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Grade retention in high stakes and low stakes testing years

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GRADE RETENTION IN HIGH STAKES AND LOW STAKES TESTING YEARS

A Thesis
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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In

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Anna Elizabeth Ball
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Abstract

Recent political calls for an end to social promotion have led to an era in which many states are using high stakes tests to make retention decisions. Several decades of research have shown that retention is not an effective practice academically or socially. Louisiana is one state that has adopted a high stakes testing policy. This study examines a state-wide database to examine the predictors of retention in high stakes and low stakes testing years. Multiple regression analyses, discriminant analyses, and logistic regression analyses were run on data from students in grade 4 through grade 8 in Louisiana. The results showed that current year achievement most strongly predicted retention, followed by prior year achievement and finally demographic factors. This finding was consistent over all grade levels. It was also found that even in high stakes testing years, test results are not the sole determinant of retention status. Several exceptions to the high stakes testing policy exist in Louisiana. Limitations of this study and directions for future research are also discussed.

Introduction

Grade Retention Literature Review

Grade retention in American schools is a widely used method for assisting students who are struggling to catch up with their peers. Retention is often presented as an option which gives those who are behind a “gift of time” which will contribute to future academic and social successes (Ferguson, Jimerson, & Dalton, 2001). Research has shown that teachers at every grade level see retention as a positive option that motivates students to strive for success and helps them to avoid daily failures (Tomchin & Impara, 1992). Unfortunately, the vast majority of research shows that retention does just the opposite, causing retained students to fall further behind their promoted peers. This discrepancy between the evidence against the efficacy of retention and the beliefs of those making retention decisions is troubling. In a 1975 critical review of grade retention, Jackson found that educators were retaining students without empirical evidence that retention gives them any benefits over promotion to the next grade. As stated in the National Association of School Psychologists’ (NASP) position statement on grade retention and social promotion: “Despite a century of research that fails to support the efficacy of grade retention, the use of grade retention has increased over the past 25 years. It is estimated that as many as 15% of American students are held back each year, and 30% - 50% of students in the U.S. are retained at least once before ninth grade.”

There are various physical, social, and emotional reasons that children are retained, sometimes unrelated to their academic ability. Researchers have found that accounting for equally low achievement levels, factors contributing to retention are being

male, being small for ones age, being relatively young for ones grade, lacking maturity in comparison to peers, or attending a school with a high retention rate (Grissom & Shepard, 1989). Being a member of a minority group also puts students at a higher risk for retention. Although some states do not collect retention data or collect it very sparsely, the state of Texas regularly reports the students who are retained in each grade and separates these data by ethnicity. The Texas Education Agency in 1998 stated:

“If all Texas students were subject to the failure rates of 1996-97, 17 percent would fail at least once between the 1st and 8th grades, and 32 percent would fail at least once between the 9th grade and high school completion. Among African American students, the corresponding rates are 20 percent and 42 percent, and among Hispanic students they are 21 and 44 percent.” (Hauser, 2000).

Demographic factors can influence some teachers’ opinions on which students have more or less academic aptitude, and these teachers often have a considerable influence on who is or is not retained.

In addition to these predictors, social factors such as being raised in a low SES family, in a family with one or more biological parents absent, low levels of maternal education, or a low parental value of education are also factors that can predict failure in school (Byrd & Weitzman, 1994; Ferguson et al., 2001; Meisels & Liaw, 1993). In 1992, Reynolds found that higher levels of school mobility and low levels of parental involvement in school activities can predict retention as well. Thus, some students enter on unequal footing with their more fortunate classmates, and are already at higher risk for retention before their first day in the classroom. Also, when a child is retained these family related factors do not disappear. As Jimerson stated in 2001, “simply having a

student repeat a grade is unlikely to address the multiple factors influencing the students' poor achievement or adjustment that resulted in the decision to retain the student.”

The consequences for many of these retained students are vast. Academically, there is little evidence that retained students make any gains relative to low-achieving peers who are promoted. Holmes and colleagues in 1984 calculated effect sizes for 31 studies on grade retention and found that retained students' academic achievement was .44 standard deviations below a comparison group of promoted peers. In 2001, an additional meta-analysis of grade retention research found 47% of the analyses favored low-achieving but promoted students, while only 5% favored the retained students (Jimerson, 2001). Further research found that continuously promoted children scored nearly 1 grade level higher than ever-retained children in reading achievement, and 6 grade-equivalent months higher than retained students in mathematics after adjusting for demographic, readiness, prior adjustment, and school-based effects. By the end of their third grade year, many first grade retainees were behind not only their third grade peers, but also their second grade peers a grade below them (Reynolds, 1992). Further, any achievement gains that retained students do make tend to decline within 2-3 years, whether retained students are compared with students in their same grade or a comparison group of promoted peers (NASP, 2003).

