

JOURNAL OF EDUCATION AND RECREATION PATTERNS



2021

**VOLUME 2
NUMBER 2**



Journal of Education and Recreation Patterns [JERP]
ISSN: 2757-9344

December, 2021
Volume 2, No 2
<http://www.jerpatterns.com>

The JERP is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the JERP is reviewed by at least two international reviewers with expertise in the relevant subject area.

The JERP is published twice a year in the June and December months.

Publisher and Editor:

Dr. Yalçın TÜKEL
Necmettin Erbakan University
Konya, Turkey
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Journal of Education and Recreation Patterns [JERP] is indexed in Google Scholar, İdealonline, Crossref, Road, Türk Eğitim İndeks, Proquest Exlibris, EBSCO, ASOS indeks

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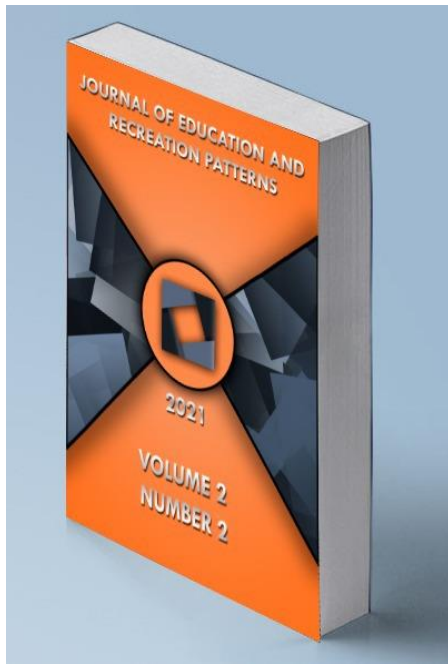
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Journal of Education and Recreation Patterns (JERP)

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Differences in Reading by the Retention Status of English Learners: A Texas, Statewide Investigation

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To cite this article:

Hatfield, J. L., & Slate, J.R. (2021). Differences in Reading by the Retention Status of English Learners: A Texas, Statewide Investigation. *Journal of Education and Recreation Patterns (JERP)*, 2(2), 1-11.

Journal of Education and Recreation Patterns (JERP) is an international scientific, high quality open access, peer viewed scholarly journal provides a comprehensive range of unique online-only journal submission services to academics, researchers, advanced doctoral students and other professionals in their field. This journal publishes original research papers, theory-based empirical papers, review papers, case studies, conference reports, book reviews, essay and relevant reports twice a year (June and December) in online versions.

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Differences in Reading by the Retention Status of English Learners: A Texas, Statewide Investigation

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ARTICLE INFORMATION

Original Research Paper

Received: 10.03. 2021

Revision: 28.06. 2021

Accepted: 12.07. 2021

<https://jerpatterns.com>

December, 2021

Volume: 2, No: 2

Pages: 01-11

Abstract

In this study, the degree to which Kindergarten retention was related to the reading performance of English Learners in Grade 3 was addressed. Through inferential statistical analyses of Texas statewide data, statistically significant differences were yielded between English Learners who had been retained in kindergarten and their counterparts who had not been retained in kindergarten. English Learners who had been retained in kindergarten performed statistically significantly poorer on the Approaches Grade Level standard, the Meets Grade Level standard, and the Masters Grade Level standard on the Texas mandated assessment in Grade 3 than did English Learners who had not been retained. Clearly, retention in Kindergarten of these English Learners did not yield the intended outcomes. Implications and recommendations for future research are discussed.

Keywords: Retention, English Learners, Kindergarten, Intervention, Grade 3, Texas

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INTRODUCTION

The Texas Education Agency (2020) reported that 1,055,043 English Learners were enrolled in Texas public schools in the 2018-2019 school year. Twelve years previously, in 2006-2007, less than three quarters of a million English Learners were enrolled in Texas public schools. A decade before that, in 1996-1997, just over half a million English Learners were enrolled in Texas public schools. As such, over the past two decades, the State of Texas has experienced a 50% increase in the number of English Learners enrolled in Texas public schools.

English Learners continue to struggle to meet state assessment expectations in Texas. According to Bowman et al. (2010), academic achievement gaps are present for Spanish speaking students from Mexico. In regard to Spanish speaking students, 76% do not meet the state expectation in reading and 53% do not meet the expectations in mathematics. In more recent studies, researchers (e.g., Bowman-Perrott et al., 2009; Ludwig et al., 2019) have indicated interventions on specific reading skills (e.g., phonemic awareness, phonics, fluency, vocabulary, and comprehension) will have positive effects on the academic growth of English Learners.

One intervention that has been used for decades is that of retention or holding students back and having them repeat the same grade level. Retention, however, does not fill in academic gaps. It is quality teaching and intervention that play a vital role in student progress. Teachers must build quality interventions for students not meeting expectations, which researchers (Bowman-Perrott et al., 2009; Hatti, 2017; Ludwig et al., 2019) indicate are the key to progress, not retention. Other researchers (Bowman-Perrott et al., 2009; Ludwig et al., 2019) have noted that a student's primary language must be strong before second language acquisition can occur successfully. Intervention is necessary in both languages to close the academic gaps of English Learners.

In Texas, students are required in Grades 5 and 8 by the Student Success Initiative to pass the State of Texas Assessments of Academic Readiness (STAAR). Students who fail the STAAR tests will be retained. All other grade level retention policies in Texas are implemented at the school district level. According to the Texas Education Agency (2020), students who are continuously promoted pass the state assessment at a higher rate than students who had been retained. Interestingly, Locke and Sparks (2019) concluded that Kindergarten and Grade 1 teachers who have less than three years of experience usually do not have enough knowledge to determine if a student should be retained. Inexperienced teachers make recommendations for retention at a higher rate than experienced teachers. Also established was that retention decreased for students who were living in poverty whose parents are active in the child's learning at school and home (Locke & Sparks, 2019).

The effect of retention on students has been discussed in both social/emotional and academic progress spheres. Hatti (2017) completed a meta-analysis study in which he documented the different types of activities in education that affect student learning measured with effect sizes. In this study, retention was clearly established as the poorest possible choice that can be made for students who struggle to learn the expected material on the expected timeline. This information coupled with researchers (Clotfelter et al., 2009; DeFeyter et al., 2020; Locke & Sparks, 2019; Range et al., 2012) who have determined that gains do not last from retaining students should make it clear that retention is not a viable solution.

English Learners require intensive intervention to close the academic achievement gaps and retention only adds a negative social/emotion effect. As research studies are published about the effects of retention and intervention for English Learners, intervention is necessary for building skills. While state and federal laws make it enticing for administrators and teachers

to retain students in the hope they will pass the next state assessment, retention has been documented to be an ineffective option.

METHOD

Statement of the Problem

English Learners tend to have academic achievement gaps, gaps that have resulted in many English Learners being retained. Many individuals believe when students have an additional year to learn the English language, that they will close the gap. Other researchers (e.g., Clotfelter et al., 2009; DeFeyter et al., 2020; Range et al., 2012) have determined, however, that any academic gains are short lived. Curran and Kitchin (2018) reported the presence of statistically significant larger gaps in science, starting in kindergarten based on ethnicity/race compared to gaps in mathematics and reading. Deficits continue to be a lifelong concern as Lazarus and Ortega (2007) stated that low-achieving students are likely to be retained, drop out of school, and hold low wage jobs.

Purpose of the Study

The overall purpose of this study was to determine the degree to which Kindergarten retention was related to the reading performance of English Learners in Grade 3 on the Texas state-mandated assessment. One specific purpose was to ascertain the extent to which Kindergarten retention of English Learners was related to their Grade 3 Approaches Grade Level Standard performance. The next purpose was to ascertain the extent to which Kindergarten retention of English Learners was related to their Grade 3 Meets Grade Level Standard performance. The last purpose was to determine the degree to which Kindergarten retention of English Learners was related to their Grade 3 Masters Grade Level Standard performance.

Research Questions

In this study, the following research questions were addressed: (a) What is the difference in the Approaches Grade Level Standard performance of English Learners by their retention status?; (b) What is the difference in the Meets Grade Level Standard performance of English Learners by their retention status?; and (c) What is the difference in the Masters Grade Level Standard performance of English Learners by their retention status?

Significance of the Study

This study was conducted to determine the degree to which retention in Kindergarten was related to reading performance in Grade 3 of English Learners. Accordingly, results from this statewide investigation would add to the limited available research. Though research studies have been conducted on retention (e.g., Lazarus & Ortega, 2007; Range et al., 2012) few published empirical articles could be located concerning research in Texas on the degree to which Kindergarten retention was related to the reading performance of English Learners in Grade 3. Several stakeholders would benefit from this study when making retention decisions which include elementary principals, elementary teachers, central office officials, and parents of English Learners.

Research Design

A causal comparative research design was present through the use of archival data (Johnson & Christensen, 2017). All data analyzed herein were pre-existing data. The independent variable was that of Kindergarten retention status. Three dependent variables, Approaches Grade Level, Meets Grade Level, and Masters Grade Level, were present. A causal comparative research design analyzing archival data was optimal using pre-existing data from the Texas Education Agency.

Participants and Instrumentation

Participants in this study were English Learners: One group of English Learners had been retained in Kindergarten and one group of English Learners had not been retained in Kindergarten. Student data on reading achievement, English Language Learner status, and retention status in Kindergarten were downloaded from an existing database from the Texas Education Agency Public Education Information Management System. Specifically focused upon were the State of Texas Assessments of Academic Readiness results for third grade. The State of Texas Assessments of Academic Readiness (STAAR) Grade 3 Reading is a measure in three main categories: understanding across genres, analysis of literary text, and analysis of informational text. Students are measured to determine if they have sufficient knowledge to move on to the next grade level. Texas also measures if students have received the necessary information from their teachers for academic success (Texas Education Agency, n.d., para. 5).

For the purpose of this research the following definitions were used. According to the Texas Education Agency, the Approaches Grade Level “category indicates that students are likely to succeed in the next grade or course with targeted academic intervention. Students in this category generally demonstrate the ability to apply the assessed knowledge and skills in familiar contexts.” Meets Grade Level indicates “students have a high likelihood of success in the next grade or course but may still need some short-term, targeted academic intervention. Students in this category generally demonstrate the ability to think critically and apply the assessed knowledge and skills in familiar contexts.” Masters Grade Level specifies “students are expected to succeed in the next grade or course with little or no academic intervention. Students in this category demonstrate the ability to think critically and apply the assessed knowledge and skills in varied contexts, both familiar and unfamiliar” (Texas Education Agency, 2017). According to the Encyclopedia of Children’s Health (2020) retention is “repeating an academic year of school” (para. 1). The last term to define is English Language Learner from The Glossary of Education Reform (2013) defined as “students who are unable to communicate fluently or learn effectively in English, who often come from non-English-speaking homes and backgrounds, and who typically require specialized or modified instruction in both the English language and in their academic courses” (para. 1).

FINDINGS

To ascertain whether differences were present differences in reading performance by the retention status of English Learners, Pearson chi-square analyses were conducted. This statistical procedure was viewed as the optimal statistical procedures to use because frequency data were present for retention status and for the three STAAR Reading performance measures. As such, chi-squares are the statistical procedure of choice when all variables are categorical (Slate & Rojas-LeBouef, 2011). In addition, with the large sample size, the available sample

size per cell was more than five. Therefore, the assumptions for using a Pearson chi-square procedure were met.

For the first research question on the Approaches Grade Level standard performance of English Learners by their retention status, the result was statistically significant, $\chi^2(1) = 53.03$, $p < .001$. The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). As revealed in Table 1, almost twice the percentage of English Learners who were retained in Kindergarten did not meet the Approaches Grade Level standard compared to English Learners who were not retained in Kindergarten.

Table 1. Descriptive Statistics in Approaches Reading Performance by the Kindergarten Retention Status of English Learners

Retention Status	Did Not Meet <i>n</i> and %age of Total	Met <i>n</i> and %age of Total
Not Retained	(<i>n</i> = 3,374) 27.4%	(<i>n</i> = 8,953) 72.6%
Retained	(<i>n</i> = 67) 57.8%	(<i>n</i> = 49) 42.2%

