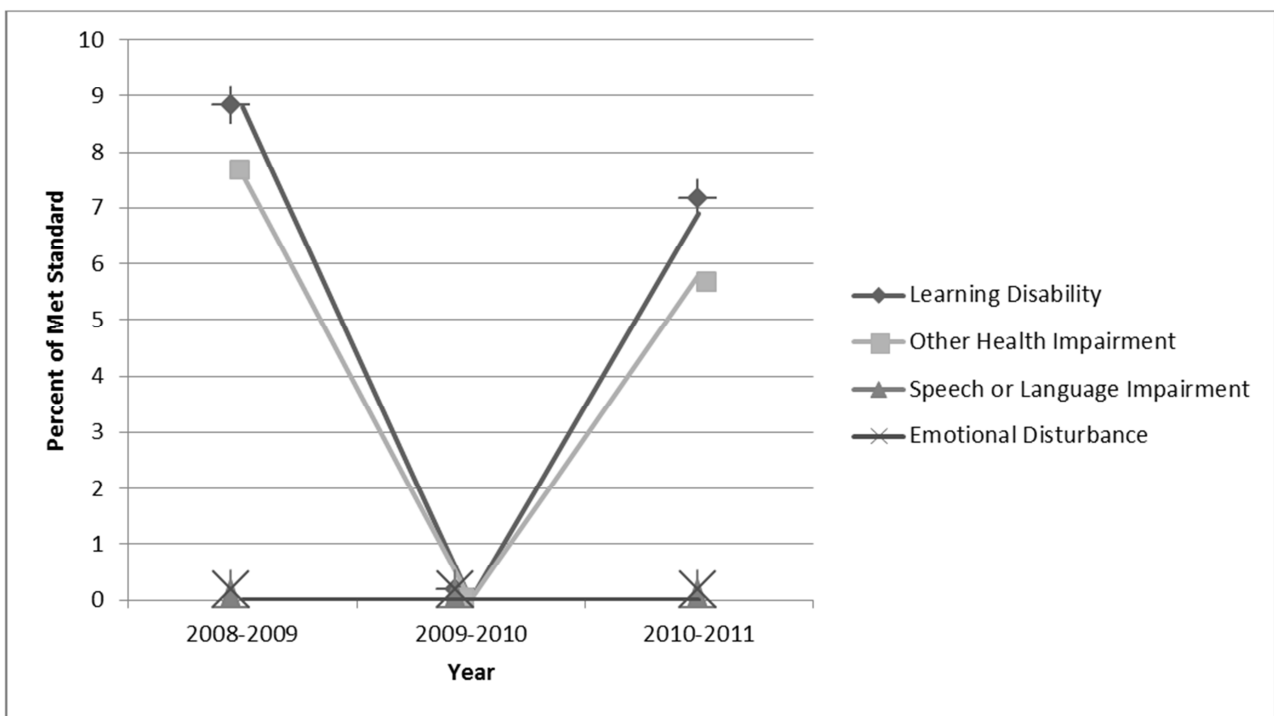


Figure 1. A 3-year trend of college-readiness rates in reading for special education students by disability category in Texas.

For all three school years of data analyzed, not a single student who was diagnosed with either a Speech or Language Impairment or as Emotionally Disturbed met the HERC Mathematics standard. Students who were Learning Disabled had the highest college-readiness rates followed closely by students who were diagnosed with Other Health Impairment. Readers should note; however, the extremely low college-readiness rates that were present for the four groups of students. Depicted in Figure 2 are the mathematics college-readiness rates for special education students by disability category.

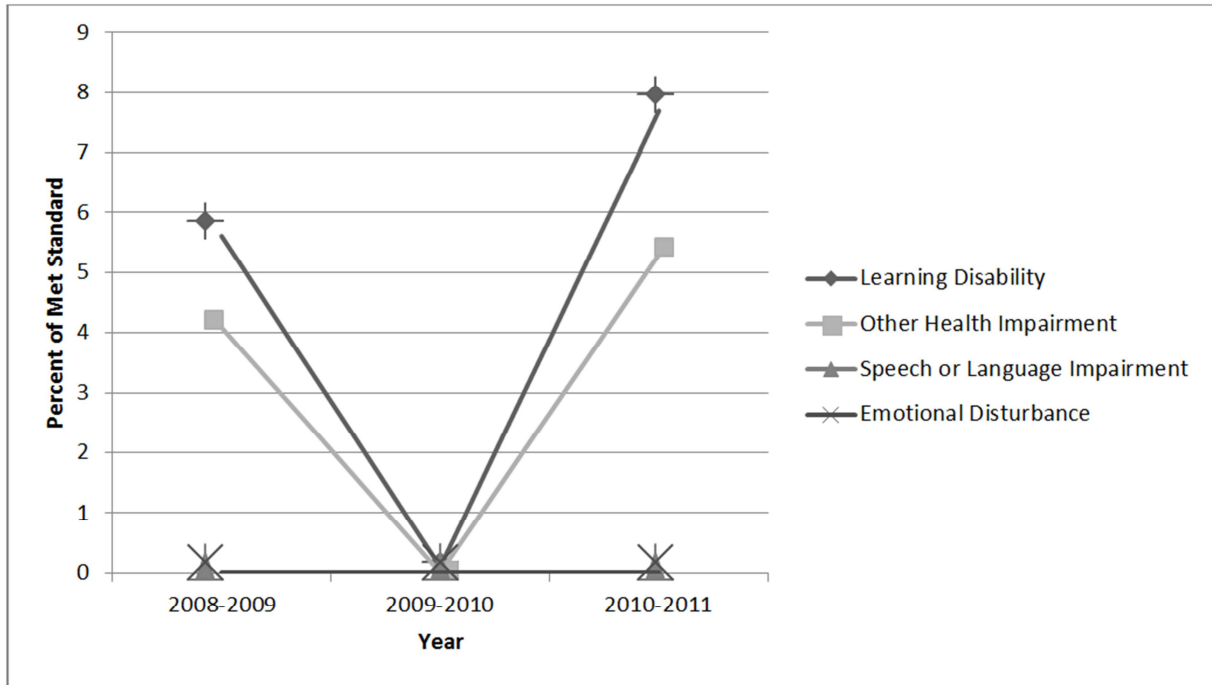


Figure 2. A 3-year trend of college-readiness rates in mathematics for special education students by disability category in Texas.