Retained students often experience social and behavioral consequences on top of their academic difficulties. One study found that the odds of retainees having emotional and behavioral problems were twice that of students who were never retained (Meisels & Liaw, 1993). Retained students were also found on average to exhibit poorer social adjustment, attitudes toward school, attendance, and a higher incidence of problem

behavior as well as problems with peer relationships and self-esteem (Holmes, 1989). Some studies (Reynolds, 1992) have found that retention was positively related to students' perceived competence, but their data show that this effect was strongest for students retained in first grade, and they suggest that the outcomes of retention may require time to take effect. In studies which examine children's ratings of twenty stressful events, results have changed over the last 20 years. Initially, 6th grade students indicated that they feared retention third in the list of twenty events, behind loss of a parent and going blind. However, more recently 6th grade students rated retention as the event they feared the most, above both loss of a parent or going blind (NASP, 2003).

The long-term consequences for these retained students appear to be even worse. Much attention has been paid to the effect retention has on the dropout rate. In 2001, Jimerson et al. conducted a systematic review of 17 studies that looked at grade retention as a predictor of subsequent school drop out. This analysis showed that grade retention is one of the strongest predictors of whether a student will drop out of school, and every study examined found grade retention to be associated with future dropout (Jimerson, Anderson, & Whipple, 2002). Students who are retained are also twice as likely to be retained a second time as low-achieving, non-retained peers (Texas Education Agency, 1996). Each subsequent retention highly increases the probability that the student will not graduate with a high school diploma. The increased dropout rate is costing taxpayers as well. Financing an extra year of schooling is costing taxpayers over \$14 billion annually (Dawson, 1998). In addition to increased risk of dropping out of school, retained students have been found to be "less likely to receive a diploma by age 20, less likely to be enrolled in a post-secondary educational program, received lower

education/employment status ratings, were paid less per hour, and received poorer employment competence ratings at age 20 in comparison to a similar group of low-achieving, promoted students” (Jimerson, 1999). Sadly, as adults, grade repeaters are more likely to be unemployed, on public assistance, or in prison than non-repeaters (NASP, 2003).

High Stakes Testing Literature Review

Despite all the evidence of the ineffectiveness of grade retention and the potential short- and long-term consequences it can bring, many fear that the number of students retained will simply continue to increase. Policy makers have called for an end to social promotion and implemented mandates such as the No Child Left Behind Act of 2001 (NCLB), which is intended to promote higher standards for students, teachers, and school systems. NCLB has advanced the development of large scale assessments to determine if all teachers and schools are meeting these high standards. These high stakes tests are implemented in hopes of inspiring superior effort on the part of students, teachers, and administrators (AERA, 2000). Regrettably, many educational professionals have interpreted the call to end social promotion as a directive to retain students with academic struggles (Jimerson, 2001) and the No Child Left Behind Act has the potential for unintended negative consequences such as the large scale assessments being used in high stakes decision making for schools and individual students. Uses of assessment results are characterized as “high stakes” if they carry serious consequences for students, educators, or schools (AERA, 2000).

These achievement tests were initially intended to provide helpful information about student achievement and ability to be used in diagnosis and to improve teaching

efforts. Most national testing companies do not recommend that their tests be used as the only gauge for high stakes decisions (Goldberg, 2005); however, these test scores frequently are used as the sole determinant of the success of students, schools, districts, and states (Marchant, 2004). In its position statement on using large scale assessment for high stakes decisions, the National Association of School Psychologists (NASP) asserts its opposition to using a single test score as the only factor in high stakes decisions, including decisions about retention or promotion (NASP, 2003b).