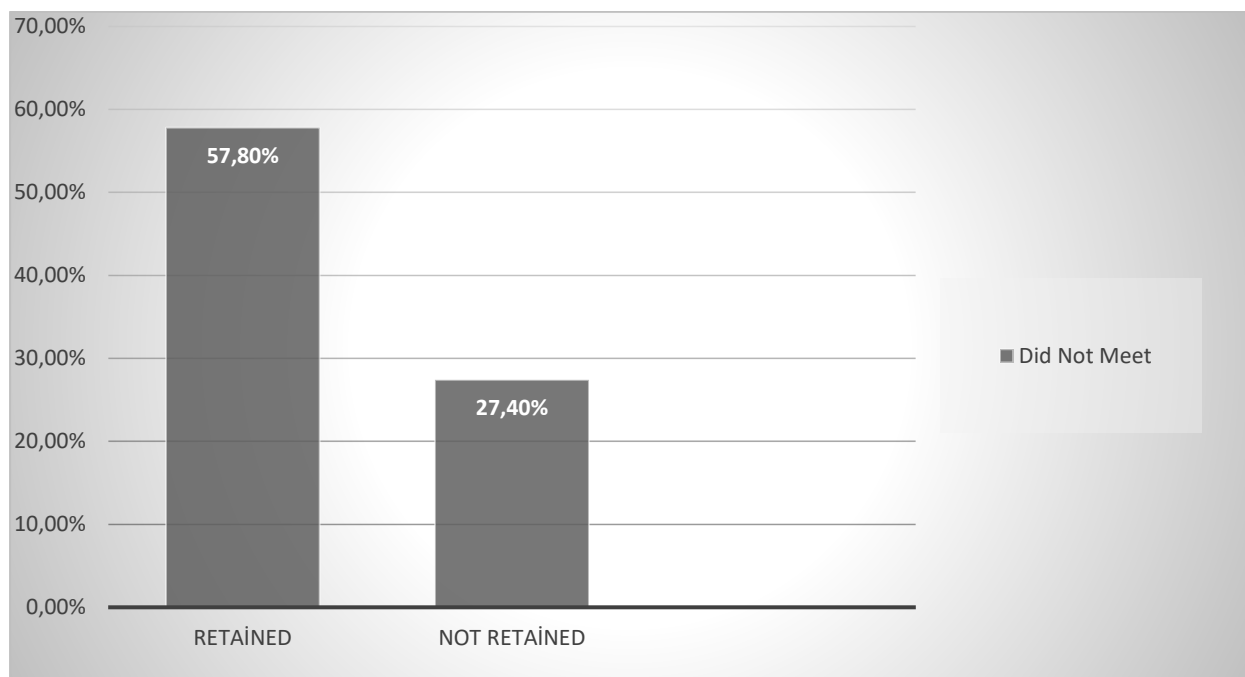
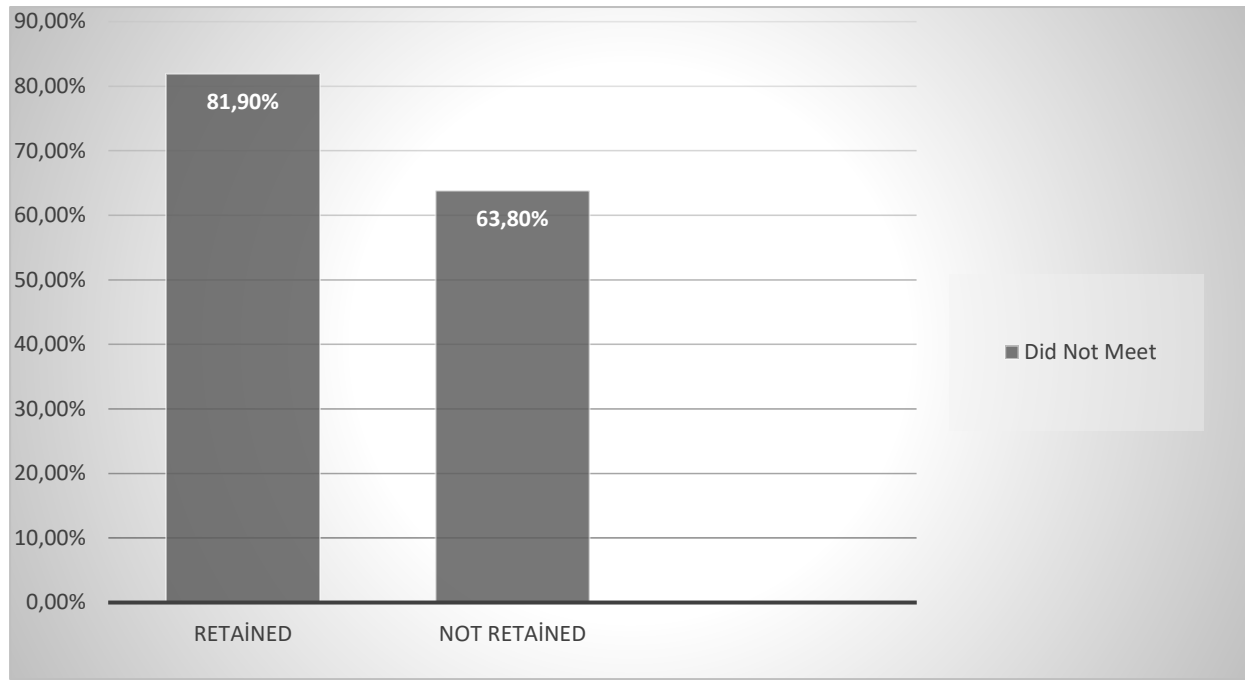


Figure 1. Student percentages in Approaches Grade Level in reading by the Kindergarten retention status of English Learners.

For the second research question on the Meets Grade Level standard performance of English Learners by their retention status, the result was statistically significant, $\chi^2(1) = 16.32$, $p < .001$. The effect size for this finding, Cramer's V, was below small, .04 (Cohen, 1988). As delineated in Table 2, the percentage of English Learners who were retained in Kindergarten and who met this standard was less than half the percentage of English Learners who were not retained in Kindergarten and who met this standard.

Table 2. Descriptive Statistics in Meets Reading Performance by the Kindergarten Retention Status of English Learners

Retention Status	Did Not Meet <i>n</i> and %age of Total	Met <i>n</i> and %age of Total
Not Retained	(<i>n</i> = 7,865) 63.8%	(<i>n</i> = 4,461) 36.2%
Retained	(<i>n</i> = 95) 81.9%	(<i>n</i> = 21) 18.1%

**Figure 2.** Student percentages in Meets Grade Level in reading by the Kindergarten retention status of English Learners.

For the third research question on the Masters Grade Level standard performance of English Learners by their retention status, the result was statistically significant, $\chi^2(1) = 8.41$, $p = .004$. The effect size for this finding, Cramer's *V*, was below small, .03 (Cohen, 1988). The percentage of English Learners who were retained in Kindergarten and who did meet the Masters Grade Level standard was less than half the percentage of English Learners who were not retained in Kindergarten and who met the Masters Grade Level standard.

Table 3. Descriptive Statistics in Masters Reading Performance by the Kindergarten Retention Status of English Learners

Retention Status	Did Not Meet <i>n</i> and %age of Total	Met <i>n</i> and %age of Total
Not Retained	(<i>n</i> = 9,951) 80.7%	(<i>n</i> = 2,375) 19.3%
Retained	(<i>n</i> = 106) 91.4%	(<i>n</i> = 10) 8.6%

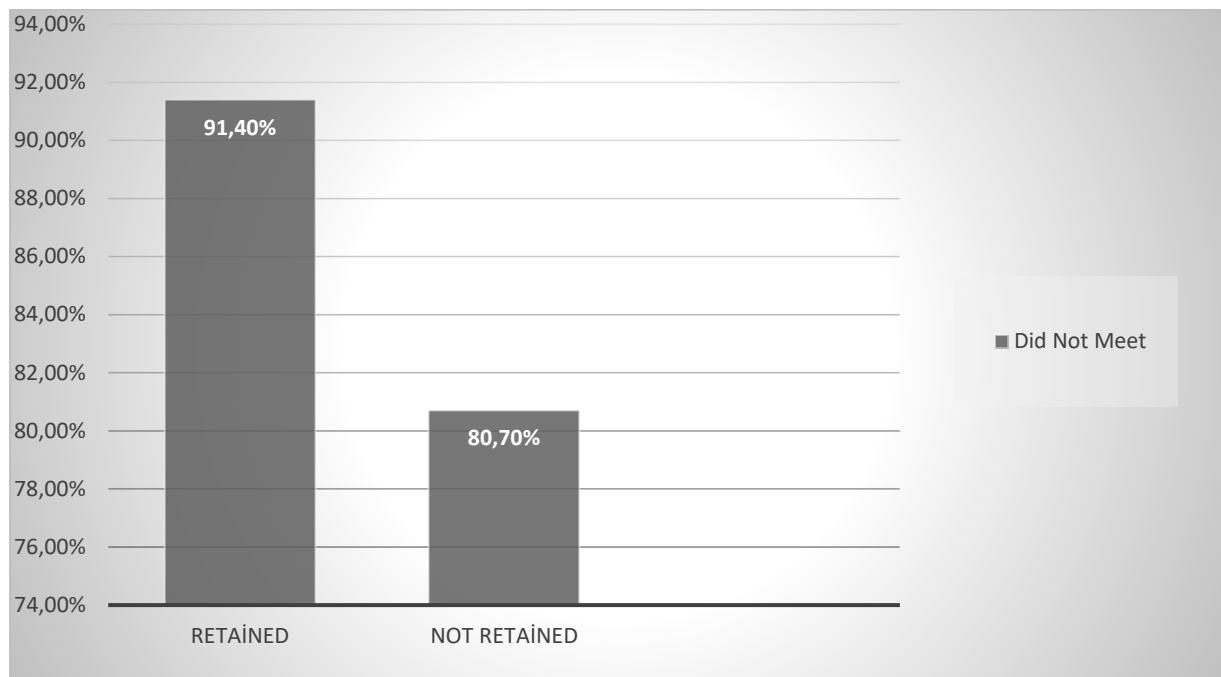


Figure 3. Percentages of students in Masters Grade Level in reading by the Kindergarten retention status of English Learners.

DISCUSSION AND RESULT

In this study, the degree to which retention in Kindergarten was related to three reading measures on the Texas state-mandated assessment in Grade 3 of English Learners was addressed. Statistically significant differences were revealed on the Approaches Grade Level standard, the Meets Grade Level standard, and the Masters Grade Level standard. In all three instances, English Learners who had been retained in Kindergarten performed statistically significantly poorer than English Learners who had not been retained in Kindergarten. Though effect sizes were below small, almost twice the percentage of English Learners who were retained in Kindergarten did not meet the Approaches Grade Level standard compared to English Learners who were not retained in Kindergarten. about one fourth more English Learners did not meet the Meets Grade Level standard who were retained in Kindergarten than English Learners who were not retained in Kindergarten. Concerning the Masters Grade Level standard, English Learners who were retained in Kindergarten and who met the Masters Grade Level standard was less than half the percentage of English Learners who were not retained in Kindergarten and who met this standard.

Regarding the research questions, as each standard increased in difficulty, the percentage of English Learners who did not meet the expectation increased in both groups who were retained and who were not retained. The number of students who were retained in Kindergarten was slightly less than one percent of the English Language Learner population in Kindergarten for that school year. In reviewing the descriptive statistics, it is also important to note that about two thirds of the English Language Learner population did not meet the Meets Reading performance standard.

As discussed in the opening paragraphs of this article, English Learners continue to struggle to meet state assessment expectations in Texas. Findings delineated herein were congruent with Bowman et al. (2010) who documented the clear presence of academic

achievement gaps Spanish speaking students from Mexico. With specific reference to reading, English Learners who were retained had much higher percentages who did not meet Texas state expectations than English Learners who had not been retained. Of note, however, is that both groups of English Learners performed poorly in reading. Though no comparative interventions to retention were addressed herein, an argument could be made that Hatti's (2017) indication that retention was the poorest possible intervention was correct. Our findings, in conjunction with the results of other researchers (Clotfelter et al., 2009; DeFeyter et al., 2020; Locke & Sparks, 2019; Range et al., 2012), provide clear evidence that whatever gains may exist from retention, if any, are not long lasting. As such, we are in strong agreement with researchers and policymakers that that retention is not a viable solution.

Implications for Policy and for Practice

Because almost 82% of English Learners did not meet the standard for Meets Reading Performance, policies need to be created regarding specific requirements about the retention of English Learners. Results from this investigation could be used to bolster the argument that retention is simply not an effect intervention for young students. Practitioners need to make sure they have a well-established response to intervention in place for all struggling students as other researchers have indicated intervention as the key to progress, not retention (Bowman-Perrott et al., 2009; Hatti, 2017; Ludwig et al., 2019). For the response to intervention, teachers who work with English Learners should receive appropriate training.

Recommendations for Future Research

Based upon the results of this investigation, several recommendations for future research can be made. It is recommended that future researchers complete a multiyear study to determine if the percentages of retained English Learners who did not meet the Reading Performance standard is consistent each year. Researchers could further determine if the students retained would benefit from a different intervention, such as, working with specialist in small groups. Another study where researchers could compare reading and mathematics performance to determine the differences could be conducted. It is also recommended that future researchers conduct a study to determine why two thirds of all English Learners did not meet the Reading Performance standard.

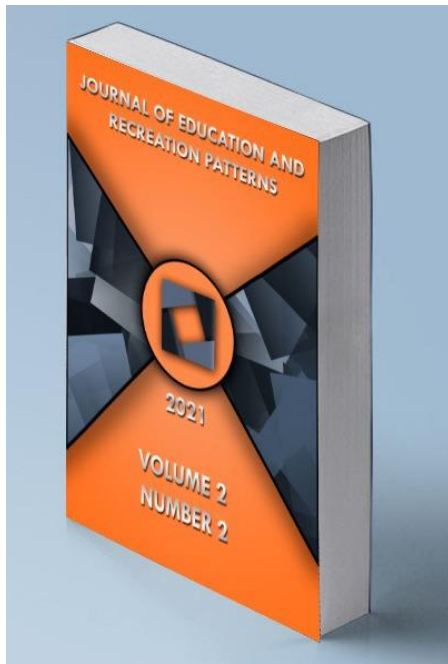
CONCLUSION

The overall purpose of this study was to determine the degree to which Kindergarten retention was related to the reading performance of English Learners in Grade 3. About one quarter more English Learners did not meet the Meets Reading standard who were retained in Kindergarten than English Learners who were not retained in Kindergarten. It is important to note that about two thirds of all the English Learners did not meet the Meets Reading performance standard. Results from this investigation on Kindergarten retention provide clear and strong evidence that English Learners did not benefit from being retained. Even after retention, three years later their academic achievement was still below the academic achievement of their peers who had not been retained.

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Journal of Education and Recreation Patterns (JERP)

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Examining Life Satisfaction and Self-Compassion Among Students Attending a Historically Black College and University in the U.S.

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To cite this article:

Fleming, K. (2021). Examining Life Satisfaction and Self-Compassion Among Students Attending a Historically Black College and University in the U.S. *Journal of Education and Recreation Patterns (JERP)*, 2(2), 12-20

Journal of Education and Recreation Patterns (JERP) is an international scientific, high quality open access, peer viewed scholarly journal provides a comprehensive range of unique online-only journal submission services to academics, researchers, advanced doctoral students and other professionals in their field. This journal publishes original research papers, theory-based empirical papers, review papers, case studies, conference reports, book reviews, essay and relevant reports twice a year (June and December) in online versions.

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Examining Life Satisfaction and Self-Compassion Among Students Attending a Historically Black College and University in the U.S.

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ARTICLE INFORMATION

Original Research Paper

Received: 18.05.2021

Revision: 28.11.2021

Accepted: 10.12.2021

<https://jerpatterns.com>

December, 2021

Volume: 2, No: 2

Pages: 12-20

Abstract

This study aims to examine the relationship between life satisfaction and self-compassion among university students attending a historically black college and university (HBCU) in the U.S. Southeast. A non-experimental descriptive research design, which included a self-report questionnaire using the Satisfaction with Life Scale and Self-Compassion Scale was applied to this study. A total of 148 university students enrolled in leisure and health courses at the HBCU participated in the study. A significant association was found related to life satisfaction and measures of self-compassion. The association of life satisfaction and self-compassion was also measured by controlling for gender, GPA, and perceived health, thus indicating sub-scale of self-kindness may be a predictor of life satisfaction.

Keywords: Self-Compassion, Life Satisfaction, College Students, Health

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INTRODUCTION

Since the publication of the first two articles on the topic of self-compassion (Neff, 2003a; Neff, 2003b), over 200 articles and research projects have been produced on the subject (Neff & Dahm, 2015). Research supports the correlation of self-compassion with psychological health (Dimitra et al., 2020) and life satisfaction (Jennings & Tan, 2014; Yang et al., 2016). Despite the growing literature related to self-compassion, minimal research is currently available related to life satisfaction and self-compassion among Black or African Americans, with even fewer studies examining the experiences of undergraduate students.