No student in the four special education categories in the 2009-2010 school year were college-ready in both subjects. Students in all four disability groups had extremely low to nonexistent college-readiness percentages in reading, mathematics, and in both subjects. Depicted in Figure 3 are both subjects college-readiness rates for special education students by disability category.

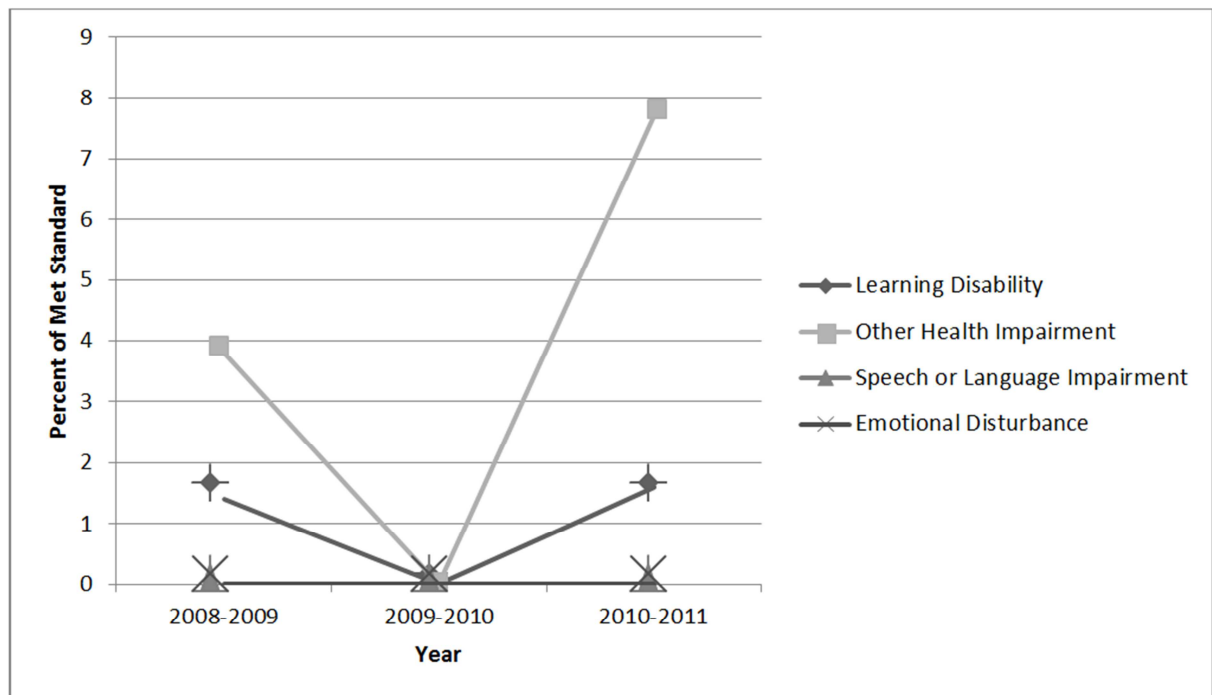


Figure 3. A 3-year trend of college-readiness rates in both subjects for special education students by disability category in Texas.

4.1. Implications for Policy and Practice

Students who were enrolled in special education in this investigation had alarmingly low college-readiness rates. Brault [4] said students with disabilities may require different approaches to their education. It is clear, with these results, another look at the way students with disabilities are being instructed is needed. Policymakers and educational leaders must get involved and enact change for students with disabilities to become more successful. It is evident, educators and families need support to raise the level of academic achievement and college-readiness. Professional development for educators on differentiating in the classroom, co-teaching models, and disability categories is needed. Administrators need to call into action curriculum departments to ensure student needs are being met within the curriculum that is distributed throughout the district. Lastly, policy makers need to ensure school districts are meeting the needs of all of the students.

4.2. Recommendations for Future Research

With the negative relationship between high school completion and students who were retained or received a suspension or expulsion [15], future research should be conducted on college-readiness of students who were enrolled in special education by disability category and by how many times a student has been retained. Another recommendation for future research is to extend this study into other states to determine the degree to which results from this study are generalizable. Lastly, a recommendation for future research is on the effectiveness of the types of accommodations and modifications utilized for students by disability category.

5. Conclusion

In this multiyear, statewide investigation, the extent to which differences were present in college-readiness by disability category of Texas high school students enrolled in special education was addressed. Statewide data were obtained from the Texas Education Agency Public Education Information Management System for the 2008-2009, 2009-2010, and 2010-2011 school years on all students who were enrolled in special education. Inferential statistical analyses revealed that the college-readiness rates of students in the four disability groups were extremely low. Students with Learning Disabilities had the highest reading and mathematics and reading college-readiness rates of the four groups of students whose data were analyzed in this investigation. In the 2009-2010 school year, only two students met the mathematics college-readiness standard. No students met the reading or the both subjects college-readiness standards.

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