Individual students are not the only ones feeling the pressure. Schools and teachers are also judged based on test scores, despite the fact that “children are not randomly assigned to states, school districts, schools, and often not even to teachers.” These students have qualitative differences that are not the product of the quality of the instruction they receive or the policies of the districts in which they reside (Marchant, 2004). The demands from high stakes testing have led some schools to use retention as a means to make their school look more effective. According to McGill-Franzen and Allington in 1993, retention practices can contaminate reported assessment results in the following year when the retained children have their results reported with their new, younger classmates. They cited an example of a School A, where 5% of the students are retained yearly, and School B, where about 50% are not promoted each year. School B has been the recipient of multiple awards on the state and national level for academic excellence partly due to its high scores on the third grade state assessment. School A has not received these recognitions, despite the fact that they have reduced the proportion of students whose scores fall in the lowest quartile across the elementary grades. In their opinion, retention, especially with respect to bolstering high stakes testing scores, serves

the needs of schools rather than the needs of children (McGill-Franzen & Allington, 1993). An addition example of this phenomenon is the “ninth-grade” bulge. A 2004 Boston College study found that the number of students being retained in the ninth grade had nearly tripled since the 1960s. This evidence led one of the researchers, Walter Haney, to state “It’s just really happening that schools are sacrificing kids to make schools appear to look better” (Goldberg, 2005).

Haladyna, Nolen, and Hass (1991) found that using test scores for “high stakes” decisions has created a climate for test score pollution. As the pressure to increase test scores has risen, teachers and administrators engage in strategies to increase their students’ scores. They found that while many of these tactics, such as teaching test-taking skills, are ethical, they can spuriously inflate test scores if they are not universally applied to the unit of analysis being used for test score interpretation. Thus, test scores may not be a valid representation of a particular student’s knowledge of the constructs, and evidence has shown that improved scores on one test might not carry over to another test assessing the same knowledge and skills (Koretz, Linn, Dunbar, & Shepard, 1991). Leckrone and Griffith pointed out in 2006 that there have been several occurrences of testing irregularities, some resulting in criminal court proceedings. Also, the tests themselves are not perfect. As cited by Goldberg in 2005, 50 high-profile testing mistakes occurred in 20 states between 1999 and 2002 according to The National Board on Educational Testing and Public Policy. It is also problematic to ensure that tests are truly equivalent from year to year. For instance, on a tenth grade math problem solving test in Oregon, 82% of the state’s students failed to meet the requirements, while only 50% had failed to meet the requirements the previous year (Goldberg, 2005). In New

York City, thousands of students had been retained when they should have passed due to an improperly normed test (Hartocollis, 1999). Therefore, it is dangerous to make a high stakes decision based solely on this single score.

What will the consequences be for these test-based promotion policies? In 2000, Hauser concluded that these policies will likely raise both the public and private costs of schooling without corresponding educational benefit. He further asserts that the drive toward promotion decisions based on test scores is based on “politically attractive, but scientifically unsupported claims about the benefits of retention, and minority students are more likely to be subject to them.” The negative outcome that high stakes testing can have has been documented in several states. For example, in 2002, Baltimore retained 20,000 students (over 25%) in their elementary and middle schools for failing to meet requirements on the Terra Nova national achievement test (Bowie, 2002, as cited in Marchant, 2004). Sadly, there has been a 300% increase in Boston’s middle school dropout rate in five years which has been attributed in part to high stakes retention policies (Hayward, 2002, as cited in Marchant, 2004).

The demands for an end to social promotion are paired with proposals for early identification and remediation of learning problems. Hauser (2000) envisions a school system where students with learning difficulties would be identified long before they are held accountable for their score on high stakes tests, and provided with effective diagnosis and remediation. Parents, teachers, and individual students would *collectively* be held responsible for the results. Leckrone and Griffith (2006) call for a shift in emphasis from standardized, mandated testing to ongoing, performance based measures to provide information for improved instruction and increased student learning.

Unfortunately, “there is no evidence for claims that new retention policies will be coupled with effective remediation of learning deficits that would be worth their cost or would offset the well-established long-term negative effects of retention.” In fact, only 13 states require and fund such intervention programs, while 6 states require intervention but provide no funding to support it (Hauser, 2000).

Rationale and Purpose of the Current Study

The literature discussed above reflects several decades of research on the predictors and consequences of grade retention. It details the recent push toward accountability and high stakes testing, which raises some interesting questions about potential differences in retainees in these high stakes grades versus those in grades which do not use high stakes testing for their retention decisions. The current study examined the proportions of students retained in high stakes versus low-stakes testing years and determine if any students who pass the test in high stakes years are retained.

In addition, the contribution of academic achievement and demographic variables as predictors of grade retention was explored. Finally, this study looked at the consistency of predictors over grade level and in high stakes versus low-stakes testing grades.

Since most states keep either no or very sparse retention records (Hauser, 2000), most retention studies have smaller samples of retained children and a comparison group of their promoted but low performing peers. This study looked at retention on a much grander scale, by examining a large, state-wide database, the details of which will be discussed below.