Self-compassion is the ability to extend compassion to one's self in instances of personal inadequacies, failures, or mistakes that may cause physical, mental, or emotional suffering and take on a non-judgmental understanding experiences are part of common humanity (Neff, 2003a; Neff, 2003b). The dimensions of self-compassion – self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification must be implemented in order to achieve self-compassion. More specifically, self-kindness is understanding and supportive of one's self through encouraging and nurturing dialogs instead of with self-judgment, common humanity is recognizing individual imperfections are not experienced in isolation and part of the human experience, and mindfulness in the awareness of the need for balance in negative emotions and thoughts to avoid overidentifying with painful feelings and thoughts (Neff, 2003a; Neff, 2003b). Each component works in conjunction with the other.

Life satisfaction is the self-perceived satisfaction of an individual's quality of life and overall well-being, measured by the emotional and judgmental components of well-being (Diener et al., 1985). While several existing studies have supported the concept of self-compassion as a link and contributing factor to life-satisfaction, few studies have been conducted on the underlying mechanisms of the relationship between self-compassion and life satisfaction (Jennings & Tan, 2014; Neff et al., 2008; Yang et al., 2016). Furthermore, life satisfaction was found to be positively associated with self-compassion (Li et al., 2021).

Although the benefits of self-compassion are established, the impact on students attending historically Black colleges and universities are not well-known (Blanden et al., 2021). By understanding the associations of self-compassion and life satisfaction among African American students, the present study intends to serve as a preliminary analysis to bring awareness to the importance of self-compassion and well-being to faculty and high education administrators.

METHOD

Purpose of the Study

The purpose of the study is to examine the association between life satisfaction and self-compassion. More specifically, the study will explore the levels of life satisfaction among undergraduate students attending a historically Black college and university. An exploration of participants levels of self-compassion will also be examined to determine the association with life satisfaction. Furthermore, the study examines individual factors, such as gender, GPA, and perceived health to determine whether differences and associations exists in levels of life satisfaction and self-compassion.

Research Questions

The following research questions were addressed in this study: (a) What are differences in participants satisfaction with life by gender, GPA, and perceived health? (b) What is the association between satisfaction with life and measures of self-compassion? (c) Does self-compassion predict levels of life satisfaction when controlling for gender, GPA, and perceived health?

Research Design

A non-experimental descriptive research design was applied to the study. A self-report questionnaire was administered to measure satisfaction of life and self-compassion among Black and African American undergraduate students attending a HBCU. Subject demographic information also included gender, grade point average (GPA), and perceived health.

Sampling

A convenience sample was used to select participants for the study, which consisted of students between the ages of 18-24 years old enrolled in undergraduate health, physical education, and recreation related courses. A total of 148 university attending a HBCU participated in the study. Of the students who participated in the study, 77% (n = 114) were women and 23% (n = 34) men. Half (n = 74) of the participants were 1st year college students and the other 50% (n = 74) consisted of 2nd-4th year college students. All participants identified as Black or African American.

Before administering the survey, approval was granted by the Florida A&M University Institutional Review Board. Participants were also provided with written informed consent prior to administering the questionnaire.

Data Collection Tools

For the purposes of this study, the three major sections examined include measures of life satisfaction, self-compassion, and demographic characteristics. The first section of the questionnaire consisted of five items adapted from the Satisfaction with Life Scale to measure life satisfaction (Diener et al., 1985). The Satisfaction with Life Scale consists of a Likert scale ranging from 1=strongly disagree to 7 = strongly agree using five items (Diener et al., 1985). The results of the Cronbach's alpha in this study was .813, which indicates the scale is reliable measure for this study and supported by previous research (Blanden et al., 2021). The second section of the questionnaire asked participants to report levels of self-compassion using the Self-Compassion Scale (Neff, 2003a). Self-compassion is assessed with 26 items that includes sub-components of self-kindness, common humanity, mindfulness, self-judgment, isolation, and over-identification using a 5-point Likert scale ranging from 1 = almost never to 5 = almost always (Neff, 2003a). The responses in the current study indicate an acceptable to good level of internal consistency for measures of self-compassion ($\alpha = .790$), self-kindness ($\alpha = .746$), common humanity ($\alpha = .763$), mindfulness ($\alpha = .720$), self-judgment ($\alpha = .761$), isolation ($\alpha = .747$), and over-identification ($\alpha = .693$). The Cronbach's alpha levels for the self-compassion subscales are consistent with previous studies related to the psychometric properties of the Self-Compassion Scale among African Americans (LoParo, 2018, Zhang et al., 2019). The third section of the study reported demographic information related to race, gender, age, and perceived health.

Data Analysis

SPSS 27.0 was used to analyze the data to include descriptive statistics and associations. More specifically, Cronbach's alpha was used to measure the reliability of select items (Cronbach, 1951). Pearson chi-square and independent t-tests were used to determine prevalence and frequencies as well as significant associations of discrete variables (Huck, 2012). Binary logistic regressions were conducted to predict outcomes explored in the study (Huck, 2012), which required dichotomizing variables to high and low levels of satisfaction of life, self-compassion, and perceived health. By splitting the distribution of median scores, variables related to satisfaction of life, self-compassion, and GPA were dichotomized.

FINDINGS

To determine the differences in participant satisfaction with life, a series of Pearson Chi-squares were conducted to determine associations by gender, GPA, perceived health, and self-compassion variables (see Table 1). Significant associations were found between levels of satisfaction of life and overall self-compassion ($\chi^2 = 11.28$, $p < .01$), self-kindness ($\chi^2 = 12.426$, $p < .01$), common humanity ($\chi^2 = 6.201$, $p < .05$), and mindfulness ($\chi^2 = 9.581$, $p < .01$). There were no statistically significant associations between gender, GPA, perceived health, self-judgment, isolation, and overidentification.

Table 1. Participants level of satisfaction with life by self-compassion and covariates.

Variables	Low Satisfaction with Life	High Satisfaction with Life	χ^2	p
Gender				
Female	21 (77.8%)	85 (77.3%)	.003	.995
Male	6 (22.2%)	25 (22.7%)		
GPA				
3.2 or lower	15 (55.6%)	50 (45.5%)	.887	.346
3.3 or higher	12 (44.4%)	60 (54.5%)		
Perceived Health				
Fair/Poor	9 (33.3%)	27 (24.5%)	.864	.353
Excellent/Good	18 (66.7%)	83 (75.5%)		
Self-Compassion				
Low	22 (81.5%)	50 (45.5%)	11.285	.001*
High	5 (18.5%)	60 (54.5%)		
Self-Kindness				
Low	22 (81.5%)	48 (43.6%)	12.426	.001*
High	5 (18.5%)	62 (56.4%)		
Self-Judgment				
Low	15 (55.6%)	50 (45.5%)	.887	.346
High	12 (44.4%)	60 (54.5%)		
Common Humanity				
Low	19 (70.4%)	48 (43.6%)	6.201	.013*
High	8 (29.6%)	62 (56.4%)		
Isolation				
Low	15 (55.6%)	41 (37.3%)	2.998	.083
High	12 (44.4%)	69 (62.7%)		
Mindfulness				
Low	21 (77.8%)	49 (44.5%)	9.581	.002*
High	6 (22.2%)	61 (55.5%)		
Over-Identification				
Low	17 (63.0%)	50 (45.5%)	2.659	.103
High	10 (37.0%)	60 (54.5%)		

Bivariate correlation was conducted to determine the significant associations between gender, GPA, and perceived health as well as satisfaction with life and measures of self-

compassion (see Table 2). Gender was negatively associated with perceived health ($r = -.247$, $p = .01$), self-judgment ($r = -.167$, $p = .05$), over-identification ($r = -.181$, $p = .05$), and positively associated with GPA ($r = .200$, $p = .05$). Satisfaction with life was positively associated with self-kindness ($r = .301$, $p = .01$), common humanity ($r = .213$, $p = .05$), and mindfulness ($r = -.264$, $p = .01$). Self-kindness was positively associated with self-judgment ($r = .269$, $p = .01$), common humanity ($r = .283$, $p = .01$), and mindfulness ($r = .406$, $p = .01$). Self-judgment was positively associated with isolation ($r = .505$, $p = .01$) and over-identification ($r = .455$, $p = .01$). Common humanity was positively associated with mindfulness ($r = .446$, $p = .01$) and both isolation ($r = .511$, $p = .01$) and mindfulness ($r = .163$, $p = .05$) were positively associated with over-identification. No significant associations were found among remaining variables to include GPA and perceived health.

Table 2. Bivariate Correlations of Cv, Life Satisfaction, and Self-Compassion

Variable	2	3	4	5	6	7	8	9	10
1 Gender	.200*	-.247**	-.005	.047	-.167*	.086	-.161	-.032	-.181*
2 GPA		-.116	.080	.094	-.069	.108	.038	.041	-.069
3 Perceived health			-.125	-.054	-.109	.149	-.084	.081	.054
4 Satisfaction with Life				.301**	.080	.213*	.148	.264**	0.139
5 Self-Kindness					.269**	.283**	.160	.406**	.025
6 Self-Judgement						.145	.505**	.109	.455**
7 Common Humanity							.060	.446**	.065
8 Isolation								.056	.511**
9 Mindfulness									.163*
10 Over-Identification									

* $p < .05$, ** $p < .01$

To analyze whether self-compassion predicts levels of life satisfaction when controlling for gender, GPA and perceived health, a hierarchical regression analysis was conducted (see Table 3). Gender, GPA, and perceived health were entered in Step 1 as control variables. Step 2 included the self-compassion subscales. The self-compassion subscales explained 11.3% of the variance in satisfaction with life.

Table 3. Summary of hierarchical regression analysis for variables predicting satisfaction with life

Variable	Model 1			Model 2		
	B	SE B	β	B	SE B	β
Gender	-.003	.086	-.003	-.001	.084	-.001
GPA	.072	.070	.090	.033	.068	.042
Perceived health	.079	.088	.088	.055	.078	.061
Self-Kindness				.195	-.076	.246*
Self-Judgement				-.086	.081	-.108
Common Humanity				.086	.075	.108
Isolation				.073	.083	.090
Mindfulness				.075	.081	.094
Over-Identification				.100	.081	.126
R^2		.014			.641	
F for change in R^2		.152			3.441**	

* $p < .05$, ** $p < .01$

DISCUSSION AND RESULTS

The purpose of the study is to examine the association between life satisfaction and self-compassion. The present study extends the body of knowledge related to self-compassion and life satisfaction among students attending a historically Black college and university. While previous research indicates students with high levels of satisfaction with life tend to also have high GPAs (Lyons & Huebner, 2016), no association was found between satisfaction with life, self-compassion, and GPA in the current study. The lack association of association between self-compassion and GPA is consistent with current findings among sport science students in Jordan (Al-Awamleh, 2020).

Current research examining different demographics characteristics and self-compassion across different cultures is limited; however, a recent study (Tóth-Király & Neff, 2021) found higher levels of self-compassion among Spanish, Brazilian, and Australian adults and decreased levels of self-compassion among the United Kingdom and Greece. Students from the U.S., Canada, and Norway found no differences in levels of self-compassion (Tóth-Király & Neff, 2021). In addition, the results from the study (Tóth-Király & Neff, 2021) supports the association of satisfaction with life and self-compassion found in the current study. These findings are supported by a study on recent graduates in Jakarta, which found higher levels of self-compassion is associated with higher levels of life satisfaction (Yunita & Lee, 2021). Similarly, self-compassion is positively associated with life-satisfaction among university students in China (Li et al., 2021), South Korea (Shin, 2019), and first year students in the U.S. (Booker & Dunsmore, 2019).

While research on self-compassion and life satisfaction among students attending a historically Black college and university is limited, a recent study conducted at Virginia State University, which is a public historically Black land-grant university in the U.S., found associations between self-compassion subscales and life satisfaction among African American students (Blanden et al., 2021). This finding is consistent with the current research, which found positive associations with the sub-scale of self-kindness. More specifically, findings from the hierarchical regression analysis is aligned with previous research related to self-kindness as a predictor of increased life satisfaction (Blanden et al., 2021; Neff & Davidson, 2016), indicating higher quality of life is likelier among people who are kinder and understanding to oneself.

CONCLUSION

The current study found significant associations related to satisfaction of life and self-compassion among undergraduate students attending a historically Black college and university. Self-compassion should be considered as higher education leaders and faculty continue to increase efforts to support the well-being of students. The results of the study extend the body of knowledge related to life satisfaction and self-compassion among university students attending an HBCU. Self-compassion may be a potential intervention to impact life satisfaction while attending university.

Limitations and Future Research

Several limitations were present in the study. The ability to generalize the study across populations is limited due to the use of convenience sampling and cross-sectional data collection. The overall sample size of the study included a limited number of males. The sample

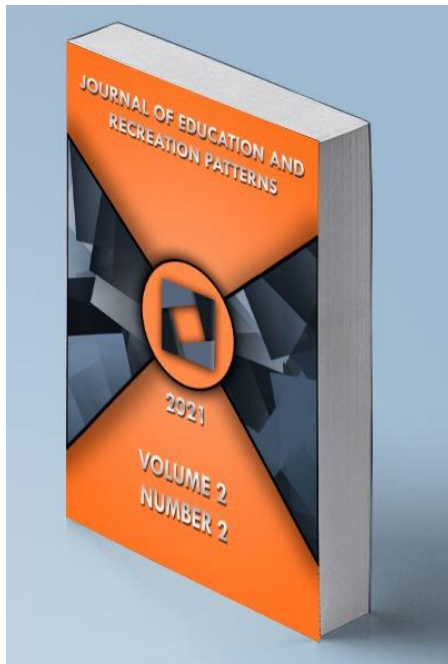
is also limited to Black or African American students who attended a historically Black college or university and does not represent the ethnicities of all students. Participants were also limited to undergraduate students enrolled in health, physical education, and recreation related courses.

Based upon the findings from this study, future studies related to self-compassion and life satisfaction should consider the inclusion of students who attend historically Black college and universities throughout the U.S. In addition, interventions that focus on self-compassion, such as Mindful Self-Compassion Training, should be considered to determine the potential impact on life satisfaction as a means to improve student well-being. Conducting a longitudinal study may also be considered to determine causal relationships between the variables. Examining other variables related to health and well-being among students is also needed to provide a more comprehensive understanding of self-compassion. Furthermore, future studies should consider examining mediators related to the relationship between self-compassion and life satisfaction.