Methods

In Louisiana, the state in which the current study was conducted, The Iowa Test of Basic Skills, or *ITBS*, (grades 3, 5, 6, 7, and 9) and Louisiana Educational Assessment Program for the 21st Century, or *LEAP-21*, (grades 4 and 8) are administered annually. Students are given the LEAP for the 21st Century (*LEAP-21*) test to make high stakes decisions in the 4th and 8th grade. According to the Louisiana Department of Education's High Stakes Testing Policy (2005), "a student may not be promoted to the 5th grade (+or 9th grade) until he or she has scored at or above the *Basic* achievement level on either the English Language Arts or Mathematics component of the 4th grade (or 8th grade) *LEAP-21* and at the *Approaching Basic* achievement level on the other." Prior to 2005 students were required to meet the *Approaching Basic* achievement level on the English Language Arts and Mathematics components of the *LEAP-21*. Local Education Agencies (LEAs) are required to offer at least 50 hours per subject of summer remediation and an opportunity for students to retest at no cost to the students. Also, LEAs are required to design and implement additional instructional strategies for those 4th and 8th grade students being retained.

Database Construction

Analyses were run on a large multivariate longitudinal database linking many data points from Louisiana's student achievement, teacher, and curriculum databases. These databases are from existing data obtained from the Louisiana Department of Education. Preliminary work was undertaken to resolve duplicate records and multiple partially complete records that described the same student. After these resolutions were completed, the *ITBS* and *LEAP-21* data files were merged followed by an additional

round of duplication resolution. The *ITBS* and *LEAP-21* do not report scores on comparable scales. In order to use prior achievement as a predictor in discriminant analyses, standard scores for each domain within each test were converted to a *z*-score based upon the students contributing to the analyses. Students' data were linked across years based upon unique matches on multiple identifiers used in each stage of the matching process. Student records that remained unmatched were then examined for a potential unique match through a layered series of comparisons. Those records that did not uniquely match at any stage were retained as isolated records of student performance and not included in the analyses (Noell & Burns, 2006).

In addition to achievement data, a number of additional variables were gathered and/or computed from the available databases. These were student free and reduced lunch status, gifted status, special education status, limited English proficiency status, gender, and minority status (Noell & Burns, 2006).

Procedure

First, simple frequency counts were run in SPSS on the database described above to determine if any students in high stakes accountability grades (4 and 8) pass the *LEAP-21* but are still retained. Frequency counts were also run to determine the proportions of students retained in high stakes versus low-stakes years.

For analyses, predictor variables were coded in the following manner. Retention status was coded as 0 for not retained and 1 for retained. Gender was coded 0 for female and 1 for male. The demographic variables were all coded 0 for yes and 1 for no.

Two multiple regression analyses were run for each grade level 4-8 with retention status as the dependent variable and the student's demographic factors of gender,

ethnicity, limited English proficiency, free/reduced lunch status, special education status, and gifted status as predictor variables. Also, prior and current year achievement on the English/Language Arts, Math, Science, and Social Studies components of the *ITBS* or *LEAP-21* were included as predictors. The first regression examined predictors for all students. The second regression removed students from the analyses who were exempt from the State's normal rules for high stakes assessment. Students with limited English proficiency, who were in special education, and who were retained the prior year were excluded from analyses. Also, for students who took the test again in the summer, the performance on summer administration of testing was used. This second regression is referred to as the unconfounded group. This term is used to connote that the assessment is not confounded by rule exceptions. The two regressions were compared to determine R^2 improvement.

For each grade level 4-8, a discriminant analysis was run on the dichotomous variable retention status to determine the contribution of various types of predictors. The predictors analyzed included the student's demographic factors and prior and current year achievement on the English/Language Arts, Math, Science, and Social Studies components of the *ITBS* or *LEAP-21*. A Logistic Regression was also run on these predictors in order to examine the risk ratios. The results of these analyses were examined to see if there was a change in predictors over grade level. Also, the predictors in high stakes grades (4 and 8) were compared to the predictors in all other grades (5, 6, 7, and 9). Lastly, the contribution of academic achievement versus demographic variables were determined by examining the results of these analyses.

Results

Grade 4

A total of 53,783 records were analyzed for students in grade 4, a high stakes testing year in Louisiana. Of those, 43,713 students were found to be promoted, 8,845 were found to be retained, and 1,225 were missing retention information. Of those retained, 8,680 failed the *LEAP-21* test and 165 passed the test. Of those promoted, 10,335 failed the test and 33,378 passed the test. It is interesting that in a high stakes year, 10,335 students failed the *LEAP-21* test and were promoted. Of these students, 3,144 had been retained the prior year, 5,010 passed the test in the summer retake, 1,203 were in Special Education, and 55 had Limited English Proficiency. That leaves 923 cases of students who failed the *LEAP-21* and were still promoted for reasons that cannot be accounted for with the information contained in the database.

Two multiple regression analyses were run for each grade level with retention status as the dependent variable and demographic, prior year achievement, and current year achievement variables as the predictor variables. The first regression examined all predictors for all students. The second regression removed students from the analyses who were exempt from the State's normal rules for high stakes assessment. Students with limited English proficiency, special education, and who were retained the prior year were excluded from analyses. Also, for students who took the test again in the summer, the performance on summer administration of testing was used. This second regression is referred to as the unconfounded group. This term is used to connote that the assessment is not confounded by rule exceptions. The two regressions were compared to determine R^2

improvement. It was found that for all grades except 8th grade, the unconfounded R² accounted for more variance than the analysis run with all student records. The results for the 4th grade analysis are reported in Table 1 below.

TABLE 1

Summary of Multiple Regression Analysis of Variables Related to Retention Status

Independent Variable	B	SE B	β	p
Gender	-.033	.003	-.046	<.001
American Indian	.002	.017	<.001	.921
Asian	.003	.016	.001	.872
African American	-.003	.004	-.004	.459
Hispanic	-.031	.013	-.009	.019
Free/Reduced Lunch	-.006	.004	-.008	.095
Gifted	.170	.007	.110	<.001
Prior Achievement ELA	-.035	.002	-.093	<.001
Prior Achievement MATH	-.025	.003	-.066	<.001
Prior Achievement SCI	.030	.002	.082	<.001
Prior Achievement SST	.004	.002	.011	.095
Current Achievement ELA	-.021	.003	-.042	<.001
Current Achievement MATH	-.088	.003	-.185	<.001
Current Achievement SCI	-.084	.003	-.211	<.001
Current Achievement SST	-.089	.003	-.229	<.001

Note: R² = 0.365.

As shown in Table 1, there were several significant predictors of retention status. Those predictors found to be the strongest were gender, gifted status, and prior and current year achievement data. The ethnicity predictors as well as the free and reduced lunch status were not found to be strong predictors of retention when gender, gifted status, and achievement were taken into account.

Two discriminant analyses were run to determine if demographics, prior year test achievement, and current year test achievement could predict retention status. The first analysis included all available data from the 4th grade student file. The overall Wilks' Lambda was found to be significant ($\Lambda = .69, \chi^2 (17, N= 52195) = 19527.48, p < .01$). This indicates that there is a significant difference between retained and not retained students across the predictor variables. Also, an overall canonical correlation of .559 was found. Squaring this number gives you an effect size indicator of .312, which tells us that 31.2% of the variance between retained and not retained students is shared with the predictors.

The correlation coefficients with the discriminant function revealed that current year achievement was most strongly correlated, followed by prior year achievement, and most weakly correlated were the demographic variables. Examining the classification results it was found that 87% of the original grouped cases were correctly classified.

A second discriminant analysis was run on the 4th grade data using the exclusionary criteria described for the unconfounded group above.

In this analysis, the overall Wilks' Lambda was also found to be significant ($\Lambda = .64, \chi^2 (15, N= 40033) = 18195.38, p < .01$). This shows that there were also differences between the retained and not retained students across predictors in the unconfounded

group. The canonical correlation for this analysis was .604, indicating that 36.4% of the variance between retained and promoted students is shared with the predictors. This is an improvement over the analysis of all the 4th grade data, in which 31.2% of the variance was accounted for. Again, the correlation coefficients with the discriminant function revealed that current year achievement was most highly correlated, followed by prior year achievement, and finally demographic variables.

The classification results for the 4th grade unconfounded group also showed an improvement over the first analysis. 91.3% of the original grouped cases were correctly classified, as displayed in Table 2 below.

TABLE 2

Classification of Cases by Retention Prediction Model

Actual Group	No. of Cases	Predicted Group			
		Promoted		Retained	
		N	%	N	%
Promoted	43713	33306	98.2	604	1.8
Retained	8845	2892	47.2	3231	52.8

Note: 91.3% Correctly Classified

Additionally, two logistic regression analyses were run on the grade 4 data, one for all cases and one for the unconfounded group, in order to obtain odds ratios for retention. The results for the unconfounded group are displayed in Table 3 below.