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Journal of Education and Recreation Patterns (JERP)

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Texas Elementary School Teacher and Student Demography: A Multiyear Investigation

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To cite this article:

Move, A.K., & Slate, J.R., Lunenburg, F.C., Martinez-Garcia, C., Hemmen, J.W. (2021). Texas Elementary School Teacher and Student Demography: A Multiyear Investigation *Journal of Education and Recreation Patterns (JERP)*, 2(2), 21-39

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Texas Elementary School Teacher and Student Demography: A Multiyear Investigation

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ARTICLE INFORMATION

Original Research Paper

Received: 10.03.2021

Revision: 10.12.2021

Accepted: 19.12.2021

<https://jerpatterns.com>

December, 2021

Volume: 2, No: 2

Pages: 21-39

Abstract

In this longitudinal descriptive investigation, an analysis of the ethnic/racial diversity of teachers and of students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year was conducted. Descriptive statistics revealed decreases in the average percentages of White teachers and of White students in Texas public elementary school over 9 school years of data examined herein. The average percentages of Asian, Black, and Hispanic student and teachers increased from 2010-2011 to 2018-2019. Through comparisons of the ethnic/racial diversity of teachers and of students, clear disparities were evident. Higher percentages of White teachers were present than percentages of teachers of color and percentages of students of color. Implications for policy and for practice, as well as recommendations for future research, were discussed.

Keywords: Asian, Black, Elementary Schools, Hispanic, Race/Ethnicity, Texas Academic Performance Report, Texas Education Agency, White

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INTRODUCTION

Ethnic/racial minorities constitute 41% of the elementary, middle, and high school student population across the United States, yet only 16.5% of the teachers in those same school levels are ethnic/racial minorities (Wright, Gottfried, & Le, 2017). In the State of Texas, the state of interest in this article, the diversity of the public school student population has been undergoing dramatic demographic transformations and growth throughout the past decade (Kauffman, 2019). Over a 10-year span (i.e., 2008-2009 to 2018-2019), Texas had a student enrollment increase of 14.4%, or 682,339 students across all grade levels (Texas Education Agency, 2019b). In the 2018-2019 school year, Texas public elementary schools had 295,063 Black students, 12.42% of the Texas student population; 1,235,337 Hispanic students, 52.02% of the student population; and 658,139 White students, 27.75% of the student population (Texas Education Agency, 2019b). In the same school year, but across all grade levels, not just elementary grades, 358,450 teachers were present, of which 10.6% were Black, 27.7% were Hispanic, and 58.4% were White (Texas Education Agency, 2019a).

According to the U.S. Census Bureau (2016), the population of Texas has increased by 12.7% which can also be reflected as a growth to a total population of 28 million individuals. Currently, in Texas, no one ethnic/racial group comprises more than 50% of the State's total population (U.S. Census Bureau, 2019). This rapid statewide change is reflected in greater numbers in ethnic/racial demographic groups than what has traditionally been represented. With respect to the total Texas population, Hispanics make up 39%, White non-Hispanics make up 42%, Blacks comprise 13%, and Asians make up 5% (U.S. Census Bureau, 2019).

In two previously conducted studies, Bone (2011) and Khan (2014) described the ethnic/racial composition of Texas public elementary school teachers and students. Bone (2011) reviewed demographic data which spanned 11-school years (i.e., 1999-2000 through 2009-2010), whereas Khan (2014) documented teacher demographic data across an 11-school year time period as well (i.e., 2002-2003 through 2012-2013). Both researchers (Bone, 2011; Khan, 2014) obtained similar results of a growing and diversifying population in Texas.

With respect to the grade levels of interest in this investigation, elementary school, in the most comprehensive analysis to date, Bone (2011) analyzed the ethnic/racial characteristics of Texas elementary school teachers and elementary school students for an 11-year period. Bone (2011) established that, for the 11-year span, between 79.29% and 85.30% of Texas elementary school teachers were White. Over this time period, the percentage of White Texas public elementary teachers decreased from 70.84% to 66.68% (Bone, 2011). During the same time period, the average percentage of White public elementary students in Texas also decreased from 42.20% to 32.00%. Bone (2011) established that the percentage of Hispanic public elementary school teachers increased over this 11-year time period from 5.70% to 8.82%. This increase in the percentage of Hispanic elementary school teachers coincided with the growth of Hispanic elementary student percentages from 30.80% to 41.10%. Though small, an increase was also observed in the percentage of Black elementary school teachers over this 11-year time period from 1.90% to 2.56%, and Black elementary student percentages grew from 5.90% to 6.90% (Bone, 2011).

In efforts to provide a more complete description of the ethnic/racial demography of Texas public school teachers, Khan (2014) completed a follow up study to Bone's (2011) analysis. Khan (2014) reviewed data regarding the ethnic/racial makeup of Texas public elementary school teachers from the 2002-2003 through the 2012-2013 school years. From 2002-2003 to 2012-2013, Khan (2014) established that the percentage of Black public school teachers declined from 8.1% to 7.7%. Hispanic public elementary school teachers, during this same time period, experienced an increase from 21.6% to 29.9%. Khan (2014) also

documented a decrease in the percentage of White public elementary school teachers from 69.4% in 2002-2003 to 61.3% in 2012-2013. As Bone (2011) also concluded, Khan (2014) determined that the diversity of Texas public elementary school teachers remained relatively unchanged, and mostly White, for the 11 school years of data which were analyzed.

An important finding that Bone (2011) documented was the presence of a slight increase in the Black elementary public-school teacher population. In contrast, Khan (2014) established the presence of a slight decrease in that population for the subsequent 11-year span. This ebb and flow of the percentages of Black public-school elementary teachers has merit for further analysis in Texas as ethnic/racial minority populations continue to grow. The individuals who stand to be most affected academically by the rapid change in population diversity are Black and Hispanic students, especially as the ethnic/racial demography of Texas teachers is not diversifying as quickly as the student population (Bone, 2011; Khan, 2014).

Many of the ethnic/racial differences which accompany rapid school population growth, and can cause academic issues, potentially can be addressed by teachers of color who may share similar cultural traits with students of color. Teachers who are sympathetic to cultural issues of students of color are increasingly difficult to find (Bristol & Martin-Fernandez, 2019; Fitchett & Heafner, 2017; Rasheed, Doyle, Brown, & Jennings, 2019; Verkuyten, Thijs, & Gharaei 2019). Boser (2014) noted that teachers of color comprise less than 20% of the teachers in the profession; yet, over one half of the students in public schools are students of color (Maxwell, 2014).

Rasheed et al. (2019) contended that Black and Hispanic students face difficulties at a very early point in life. These early difficulties create cause for concern when campus leaders and school district administrators encounter teacher staffing decisions which determine when Texas public elementary students will have an opportunity to be educated by teachers of a similar ethnicity/race, who share their cultural beliefs, have had similar life experiences, and have the potential to become positive role models (Plachowski, 2019; Wang, Leary, Taylor, & Derosier, 2016). Though non-White teacher recruitment has been a point of emphasis across the nation for more than a decade, educational leaders need to develop policies which increase the ethnic/racial matching of teachers and students in classrooms (Rasheed et al., 2019).

Researchers (Amos, 2016; Gollnick & Chinn, 2017; Wright et al., 2017) of public-school policy and demographics have recognized that school populations in the United States have become a near mirror image of American society, becoming much more racially/ethnically diverse. However, research investigations are essential to determine if educational staffing is maintaining pace with the reflection that is visible in public schools, particularly in Texas public elementary schools. Ingersoll and May (2011) detailed three aspects of teacher and student ethnic/racial demography matching in public schools that have potential positive benefits for ethnic/racial minority students. The first benefit was related to parity of demography as teachers of color can be positive role models and serve as ambassadors of diversity to both students of color and White students (Ingersoll & May, 2011).

The argument of cultural synchronicity was Ingersoll and May's (2011) second pillar in which they touted that ethnic/racial minority students benefit, due to cultural similarities, from being assigned to ethnic/racial minority teachers. Bristol and Martin-Fernandez (2019) also supported cultural synchronicity when they explained that Hispanic teachers who have Hispanic students assigned to them, and share similar cultural experiences, can create classrooms for Hispanic students which cultivate positive socioemotional support. Public education researchers, such as Wright et al. (2017) and Ingersoll and May (2011), have conducted studies regarding ethnoracial matching, or cultural synchronicity, and how the two concepts facilitate quality student-teacher relationships at the individual level (Banerjee, 2018). Finally, Ingersoll and May (2011) established humanistic commitment as a benefit of teacher

matching, meaning that minority teachers are more likely to be motivated in making differences in lives of ethnic/racial minority students.

Tyler (2016) explained that these demographic changes increase the likelihood of teachers, in both rural and suburban areas, to encounter students of a different racial/ethnic groups. If these encounters are not appropriately handled or understood, racial discrimination experiences could potentially become detrimental to student academic success (Leath, Mathews, Harrison, & Chavous 2019). In addition to potential academic shortcomings, Verkuyten et al. (2019) concluded that students of color can experience social identity issues when they perceive and experience ethnic/racial discrimination. Even though relationships between academic engagement, success, and social discrimination have been investigated, less information is present regarding which grade level academic outcomes are most substantially influenced (Verkuyten et al., 2019). Students of color who have little to no sociocultural support, experience decreased levels of academic perseverance (Plachowski, 2019). Elementary school teachers are positioned to have an immediate influence on academic engagement and can assist families as they integrate into their child's educational career (Frost & Goldberg, 2019).

METHOD

Statement of the Problem

In addition to nationwide teacher shortages, gaps in the racial/ethnic demography between teachers and students are increasing (Carothers, Aydin, & Houdyshell, 2019). Aydin, Ozfidan, and Carothers (2017) detailed in their literature, that for the first time in 2014 California, Texas, New York, and Florida had student enrollments that were mostly students of color. Even with the United States population growth slowing to an increase of only 0.07% from 2015-2016, Texas has experienced tremendous changes in demography and population size in that time (U.S. Census Bureau, 2016). Hispanic students accounted for the largest percentage of total enrollment in Texas public schools in 2018-19 at 52.6% of the Texas student population, followed by White students at 27.4%, Black students at 12.6%, and Asian students at 4.5% (Texas Education Agency, 2019b). The current incoming immigration population has serious implications for educators in classrooms in the United States (Goodwin, 2017).

The willingness to combat racial inequities in public schools with teaching staffs who are ethnically and racially matched to a school's student population, may provide students of color with mentors and advocates who are necessary for academic success (Plachowski, 2019). Considering current Texas demographic statistics, it is important to acknowledge that the evolving body of evidence in which public school students benefit from being assigned to a teacher who shares similar racial and ethnic demography (Egalite & Kisida, 2018). In efforts to expand on the research of Bone (2011), who examined staff and student demographic changes in Texas from the 1999-2000 school year through the 2009-2010 school year, it is necessary to update the study as Texas public school diversity continues to increase. Also, reviewing data related to the relationship between the ethnic and racial demography of Texas elementary teachers and elementary students can assist school and district administrators in ensuring that their hiring practices are best serving the social and academic needs of their students.

Purpose of the Study

The overall purpose of this study was to examine the racial/ethnic demographic characteristics of teachers and students in Texas public elementary schools. The first specific

purpose was to describe the ethnic/racial demographic characteristics (i.e., Asian, Black, Hispanic, and White) of teachers in Texas elementary public schools for the 2010-2011 through the 2018-2019 school years. A second purpose was to examine the ethnic/racial diversity of students in Texas public elementary schools for each school year from the 2010-2011 school year through the 2018-2019 school year. A third purpose was to identify any trends that were present in the ethnic/racial diversity of teachers in Texas public elementary schools from the 2010-2011 to the 2018-2019 school year. A fourth and final purpose was to determine the extent to which trends were present in the ethnic/racial diversity of students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

Significance of the Study

Historically, school leaders have depended on educational legislation when determining their leadership practices; however, legal frameworks have shortcomings because they have been developed by policymakers who do not reflect the ethnic/racial demography of Texas's current student population (Allen & Liou, 2019). Since the 1700s, racial biases have prevailed over ethnic/racial minority student educational experiences and opportunities (Miller, 2013). Teachers who do not match the racial/ethnic demography of their students often focus on implied/stereotypical deficits, which can have damaging consequences (Utt & Tochluk, 2020).

Negative consequences have been documented of students of color having mostly White teachers who have little depth of understanding related to ethnic and/or racial culture and experiences (Utt & Tochluk, 2020). Due to the crucial period of development that is elementary education, findings from this multi-year statewide analysis can be used to review campus and district teacher hiring practices to ensure that Texas is meeting the needs of more than half of its elementary students. Bone (2011) and Khan (2014) documented for the Texas educational community how difficult demography matching can be for Texas public schools due to the rapid and diverse population growth of the state. Because of the increase in diversity in the Texas student population, it was important that both researchers' findings be updated.

Research Questions

The following research questions were addressed in this investigation: (a) What is the ethnic/racial diversity (i.e., Asian, Black, Hispanic, and White) of teachers employed in Texas public elementary schools for each school year from the 2010-2011 school year through the 2018-2019 school year?; (b) What is the ethnic/racial diversity (i.e., Asian, Black, Hispanic, and White) of students enrolled in Texas public elementary schools for each school year from the 2010-2011 school year through the 2018-2019 school year?; (c) What trend is present in the ethnic/racial diversity of teachers in Texas public elementary schools from the 2010-2011 to the 2018-2019 school year?; (d) What trend is present in the ethnic/racial diversity of students in Texas public elementary schools from the 2010-2011 to the 2018-2019 school year?; and (e) What is the relationship between teacher ethnic/racial diversity and student ethnic/racial diversity in Texas elementary schools for each school year from the 2010-2011 school year through the 2018-2019 school year?

Research Design

To answer the research questions previously described, a longitudinal descriptive research design was present (Burke-Johnson & Christensen, 2020). In this study, archival data were downloaded from the Texas Academic Performance Report. Given that archival data had already occurred, the variables were not able to be manipulated (Johnson & Christensen, 2020).

Participants and Instrumentation

Two sets of participants were present in this investigation. The first set of participants were all Texas teachers who were employed in Texas public elementary schools for the 2010-2011 through the 2018-2019 school years. The second set of participants were students who were enrolled in a Texas public elementary schools for 2010-2011 through the 2018-2019 school years. Data on the ethnic/racial characteristics of students and teachers were obtained from the Texas Academic Performance Reports website.

The Texas Education Agency annually collects and archives data from Texas public school districts concerning a myriad of demographic and academic accountability categories. The collected data were disaggregated for public consumption by the Texas Education Agency and divided by individual school district and made available for analysis, for state/local district comparisons, and for the general information of the public. The acquired data for this study were representative of 100% of the student and teacher population in the Texas public schools.

FINDINGS

The first research question regarding the ethnic/racial composition of the Texas teacher workforce was addressed through descriptive statistics. Specifically calculated were the M, Mdn, and SD. Descriptive statistics for the four major ethnic/racial groups of Texas public elementary school teachers are respectively represented in Tables 1, 2, 3, and 4.

Table 1. Descriptive Statistics for the Percentages of White Teachers in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,584	63.35	56.77	32.54
2011-2012	2,598	63.34	56.16	32.52
2012-2013	2,664	60.80	55.29	32.45
2013-2014	2,685	60.16	54.76	32.19
2014-2015	2,708	58.95	53.98	31.89
2015-2016	2,761	57.50	53.47	31.85
2016-2017	2,809	56.80	52.90	31.84
2017-2018	2,820	55.70	52.41	31.90
2018-2019	2,879	54.70	51.68	31.93

Table 2. Descriptive Statistics for the Percentages of Hispanic Teachers in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,584	21.45	32.12	31.35
2011-2012	2,598	22.86	32.93	31.40
2012-2013	2,664	24.10	33.57	31.21
2013-2014	2,685	24.90	33.91	31.22
2014-2015	2,708	24.85	34.48	31.30
2015-2016	2,761	26.40	35.05	31.21
2016-2017	2,809	26.70	35.17	31.12
2017-2018	2,820	27.10	35.70	31.35
2018-2019	2,879	28.10	36.30	31.22

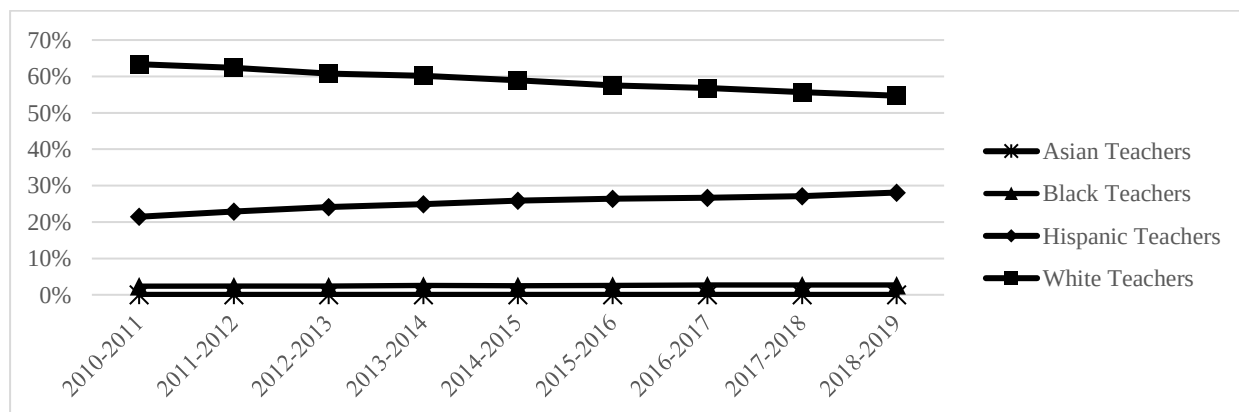
Table 3. Descriptive Statistics for the Percentages of Black Teachers in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,584	2.37	8.67	16.86
2011-2012	2,598	2.38	8.51	16.35
2012-2013	2,664	2.40	8.64	16.19
2013-2014	2,685	2.54	8.90	16.34
2014-2015	2,708	2.50	8.89	16.14
2015-2016	2,761	2.60	8.83	16.05
2016-2017	2,809	2.70	8.93	16.12
2017-2018	2,820	2.70	8.97	16.05
2018-2019	2,879	2.70	9.16	16.22

Table 4. Descriptive Statistics for Percentage of Asian Teachers in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,584	0.00	1.12	2.81
2011-2012	2,598	0.00	1.10	2.77
2012-2013	2,664	0.00	1.21	2.98
2013-2014	2,685	0.00	1.21	2.55
2014-2015	2,708	0.00	1.25	2.64
2015-2016	2,761	0.00	1.31	2.78
2016-2017	2,809	0.00	1.30	2.46
2017-2018	2,820	0.00	1.35	2.71
2018-2019	2,879	0.00	1.42	2.61

The majority of teachers in Texas public elementary schools were White, with their percentages ranging from 51.68% to 56.77% over the 9 school years of data that were analyzed. The percentage of Hispanic teachers increased steadily from 32.12% in 2010-2011 to 36.30% in 2018-2019. Black teacher in Texas public elementary schools were employed at an average percentage of 8.67% in 2010-2011 school year and an average percentage of 9.16% in 2018-2019. Asian teacher percentages ranged from 1.12% in the 2010-2011 school year to 1.42% in the 2018-2019 school year. The median percentages of White, Hispanic, Black, and Asian Texas public elementary teachers are delineated in Figure 1.

**Figure 1.** Median percentages of teachers in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

The median percentage for White teachers was 63.35% in 2010-2011 and 54.70% in 2018-2019. The next highest median percentage was for Hispanic teachers who had a median percentage of 21.45% in 2010-2011 and 28.10% in the 2018-2019 school year. From 2010-2011 through 2018-2019 the median percentage of Black teacher increased minimally, from 2.37% to 2.70%. The median percentage for Asian teachers in Texas over the 9 years of data was 0.0%.

To answer the second research question, descriptive statistics were calculated for the four major ethnic/racial groups of students in Texas elementary schools. These statistics were generated for the 2010-2011 school year through the 2018-2019 school year. Descriptive statistics for Asian, Black, Hispanic, and White Texas public elementary school students are contained, respectively, in Tables 5, 6, 7, and 8.

Table 5. Descriptive Statistics for the Percentages of Hispanic Students in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,585	54.00	54.99	31.64
2011-2012	2,599	55.50	55.56	31.29
2012-2013	2,668	55.80	56.16	31.05
2013-2014	2,687	57.00	56.51	30.88
2014-2015	2,713	57.20	56.65	30.76
2015-2016	2,770	57.00	56.62	30.43
2016-2017	2,810	55.90	56.14	30.30
2017-2018	2,821	55.40	55.79	30.29
2018-2019	2,880	55.95	56.11	30.01

Table 6. Descriptive Statistics for the Percentages of White Students in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,585	17.50	27.32	27.00
2011-2012	2,599	17.10	26.75	26.51
2012-2013	2,668	16.30	26.25	26.21
2013-2014	2,687	15.30	25.56	25.83
2014-2015	2,713	14.80	25.17	25.52
2015-2016	2,770	15.30	24.94	24.91
2016-2017	2,810	15.70	24.94	24.66
2017-2018	2,821	16.40	25.09	24.67
2018-2019	2,880	15.50	24.59	24.31

Table 7. Descriptive Statistics for the Percentages of Black Students in Texas Public Elementary Schools from the 2010-2011 School year Through the 2018-2019 School Year

School Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,585	5.50	12.08	17.54
2011-2012	2,599	5.50	11.95	17.14
2012-2013	2,668	5.40	11.75	16.79
2013-2014	2,687	5.40	11.87	16.85
2014-2015	2,713	5.50	11.84	16.64
2015-2016	2,770	5.50	11.86	16.56
2016-2017	2,810	5.70	12.02	16.47

2017-2018	2,821	5.70	11.95	16.35
2018-2019	2,880	6.00	12.00	15.95

Table 8. Descriptive Statistics for Percentage of Asian Students in Texas Public Elementary Schools from the 2010-2011 School Year Through the 2018-2019 School Year

Year	<i>n</i> of schools	<i>Mdn</i>	<i>M%</i>	<i>SD%</i>
2010-2011	2,585	0.70	3.44	7.15
2011-2012	2,599	0.70	3.50	7.41
2012-2013	2,668	0.70	3.52	7.60
2013-2014	2,687	0.70	3.63	7.83
2014-2015	2,713	0.80	3.79	8.27
2015-2016	2,770	0.80	3.91	8.60
2016-2017	2,810	0.80	4.08	8.90
2017-2018	2,821	0.90	4.23	9.19
2018-2019	2,880	0.80	4.27	9.43

From 2010-2011 through 2018-2019, Hispanic students made up the largest average percentage of Texas public elementary school students. Hispanic student percentages ranged from 54.99% to 56.62%. White students had the second highest percentages, percentages that consistently decreased over the 9 school years that were examined. A decline of 2.73% was documented for the average percentages of White Texas public elementary school students from 27.32% in 2010-2011 to 24.59% in 2018-2019. The average percentages for Black students fluctuated between 12.08% in 2010-2011, and 11.75% in 2012-2013. The percentage of Asian students ranged from 3.44% in 2010-2011 to 4.27% in 2018-2019. The median percentage of White, Hispanic, Black, and Asian Texas public elementary students are delineated in Figure 2.

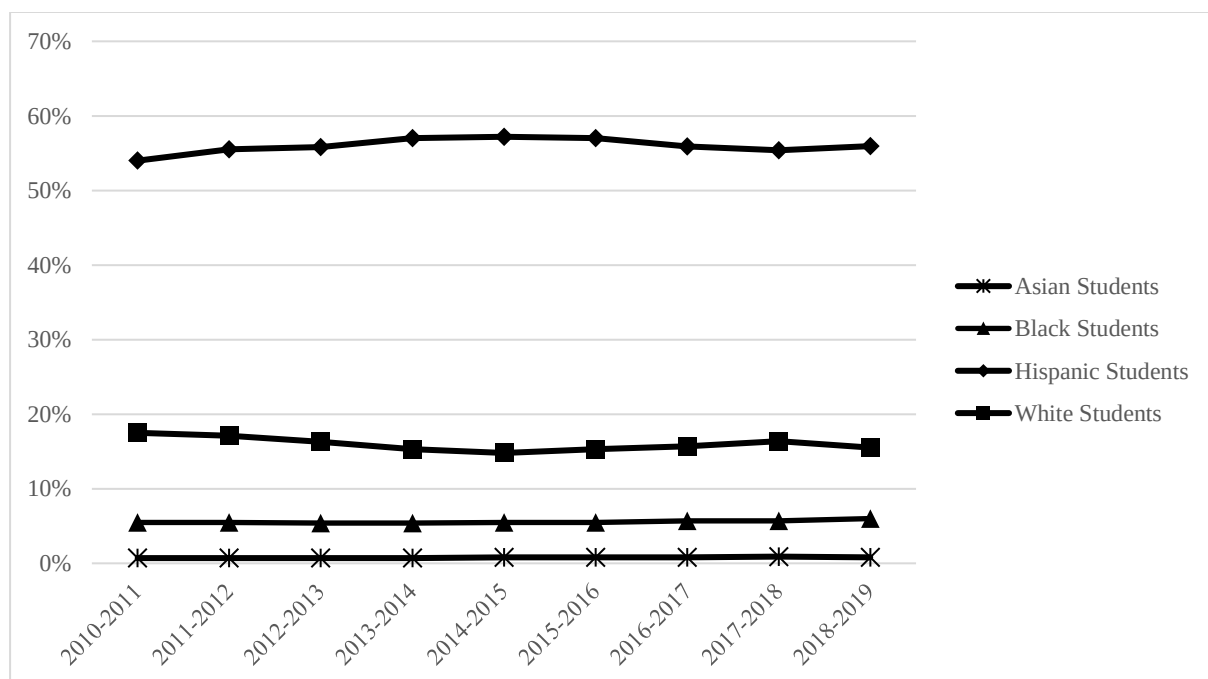


Figure 2. Median percentages of students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

The median percentage of Hispanic students ranged from 54.00% in 2010-2011 to 55.95% in 2018-2019. The second highest median percentages belonged to White students in Texas public elementary schools who had a median percentage high of 17.50% in 2010-2011 school year to a low of 14.80% in 2014-2015. For the most recent school year examined, 2018-2019, a median percentage of 15.50% was documented for White students. The lowest median percentage for Black students in Texas public elementary schools was 5.40% in 2012-2013 school year, and the highest documented median percentage for Black students was 6.00% in 2018-2019. Finally, Asian students in Texas public elementary school represented the lowest median percentage of the four ethnic/racial groups in this article. For each school year from 2010-2011 through 2013-2014, the median percentage for Asian students was 0.70%. The highest documented median percentage for Asian Texas public elementary students was 0.90% in 2017-2018.

In addressing the third research question concerning the extent to which a trend was present in the ethnic/racial diversity of teachers in Texas public elementary schools, the previously discussed descriptive statistics were used to generate Figure 3. In this figure, readers can see that the percentage of White teachers consistently decreased over the 9 school years. A consistent increase was documented for the percentage of Hispanic teachers. With respect to the percentage of Black teachers, a flat line was present and reflective of consistent percentages over time. A small increase was determined for the percentage of Asian teachers employed over the 9 school years.

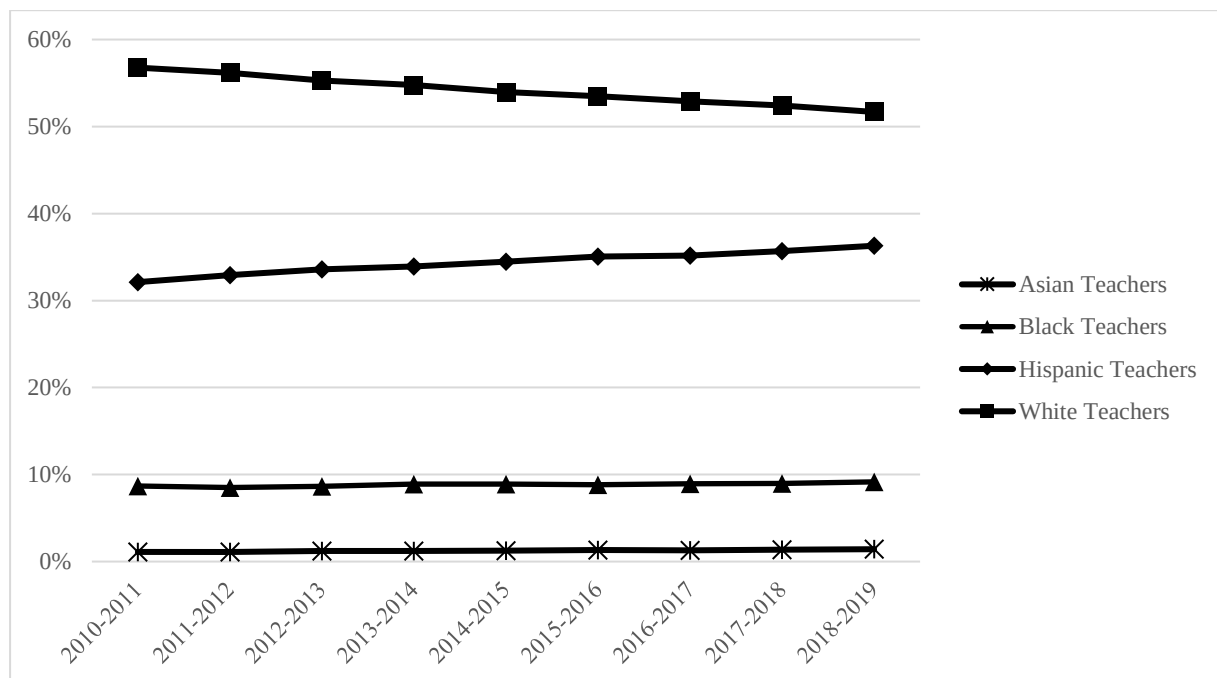


Figure 3. Percentages of teachers in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

To determine the extent to which a trend was present in the ethnic/racial composition of student enrollment in Texas public elementary schools, descriptive statistics over the 9 year time period were reviewed. The average percentage of White students showed a steady decline, 2.73%, over the 9 years. A slight increase of 1.63% was observed in the percentage of Hispanic students over the 9 years. Though the average percentage of Black students fluctuated slightly over the time period, their figure remained flat over the time period. The percentage of Asian students enrolled in Texas public elementary schools increased slightly over this time period,

0.83%. Visible in Figure 4 is the rapidly increasing gap between the growing average percentages of Hispanic students and the decreasing average percentages of White students, a slowly decreasing gap between the shrinking percentages of White students and the fluctuating average percentages of Black students, and consistently small and growing average percentages of Asian students.