TABLE 3

Odds Ratios and Percent Increase in Probability of Retention

<i>Independent Variable</i>	Exp (B)	% increase odds ratio in probability	p
Gender	0.73	-7.08	.000
American Indian	1.07	-2.28	.783
Asian	0.50	-10.61	.124
African American	0.89	-4.79	.022
Hispanic	0.78	-6.40	.272
Free/Reduced Lunch	1.53	3.50	<.001
Gifted	0.60	-9.06	.057
Prior Achievement SCI	1.00	-3.27	.919
Prior Achievement SST	1.03	-2.80	.403
Prior Achievement ELA	0.59	-9.22	<.001
Prior Achievement MTH	0.52	-10.28	<.001
Current Achievement SCI	0.49	-10.80	<.001
Current Achievement SST	0.31	-13.91	<.001
Current Achievement ELA	0.50	-10.64	<.001
Current Achievement MATH	0.23	-15.36	<.001

Table 3 displays the results of the regression analysis in terms of odds ratios and percent increase in probability. The percent increase in probability shows that for each unit increase in the predictor variable, the probability of being retained increases or decreases by the given percent controlling for all other variables in the model. The current year achievement data have the largest decreases in the probability of being retained. The only variable that shows an increase in the probability of retention when controlling for all other variables is free and reduced lunch status.

Grade 5

Grade 5 is not a high stakes testing year in Louisiana. A total of 54,276 student records were analyzed at this grade level. Of those students, 96.5% were promoted, while only 2.7% were retained.

As described above, two multiple regression analyses were run for Grade 5 with retention status as the dependent variable and demographic, prior year achievement, and current year achievement variables as the predictor variables. The first regression examined all predictors for all students. The second regression removed students from the analyses who were exempt from the State’s normal rules for high stakes assessment. The results for the 5th grade unconfounded group analysis are reported in Table 4 below.

TABLE 4

Summary of Multiple Regression Analysis of Variables Related to Retention Status

Independent Variable	B	SE B	β	p
----------------------	---	------	---------	---

Table continued

Gender	-.017	.002	-.053	<.001
American Indian	-.004	.009	-.002	.700
Asian	-.015	.009	-.008	.104
African American	-.018	.002	-.054	<.001
Hispanic	-.017	.008	-.011	.025
Free/Reduced Lunch	.010	.002	.030	<.001
Gifted	.016	.004	.025	<.001
Prior Achievement ELA	.004	.002	.018	.012
Prior Achievement MATH	.004	.002	.016	.028
Prior Achievement SCI	.002	.002	.009	.309
Prior Achievement SST	-.006	.002	-.034	<.001
Current Achievement ELA	-.014	.001	-.081	<.001
Current Achievement MATH	-.013	.002	-.076	<.001
Current Achievement SCI	-.005	.001	-.033	<.001
Current Achievement SST	-.004	.001	-.023	.004

Note: $R^2 = 0.034$.

As shown in Table 4, there were also several significant predictors of retention status in Grade 5, though they were not as strong in magnitude as Grade 4. Those predictors found to be the strongest were gender, African American, and current year achievement in English Language Arts and Math. The remaining ethnicity predictors were not found to be strong predictors of retention when all other predictors were taken into account.

Two discriminant analyses were run to determine if demographics, prior year test achievement, and current year test achievement could predict retention status. The first analysis included all available data from the 5th grade student file. The overall Wilks' Lambda was found to be significant ($\Lambda = .97, \chi^2 (17, N= 46384) = 1339.973, p < .01$).

This indicates that there is a significant difference between retained and not retained students across the predictor variables. Also, an overall canonical correlation of .169 was found. Squaring this number gives you an effect size indicator of .029, which tells us that 2.9% of the variance between retained and not retained students is shared with the predictors.

The correlation coefficients with the discriminant function revealed that current year achievement was most strongly correlated, followed by prior year achievement, and most weakly correlated were the demographic variables. Examining the classification results it was found that 97.3% of the original grouped cases were correctly classified, however no students were predicted to be retained.

A second discriminant analysis was run on the 5th grade data using the exclusionary criteria described for the unconfounded group above.

In this analysis, the overall Wilks' Lambda was also found to be significant ($\Lambda = .966, \chi^2 (15, N= 39537) = 1354.57, p < .01$). This shows that there were also differences between the retained and not retained students across predictors in the 5th grade unconfounded group. The canonical correlation for this analysis was .184, indicating that 3.4% of the variance between retained and promoted students is shared with the predictors. This is an improvement over the analysis of all the 5th grade data, in which 2.4% of the variance was accounted for. Again, the correlation coefficients with the

discriminant function revealed that current year achievement was most highly correlated, followed by prior year achievement, and finally demographic variables.