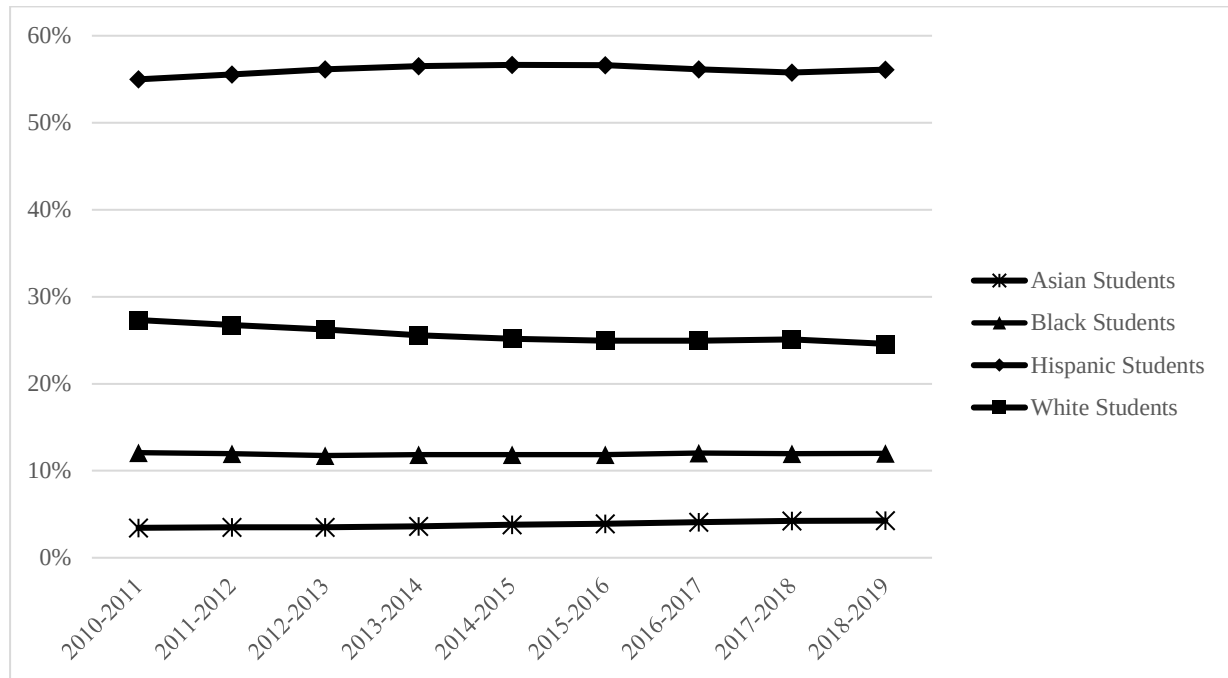


Figure 4. Percentages of students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

To answer the fifth research question on the relationship between the ethnic/racial diversity of teachers and the ethnic/racial diversity of students in Texas public elementary schools, the previously discussed descriptive statistics were examined. Readers should note that the percentages of White teachers and White students both decreased over the 9 years of this study. The percentages of White teachers were the only ethnic/racial group in which teacher percentages were greater than the student percentages, with teacher percentages being an average of 28.53% greater over the 9 school years. The percentages of both Hispanic teachers and Hispanic students both reflected increases of note. The percentages of Hispanic students were consistently larger than the percentages of Hispanic teachers by an average of 21.81%. Black students and teachers also experienced a slight increase of their average percentages, but Black student percentages were, on average, 3.07% larger than Black teachers. Asian students and teachers both reflected small consistent growths, and they had an average percentage difference of 2.56% over the 9 school years with Asian students having a higher average percentage each school year. Depicted respectively in Figures 5, 6, 7, and 8 are the relationships between the percentages of teachers and students by their ethnicity/race in Texas public elementary public schools.

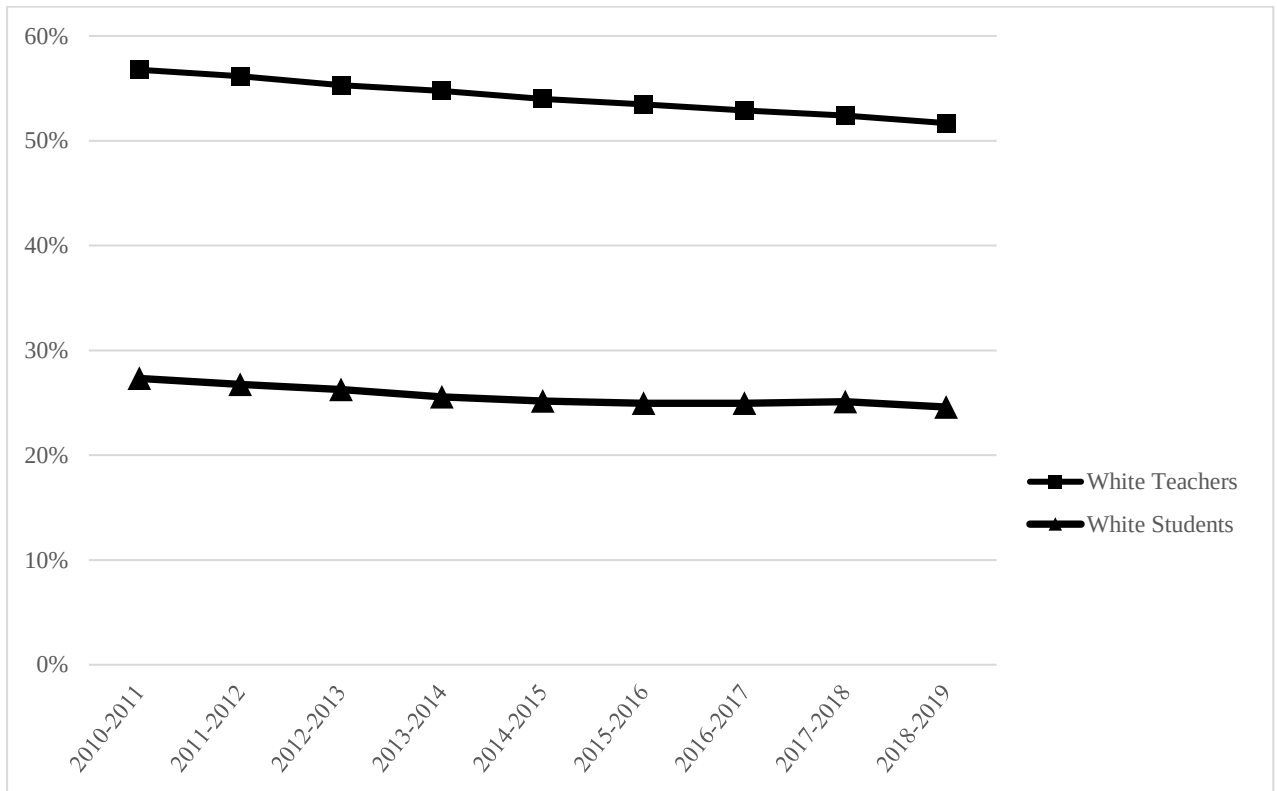


Figure 5. Relationship of the percentages of White teachers and White students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

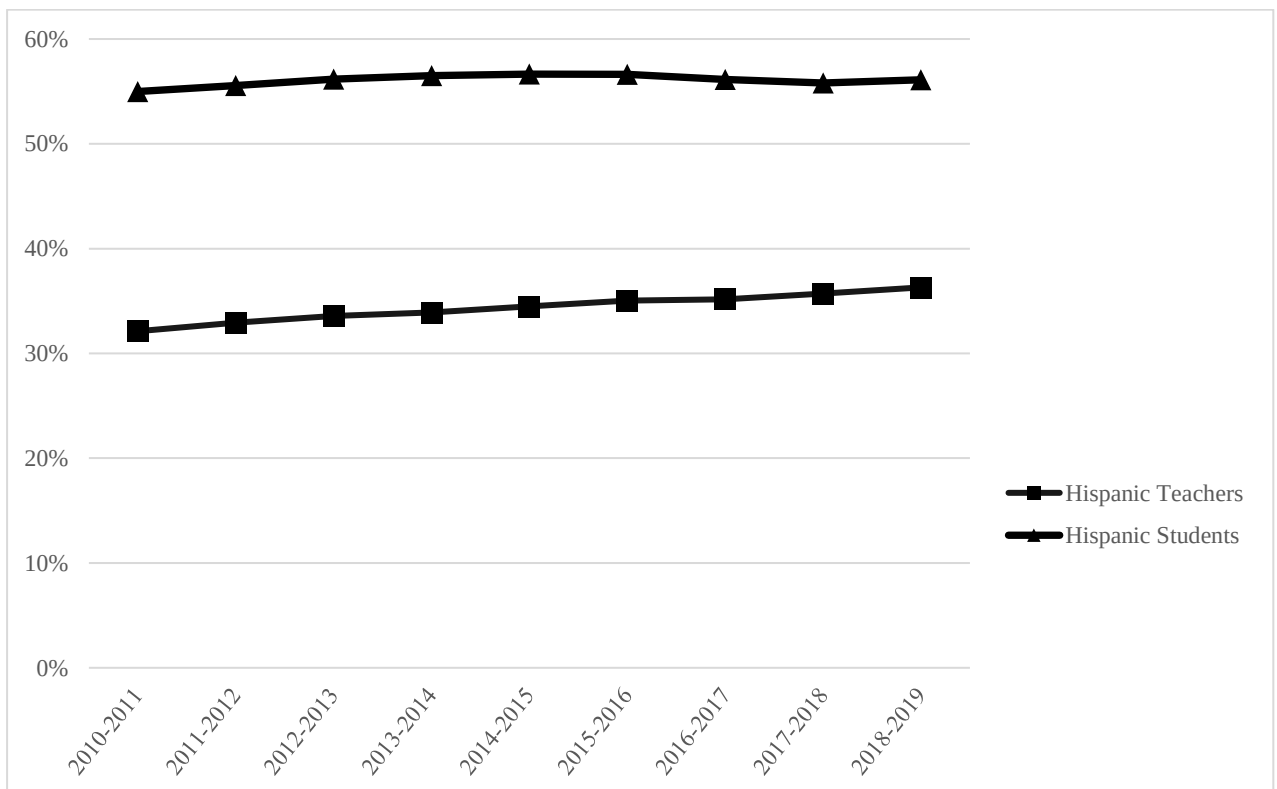


Figure 6. Relationship of the percentages of Hispanic teachers and Hispanic students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

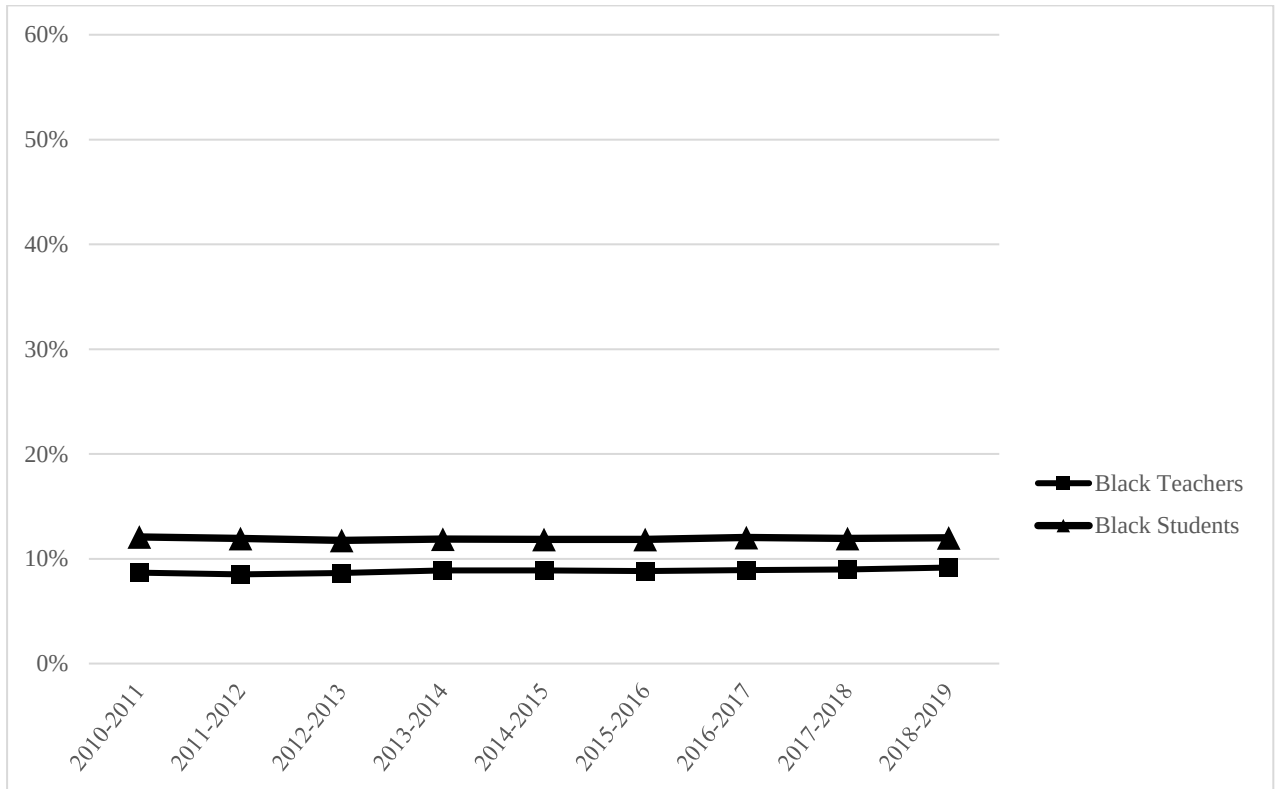


Figure 7. Relationship of the percentages of Black teachers and Black students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

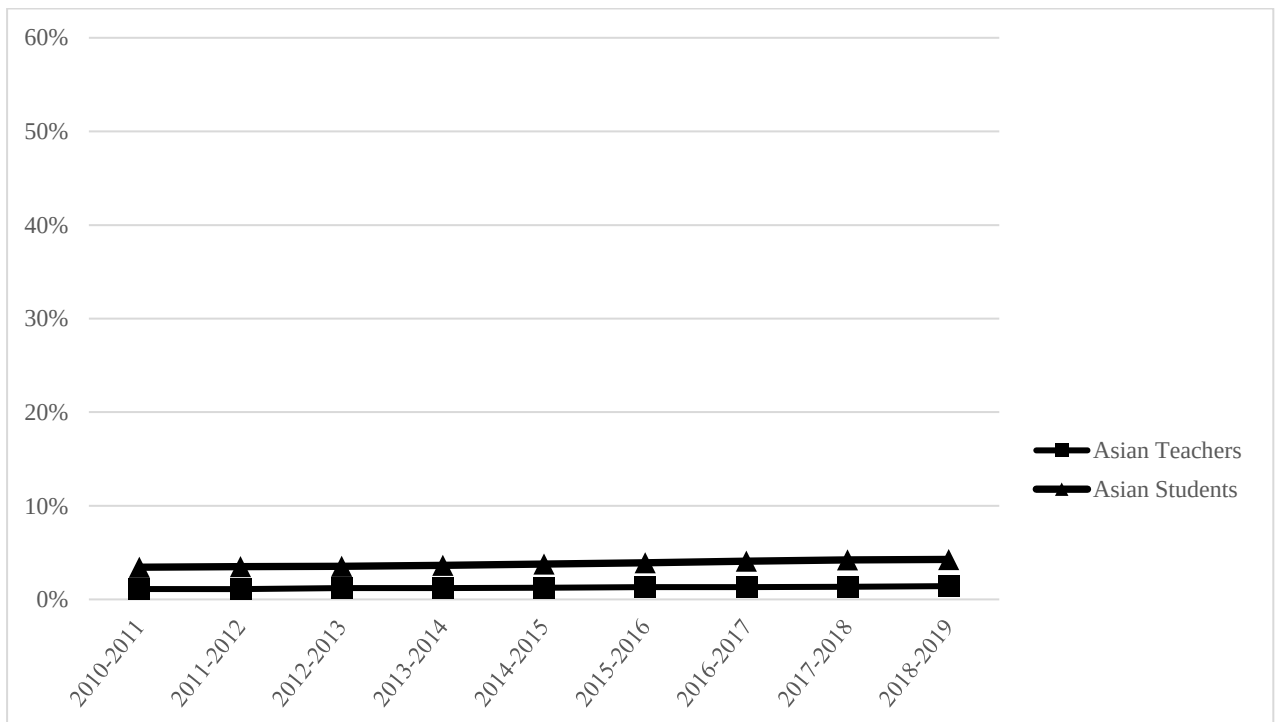


Figure 8. Relationship of the percentages of Asian teachers and Asian students in Texas public elementary schools from the 2010-2011 school year through the 2018-2019 school year.

DISCUSSION AND RESULT

In this multiyear study, the ethnic/racial diversity of teachers and students in Texas public elementary schools was examined for 9 school years (i.e., 2010-2011 through 2018-2019). The only ethnic/racial group in which teacher percentages were greater than student percentages was White. Even with persistent decreases documented between each school year for White students and teachers, White teachers still had represented percentages that were on average 28.53 percentage points higher than the average percentages of White students. White teacher percentages decreased from 56.77% in 2010-2011 to 51.68% in 2018-2019 and White student percentages decreased from 27.32% in 2010-2011 to 24.59% in 2018-2019. Though the average percentage gap closed slightly between White and Hispanic teachers, readers should note a lack of growth in the average percentages of Black and Asian Texas public elementary school teachers. For the 9 school years of data that were examined here, the percentages of Hispanic, Black, and Asian students and teachers all increased. Hispanic students were the ethnic/racial student group with the highest percentages in each of the 9 school years.

Connections to Existing Literature

Findings of this multiyear descriptive analysis were consistent with the results of Bone (2011) and Khan (2014) who also examined the ethnic/racial characteristics of teachers and students in Texas public schools. Bone (2011) and Khan (2014) documented increases in the percentages of teachers and students in each ethnic/racial group, except for White teachers and students. Kauffman (2019) expounded on the growth in diversity in which Texas public schools are experiencing. Such growth in diversity was supported by the results delineated in this study. The percentages of students of color are increasing and becoming larger as state demographics change. Boser (2014) established that less than 20% of teachers are teachers of color. Revealed in this study were growing percentages of teachers of color to an extent which a divergence from the Boser (2014) statistic was present, at least in Texas public elementary schools. Tyler (2016) reported that the diversifying student populations are creating educational environments in which teachers of color are now, more than ever, likely to encounter students of ethnic/racial backgrounds than themselves. As evidenced by the consistent statistical increases of both students of color and teachers of color, Tyler's (2016) statement is becoming increasingly true in Texas public elementary schools

Regarding teachers, the persistent leading average percentages of White teachers, even while realizing gradual declines in their overall average percentages, supports the presence of Social Closure Theory. The slow pace of decline of the average percentages of White teachers also suggest that educational leaders are still finding comfort in teachers of ethnic/racial similarity as outlined by Homosocial Theory (Kanter, 1977). That ethnic/racial similarity and the closing of opportunities for teachers of color are often revealed in the hiring of White teachers; currently, in the state of Texas, 60.12% of Texas public school principals are White (Smith, 2020). Even though identified differences among subpopulations are slowly becoming less of a constraint for ethnic/racial minority groups entering the profession, statistics in this study were interpreted to mean that even with the documented growth, much ground remains to be made up (Simi & Matusitz, 2016).

Implications for Policy and Practice

Based upon the results of this investigation, several recommendations can be made for policy and for practice. With respect to policy, the information provided in this multiyear

statewide study should induce conversations regarding the necessity to develop hiring practices which diversify teacher populations more quickly in Texas public elementary schools. Most importantly a review of research which details how important it is for the academic development for students of color to be educated by teachers of color at an early age should be conducted by district and campus leaders. Emphasized by Bristol and Martin-Fernandez (2019) and Plachowski (2019) was the need for a diverse teacher workforce which can benefit students of color by providing congruence in teacher-student relationships, and by providing an early introduction to academic experiences beyond, and outside, of elementary schools.

Regarding implications for practice, when district/campus hiring procedures do not support or promote the need for diverse ethnic/racial hires, it perpetuates a message that ethnic/racial diversity is not a necessary focus and that teachers and students of color are not valued. Because of the information contained in this study, state and local education agencies should develop and enforce standards which ensure the adequate recruitment and hiring of teachers of color. In addition to developing procedures and processes which measure the impact of established recruitment and hiring standards, a means of accountability should be developed to ensure that district/campus teaching staffs are approaching or commensurate with student demographics.

Plachowski (2019) and Wang, Leary, Taylor, and Derosier (2016) all detailed how students of color can benefit academically by being taught in academic environments which are led by teachers of color. Texas public elementary administrators need to ensure that they are hiring the appropriate individuals to educate their student demography based on Texas academic success standards. Although a political response may be evoked as a response to this study, a concentrated focus must remain on the academic success of students and determining which teachers are best suited to educate the state's growing population of students of color.

Recommendations for Future Research

Based upon the results of this Texas statewide investigation, several recommendations for future research can be made. First, provided that teacher and student ethnic/racial matching can influence student academic performance, this topic must be thoroughly examined on a myriad of levels. Researchers are encouraged to extend this study within the state of Texas. It would be beneficial to Texas educators and lawmakers to know the outcomes of this descriptive study for public middle and public high schools across the state. A second recommendation would be for researchers to extend this study to private and charter schools at the elementary, middle, and high schools. The degree to which the results delineated herein on Texas public elementary school teachers and students would extend to private schools or to charter schools is not known. An additional recommendation would be to replicate this investigation in other states. The extent to which the results obtained in this investigation, solely on Texas public elementary school teachers and students, would generalize to other states is unclear.

Being able to determine if gender matching among students and teacher has a relationship with student academic performance would create a more robust understanding of the teachers that should be hired to better academic and socioemotional outcomes for students. Because potential academic benefits related to public school teacher and student gender matching are unknown, a study on gender diversity of students and teachers in Texas public elementary, middle, and high schools would benefit Texas public school administrators and lawmaker. The degree to which gender matching may influence the academic success of public school students in other states is also unclear and merits study. Similarly, educational

researchers are encouraged to review gender diversity of students and teachers at both private and charter schools across Texas and other states.

CONCLUSION

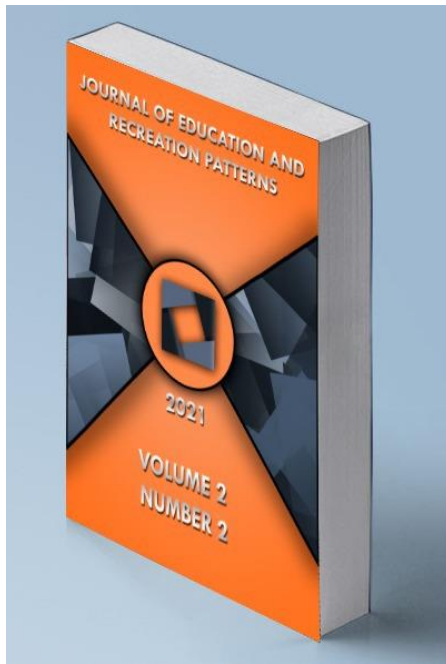
In this longitudinal descriptive analysis, which spanned the 2010-2011 school year through the 2018-2019 school year, the ethnic/racial diversity of students at teachers in Texas public elementary schools was examined. Percentages of White teachers and students declined over the 9 school years. Even with a documented decrease in White teacher percentages from 56.77% to 51.68%, White teachers still had the highest percentage of all four ethnic/racial teacher groups reviewed. Hispanic students and teachers also experienced increases of their average percentages. Hispanic students were the largest student group with percentages which ranged 56.99% to 56.62%. Black students and teacher experienced minimal, but sustained growth. However, Black students, whose percentages ranged from 11.75% to 12.08%, displayed higher percentages than Black teachers for each year of the study. Finally, Asian teachers and student represented the lowest percentages, but both parties had documented growth. Even though Asian teacher percentages increased from 1.10% to 1.42%, they still trailed the percentages of Asian students for the 9-year period. As such, efforts to improve the diversity of the teaching workforce in Texas are warranted.

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Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Exercise Prescription for Stages of Pregnancy and Postpartum Period

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To cite this article:

Ajibua, M.A., Bewaji, O.B. & Olatunde, B.A. (2021). Exercise Prescription for Stages of Pregnancy and Postpartum Period. *Journal of Education and Recreation Patterns (JERP)*, 2(2), 40-50

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Exercise Prescription for Stages of Pregnancy and Postpartum Period

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ARTICLE INFORMATION

Original Research Paper

Received: 26.05.2021

Revision: 08.07.2021

Accepted: 28.12.2021

<https://jerpatterns.com>

December, 2021

Volume: 2, No: 2

Pages: 40-50

Abstract

Exercise is a component of physical activity done with the intention to get physically fit to carry out daily activities without undue stress. Habitual participation in exercise is beneficial to all categories of people, including pregnant women. The pregnancy period is regarded as a period of inactivity, but an active lifestyle during this period has significant positive health benefits for the mother and the fetus. Despite the positive gains of regular engagement in exercise, many pregnant women do not participate in it. To increase the participation of pregnant women in exercise, there is a need for clinicians and exercise professionals to understand the exercise protocols for all the stages of pregnancy and the postpartum period. It is believed that if clinicians and exercise professionals understand the correct exercise regimen during pregnancy, they will adequately assist pregnant women to engage regularly in exercise. Through this study, clinicians and exercise professionals will be kept abreast of the latest research discussions on exercise during pregnancy.

Keywords: Exercise Prescription, Exercise Protocols, Gestation, Physical Activity, Postpartum,

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INTRODUCTION

Exercise is a component of physical activity done with the intention to get physically fit to carry out daily activities without undue fatigue and stress. It is a principal form of physical activity that is planned, structured, repetitive and a purposive bodily movement engaged in to improve or maintain one or more components of physical fitness such as cardiorespiratory, muscular strength, muscular endurance, power, speed, coordination, balance and flexibility (ACSM, 2009; Ajibua & Michael, 2016). Exercise has preventive and curative mechanisms against diseases. It is a cost-effective and sustainable approach to improve quality of life and life satisfaction. Regular engagement in it has been identified by the United Nations Organization as one of the four (4) strategies to step down global epidemics of non-communicable diseases (Alla & Ajibua, 2012). Akarolo-Anthony and Adebamowo (2014) reported that regular exercise is beneficial to all categories of people, pregnant women inclusive. There have been studies at the global level indicating benefits, knowledge and attitude of pregnant women toward exercise (Bushman, 2012; Dion, et al, 2014). Of course, these studies further confirmed that exercise is very good for human existence and subsistence. However, many pregnant women globally do not meet the minimum guidelines set by the American College of Obstetricians and Gynecologists (ACOG, 2009). The situation in sub-Saharan African countries such as Nigeria is more complicated because physicians and physical education graduates are not well-schooled in exercise prescription for stages of pregnancy. Hence the unavailability of research works in this area in Nigeria in particular and sub-African countries in general.

Research has shown that most women have knowledge of the benefits of exercise during pregnancy (Okafor and Goon, 2021). However, the current low levels of exercise engagement among pregnant women show that having knowledge alone does not translate to positive practice (Okeke, Ifediora, and Ogungbe, 2020). Women need to be encouraged through guidance of correct and result-oriented exercise prescription by trained personnel's.

This study intends to research exercise prescription for stages of pregnancy and the postpartum period. It is believed that if clinicians and exercise professionals are well-grounded in this area, it will have positive effects on the health of the mother and the baby. Consequently, this will encourage pregnant women to continue to participate in exercise.

Literature Review on Exercise during Pregnancy

The first guidelines for exercise during pregnancy were published by ACOG in 1985. It was recommended then that maternal heart rates should be kept below 140 BPM and that moderate intensity activities should be limited to 15 minutes. Wing and Stannard (2016) maintained that no one target heart rate that is right for every pregnant woman. Consequently, these guidelines were removed in 1994 and were replaced by more specific guidelines in 2002 and reaffirmed in 2009. The concept most expert now relies on as a guide is the Rate of Perceived Exertion (RPE). This scale determines how hard a pregnant woman works based on how she feels when participating in exercise. Similar to the general population, ACOG (2020) recommended at least 150 minutes of moderate-intensity aerobic activity (for example, 30 minutes a day, five days a week) for healthy pregnant women and agreed that the benefits of exercise during pregnancy greatly outweigh the risks. The 2018 update on the US Department of Health and Human Services Physical Activity Guidelines for Americans reinforced the 150 minutes of moderate-intensity activity for pregnant women per week (U.S. Department of Health and Human Services Physical Activity Guidelines for Americans, 2021). To test the intensity or exertion of pregnant women, the "talk test" methodology can be used. As long as the woman can have a conversation while exercising, means she is not over-exerting herself.