The classification results for the 5th grade unconfounded group were identical to the first analysis of all the 5th grade records. 97.3% of the original grouped cases were correctly classified, although no students were predicted to be retained, as displayed in Table 5 below.

TABLE 5

Classification of Cases by Retention Prediction Model

Actual Group	No. of Cases	Predicted Group			
		Promoted		Retained	
		N	%	N	%
Promoted	45431	38461	100.0	0	0.0
Retained	1268	1076	100.0	0	0.0

Note: 97.3% Correctly Classified

Also, two logistic regression analyses were run on the grade 5 data, one for all cases and one for the unconfounded group, in order to obtain odds ratios for retention. The results for the unconfounded group are displayed in Table 6 below.

TABLE 6

Odds Ratios and Percent Increase in Probability of Retention

<i>Independent Variable</i>	Exp (B)	% increase	p
	odds ratio in probability		

Table continued

Gender	0.54	-1.27	<0.01
American Indian	0.84	-0.49	0.62
Asian	0.16	-2.26	0.07
African American	0.47	-1.46	<0.01
Hispanic	0.37	-1.71	0.03
Free/Reduced Lunch	1.83	2.01	<0.01
Gifted	0.41	-1.60	0.05
Prior Achievement SCI	1.14	0.29	0.04
Prior Achievement SST	0.81	-0.56	<0.01
Prior Achievement ELA	0.94	-0.23	0.29
Prior Achievement MTH	0.92	-0.29	0.14
Current Achievement SCI	0.76	-0.68	<0.01
Current Achievement SST	0.84	-0.49	<0.01
Current Achievement ELA	0.56	-1.21	<0.01
Current Achievement MATH	0.02	-1.25	<0.01

Table 6 displays the results of the regression analysis in terms of odds ratios and percent increase in probability. The percent increase in probability shows that for each unit increase in the predictor variable, the probability of being retained increases or decreases by the given percent controlling for all other variables in the model. The current year English Language Arts and Mathematics achievement data have the largest decreases in the probability of being retained, along with gifted status and Asian and

African American ethnicity. Consistent with the grade 4 results, free and reduced lunch status shows an increase in the probability of retention when controlling for all other variables.

Grade 6

Grade 6 is also a low-stakes testing year in Louisiana. A total of 48,638 student records were analyzed at this grade level. Of those students, 93.4% were promoted, while only 4.9% were retained. This is a greater percentage of retained students than Grade 5, but still significantly less than Grade 4.

As with Grades 4 and 5, two multiple regression analyses were run for Grade 6 with retention status as the dependent variable and demographic, prior year achievement, and current year achievement variables as the predictor variables. The first regression examined all predictors for all students. The second regression removed students from the analyses who were exempt from the State’s normal rules for high stakes assessment. The results for the 6th grade unconfounded group analysis are reported in Table 7 below.

TABLE 7

Summary of Multiple Regression Analysis of Variables Related to Retention Status

Independent Variable	B	SE B	β	p
Gender	-.026	.002	-.064	<.001
American Indian	-.002	.012	-.001	.896
Asian	-.004	.011	-.002	.680
African American	-.007	.003	-.018	.003
Hispanic	.011	.009	.006	.232

Table continued

Free/Reduced Lunch	.012	.002	.027	<.001
Gifted	.032	.004	.039	<.001
Prior Achievement ELA	.002	.002	.010	.323
Prior Achievement MATH	.012	.002	.057	<.001
Prior Achievement SCI	.006	.002	.031	.001
Prior Achievement SST	-.002	.002	-.007	.371
Current Achievement ELA	-.029	.002	-.135	<.001
Current Achievement MATH	-.027	.002	-.126	<.001
Current Achievement SCI	-.005	.002	-.023	.015
Current Achievement SST	-.011	.002	-.055	<.001

Note: $R^2 = 0.058$.

Table 7 shows that there were also several significant predictors of retention status in Grade 6. Gender and current achievement in English Language Arts and Math were the predictors found to be the strongest. Again, ethnicity predictors were not as strong when all other predictors were taken into account.