Pregnancy is regarded as a period of inactivity, but exercise during pregnancy has significant positive health benefits with minimal risk for both the mother and the fetus (Wing & Stannard, 2016). Thus, exercise should be considered a front-line strategy for enhancing maternal physical and mental health. For the mother, exercise is associated with prevention and control of gestation diabetes and excessive weight gain, reduction in low back pain, positive mental health, timely vagina delivery, reduction in stress response and can lead to healthier birth weight (Bushman, 2012). Ruskin (2002) study also maintained that exercise will improve mood, and prevent hypertensive disorder during pregnancy and enhance children language skill development. Another study revealed that language skills in children tested at age five were superior in children whose mother had exercised throughout pregnancy as opposed to those whose mother did not exercise during pregnancy (Mikesta & Quatro, 2004). Therefore, all pregnant women without contraindications should be encouraged to participate in aerobic and strength-conditioning exercises as part of a healthy lifestyle during pregnancy.

Pregnancy affects every system of the body. Therefore, exercise professionals need to understand the physiological changes, body composition, alterations and biomechanical adaptations to exercise during pregnancy (Rankin, 2002). Pregnancy is one of the most important periods in women's lives, thus, exercise should be carried out safely and correctly. The unique physical and physiological conditions that exist during pregnancy and postpartum period create special risk that does not affect non-pregnant women. Therefore, careful consideration should be given to the additional impact that exercise may have on the progressive anatomical, physiological and psychological changes that may occur during pregnancy. In other words, exercise routines should be designed to fit women as stipulated by the principle of individualization in physical training.

One of the most obvious transformations during pregnancy is weight gain. Currie and Rich (2004) contented that the pregnancy period is the time when a significant weight can be gained, that women who gained more weight than the recommended weight during pregnancy and who fail to lose the weight six (6) months after giving birth are at a much higher risk of being obese nearly a decade later. Weight gain may cause many changes to women both at rest and during exercise. It may take a toll on the women's joints resulting in discomfort. Pregnant women typically experience lordosis in the lumbar spine, creating a shift in their centre of gravity (Martens, Harnandez, Strickland & Boatwright, 2006). This shift can directly affect posture and balance in body alignment This should be acknowledged both during exercise and when at rest; activities that require quick directional changes should be avoided to decrease the risk of injuries. Aside from this, motor skills and balance may affect women as the pregnancy progresses. This suggests that biomechanical and hormonal changes due to pregnancy may influence injury rates in the higher risky physical activities. It must be noted too that changes that occur during pregnancy should not be seen as limitations; rather, women should be encouraged to promote healthy habits such as regular participation in exercise during this period.

To arrange exercise for maximum effect, exercise professionals should start the session with warm-up activities to reduce the risk of injury. Thereafter, he/she proceeds with the actual workout session and end with 'cool down' to prevent blood from pulling to the extremities. Order of exercises may be from large muscle or multiple joint exercises to small muscle groups or single-joint exercises (Pipper, et al, 2012). Davies, et al (2003) asserted that when starting an exercise program, previously sedentary women should begin with 15 minutes of continuous exercise, three times a week and then increase gradually to 30 minutes per day, at least five times a week. The American College of Sports Medicine (ACSM) endorsed these guidelines from the American College of Obstetricians and Gynecologists (ACOG), the Joint Committee

of the Society of Obstetricians and Gynecologists of Canada, and the Canadian Society for Exercise Physiology. However, ACSM (2009) admonished that all exercise should be modified for the safety of the fetus and mother. It suggested, for example, that pregnant women should replace contact sports with non-contact sport or an appropriate exercise class and that women who were not active before pregnancy should be advised to avoid intense exercise as running, jogging, racket games, bouncing while stretching and other strenuous strength training. In addition, they should avoid all sports that are linked to increased risk of falling, trauma and impact injuries. It was advised too that pregnant women should avoid exercise in hot and humid weather, avoid exercise to the point of exhaustion and activities performed above 6,000 feet above (if you are not already at a high altitude) (Depkin, & Zelasko, 1996; American Pregnancy Association, 2019). In general, pregnant women should not perform activities that they are not accustomed to but continue with familiar activities.

When planning exercises, pregnant women should be encouraged to wear loose-fitting, comfortable clothes, a good supportive bra as well as fitting shoes that are designed for the exercise that she is going to do. She must eat at least one hour before exercising, rehydrate by drinking enough water before, during and after workouts. She should also listen to her body (Rankin, 2002). Exercise leads to dangerous overheating and dehydration as earlier mentioned. These situations can be dangerous for the baby particularly in the first trimester. Thus, taking a few precautions can keep a pregnant woman safe while exercising.

During pregnancy, women are advised to use weight machines and or resistance bands in place of free weights to reduce the risk of injuries caused by the changing centre of balance. They should also decreased resistance training, increase repetitions, use shorter sets, avoid powerlifting activities, concentrate on maintaining proper form during lift (Pipper, et al, 2012; Dion, et al, 2014). American College of Obstetricians and Gynecology (2002) considered the following conditions to be “absolute” contraindications to aerobic exercise during pregnancy:

- Significant heart or lung disease
- Incompetent cervix
- Multiple gestations at risk for premature labour
- Persistent second or third trimester bleeding
- Placenta previa after twenty-six weeks
- Premature labour during this pregnancy
- Ruptured membranes
- Pregnancy-induced hypertension

Most women who are active before pregnancy can, and should, continue to exercise. The type and intensity of exercise should be based on the previous history, health and comfort. According to Szumilewicz, et. al. (2019), many women can continue to train at moderate-intensity early in the pregnancy. As the pregnancy continues, exercise intensity should be decreased naturally and the type, duration and intensity of exercise are modified with comfort and safety in mind. Most importantly, sedentary women who want to begin exercise during pregnancy should consult their physicians. This is because only a physician can determine the presence and absence of any potential complication factors. Sedentary pregnant women can safely engage in low-intensity exercise. Walking is typically recommended. Exercise professionals should ensure that all their clients who are pregnant have a physician’s clearance

before recommending exercise. Dion, et al (2014) argued that pregnant women should be advised to stop exercising and see their doctors if any of these warning signs occur:

- Vaginal bleeding
- Prolonged dizziness or faintness
- Chest pain
- Persistent headache or out-of-the-ordinary muscle weakness
- Calf swelling or pain
- Uterine contractions
- Big decrease in fetal movement
- Fluid leaking from the vaginal

Exercise Prescription for Stages of Pregnancy

For exercise prescription to attain its goal(s) two (2) basic steps must be observed, namely; pre-exercise screening and the main activity.

- **Pre-Exercise Screening:** To ensure effective exercise prescription, exercise professional must have information on their clients. A sound pre-exercise screening protocols will help the trainer ascertain the health status and exercise goal of her clients. The pre-activity screening according to the FISAF (2019) include diet, exercise history, stress level, family history personal history etc. From the pre-exercise screening, major risk factors can be identified and compared to well-established health status parameters from which individual client can be categorized. Meanwhile, there are three risk stratifications, namely, apparently healthy, individual at risk and individual with disease.
- **The Main Activity:** Training and conditioning programs must be tailored towards attaining individual needs. The basic principles of exercise prescription apply for all people. According to the Federation International Sport, Aerobic and Fitness (FISAF) (2019) these can be summarized under four headings using the acronym FITT.

The FITT Principles

F - Frequency

- Minimum training sessions per week
- Workout every other day

I - Intensity

- Sufficient intensity to generate overload
- Based on Training Heart Rate (THR) Range (* Karvonen Formula)
- Based on Perceived Rate of Exertion (PRE) scale
- Based on % Repetition Maximal Lifts (RM)

T - Time

- Minimum of 15-20 minutes for pregnant women
- Ideal time 30 - 40 minutes
- Duration of exercise more important than intensity

T - Type

- Aerobic in nature using large muscle groups e.g power walking, jogging, swimming, aerobic classes, bike riding etc for cardiovascular improvement
- Resistance training for strength conditioning
- Stretching exercises for joint specific flexibility conditioning

First Trimester: Weeks: 1-13 of Pregnancy

During the first trimester, pregnant woman will experience many changes though the weight gain will be minimal, but the hormone will be in full effect. The energy level may likely drop, with breast tenderness and back pain. The woman should try to maintain balance and make regular exercise key during this period. She should also embrace strength and aerobic exercise routinely. Due to the production of relaxin, the women should abstain from heavyweight training and ensure that temperature does not exceed 102 Fahrenheit. During the workouts, the woman should be made to try two-sentence conversations to determine the intensity of the training (Mikesta et al, 2004).

DAY 1 Monday	DAY 2 Tuesday	DAY 3 Wednesday	DAY 4 Thursday	DAY 5 Friday	DAY 6 Saturday	DAY 7 Sunday
Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 12 Sets: 2	Active Rest	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor Activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 12 Sets: 2	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor Activities	Rest

2nd Trimester: Weeks 14-26 of Pregnancy

At this stage, there are more changes in the body and mood. The body will experience weight gain. The centre of gravity will also begin to change as the belly grows and puts more weight in front. At this point, minor exercise modification should take place. Modification includes lowering the amount of weight and the number of repetitions (Mikesto et al, 2004).

DAY 1 Monday	DAY 2 Tuesday	DAY 3 Wednesday	DAY 4 Thursday	DAY 5 Friday	DAY 6 Saturday	DAY 7 Sunday
Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic Floor Activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 11 Sets: 2	Active Rest	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 12 Sets: 2	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Rest

3rd Trimester: Weeks 27-40 of Pregnancy

During this period, the belly has grown bigger. Despite this condition, the women should still be able to do basic workouts and stay active right up to the delivery day.

DAY 1 Monday	DAY 2 Tuesday	DAY 3 Wednesday	DAY 4 Thursday	DAY 5 Friday	DAY 6 Saturday	DAY 7 Sunday
Continuous Aerobics Up to 30 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 9 Sets: 1	Active Rest	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor Activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 9 Sets: 1	Continuous Aerobics Up to 30 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Rest

Postnatal: 6 Weeks after Normal Birth (Vaginal Delivery)

It will take six to sixteen weeks for the hormones to return to the normal level, and healing time will take six weeks to three months. Though some women may be ready to workouts within days of delivery, but such pregnant women need a doctor's clearance. Having said this, it must be noted that this is not the time for maximum workouts.

DAY 1 Monday	DAY 2 Tuesday	DAY 3 Wednesday	DAY 4 Thursday	DAY 5 Friday	DAY 6 Saturday	DAY 7 Sunday
Continuous Aerobics Up to 15-30 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 11 Sets: 1	Active Rest	Continuous Aerobics Up to 45 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor Activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 11 Sets: 1	Continuous Aerobics Up to 15-30 minutes at low to moderate intensity Strength Core circuit Kegel Exercises Pelvic floor activities	Rest

Postnatal Exercise: 8 Weeks after Cesarean-Section Delivery

The appropriate time to commence exercise after delivery depends on how much the woman had been doing exercise during pregnancy. This is the time a woman should listen to her body and honestly communicate with her physician (Avarank & Mudd, 2009).

DAY 1 Monday	DAY 2 Tuesday	DAY 3 Wednesday	DAY 4 Thursday	DAY 5 Friday	6 DAY Saturday	DAY 7 Sunday
Continuous Aerobics Walking up to 15-20 minutes at low intensity Conditioning circuit Kegel Exercises Pelvic floor activities	Strength One UB circuit One LB circuit Circuit 1: Load: Reps: 8 Sets: 1	Active Rest	Continuous Aerobics Walking up to 15-20 minutes at low intensity Conditioning circuit Kegel Exercises Pelvic floor Activities	Active Rest	Continuous Aerobics Walking up to 15-30 minutes at low intensity Conditioning circuit Kegel Exercises Pelvic floor activities	Rest

Key: UB = Upper Body, LB = Lower Body

Differences in Exercise after Normal Birth (Vaginal Delivery) and Cesarean Delivery

Normal birth can simply be referred to as vaginal delivery, while cesarean delivery (C-Section) is a surgery where an incision is made through the abdomen to deliver a baby quickly and safely. The importance of exercise before, during and after pregnancy (postpartum) cannot be overemphasized. Generally, the speed at which a woman returns to a normal training routine will depend on the length and difficulty of delivery; if there are complications during delivery, more rest and recovery time is needed. An advantage of vaginal birth over cesarean delivery is that of recovery. Recovery after C-Section is longer. The risk of discomfort at birth is greater during cesarean section. This is due to expected surgical pain along the incision in the abdomen. Just like any other surgery, the body requires more time to heal. Going into exercise too early and pushing too hard may lead to complications for a woman with C-Section delivery. Therefore, the time of return to exercise may be longer for a woman that delivered through C-Section (Targonskay, 2020).

It must be noted that the volume of training (frequency, duration, intensity) for a woman who delivered through C-Section should be lower than a woman that delivered through vaginal delivery. A woman who delivered through C-section is also expected to have more rest time for recovery. She is expected also to start training with low impact activities such as walking and engaging in less strength training than the woman that delivered through vaginal delivery. Furthermore, she must engage in light stretches (Avarank & Mudd, 2009). While active women who undergo vaginal delivery will benefit from strong muscles when it comes to “push time”, those who end up with C-section who are also active will recover faster with strong and active recovery (Bolaji-Olojo, 2028).

CONCLUSION

This study reviewed exercise prescription for stages of pregnancy and the postpartum period. The study established that regular exercise helps to improve the quality of life of pregnant women. According to the study, pregnant women are aware of the importance of active engagement in exercise. Despite this, their engagement in exercise is still low.

Furthermore, it was discovered that undergraduate curriculum in medicine and physical education do not provide training in the area of exercise during pregnancy. This may have affected the quantity and quality of pre and postnatal exercise professionals. The pregnancy period is not a time to launch a competitive fitness program. Fitness goals should be the focus and must be monitored in conjunction with diet to avoid weight loss. Therefore, woman should study her body system and follow medical advice after pregnancy before engaging in exercise. Pregnant women are urged to be completely honest with their healthcare providers when it comes to exercise routine during pregnancy.

Recommendations

To help improve regular participation in exercise during pregnancy, the following recommendations are made:

1. More research studies are needed in this area to ascertain the level of exercise engagement among pregnant women in various countries and at international level.
2. There should be inclusion of exercise during pregnancy as a course of study in the curricula of health-related academic fields.
3. Pregnant women should be given effective counselling interventions to promote regular exercise during pregnancy.
4. Through advocacy, the traditional belief that considered the period of pregnancy as a resting period should be dispelled.

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