For Grade 6, two discriminant analyses were run to determine if demographics, prior year test achievement, and current year test achievement could predict retention status. The first analysis included all available data from the 6th grade student file. The overall Wilks' Lambda was found to be significant ($\Lambda = .948$, $\chi^2 (17, N= 48601) = 2583.77$, $p < .01$). Again, this indicates that there is a significant difference between retained and not retained students across the predictor variables for Grade 6. Also, an overall canonical correlation of .228 was found. Squaring this number gives you an

effect size indicator of .052, which tells us that 5.2% of the variance between retained and not retained students is shared with the predictors. This is an increase over Grade 5, but a decrease from Grade 4.

The correlation coefficients with the discriminant function revealed that current year achievement was most strongly correlated, followed by prior year achievement, and most weakly correlated were the demographic variables. Examining the classification results it was found that 95.6% of the original grouped cases were correctly classified, however only 2 students were predicted to be retained.

A second discriminant analysis was run on the 6th grade data using the exclusionary criteria described for the unconfounded group above.

In this analysis, the overall Wilks' Lambda was also found to be significant ($\Lambda = .942, \chi^2 (15, N= 39193) = 2359.00, p < .01$). This demonstrates that there were differences between the retained and not retained students across predictors in the 6th grade unconfounded group. The canonical correlation for this analysis was .242, indicating that 5.9% of the variance between retained and promoted students is shared with the predictors. This is similar to the analysis of all the 6th grade data, in which 5.2% of the variance was accounted for. Again, the correlation coefficients with the discriminant function revealed that current year achievement was most highly correlated, followed by prior year achievement, and finally demographic variables.

The classification results for the 6th grade unconfounded group were very similar to the analysis of all grade 6 records. 95.6% of the original grouped cases were correctly classified, although only 2 students were predicted to be retained, as displayed in Table 8 below.

TABLE 8

Classification of Cases by Retention Prediction Model

Actual Group	No. of Cases	Predicted Group			
		Promoted		Retained	
		N	%	N	%
Promoted	46203	37450	100.0	2	0.0
Retained	2435	1741	100.0	0	0.0

Note: 95.6% Correctly Classified

Finally, two logistic regression analyses were run on the grade 6 data, one for all cases and one for the unconfounded group, in order to obtain odds ratios for retention.

The results for the unconfounded group are displayed in Table 9 below.

TABLE 9

Odds Ratios and Percent Increase in Probability of Retention

<i>Independent Variable</i>	Exp (B)	% increase odds ratio in probability	p
Gender	0.53	-2.38	<0.01
American Indian	0.99	-0.28	0.97
Asian	0.56	-2.23	0.26
African American	0.75	-1.35	<0.01
Hispanic	1.41	1.54	<0.01
Free/Reduced Lunch	1.60	2.38	<0.01

Table continued

Gifted	0.97	-0.34	0.91
Prior Achievement SCI	1.15	0.43	0.01
Prior Achievement SST	0.91	-0.63	0.03
Prior Achievement ELA	1.06	0.02	0.33
Prior Achievement MTH	1.15	0.44	0.01
Current Achievement SCI	0.87	-0.82	0.01
Current Achievement SST	0.77	-1.27	<0.01
Current Achievement ELA	0.40	-3.00	<0.01
Current Achievement MATH	0.48	-2.6	<0.01

Table 9 displays the results of the regression analysis in terms of odds ratios and percent increase in probability. As described previously, the percent increase in probability shows that for each unit increase in the predictor variable, the probability of being retained increases or decreases by the given percent controlling for all other variables in the model. For grade 6, the English Language Arts and Mathematics current year achievement data, gender, and Asian ethnicity have the largest decreases in the probability of being retained. Consistent with grade 4 and 5 data, free and reduced lunch status showed the largest increase in the probability of retention when controlling for all other variables.

Grade 7

Grade 7 is the final low-stakes testing year analyzed. A total of 48,289 student records were analyzed at this grade level. Of those students, 93.0% were promoted,

while 6.2% were retained. A greater percentage of students were retained in grade 7 than grades 5 or 6, but less than grade 4.

As described in the grades above, two multiple regression analyses were run for Grade 7 with retention status as the dependent variable and demographic, prior year achievement, and current year achievement variables as the predictor variables. The first regression examined all predictors for all students. The second regression removed students from the analyses who were exempt from the State's normal rules for high stakes assessment. The results for the 7th grade unconfounded group analysis are reported in Table 10 below.

TABLE 10

Summary of Multiple Regression Analysis of Variables Related to Retention Status

Independent Variable	B	SE B	β	p
Gender	-.024	.002	-.053	<.001
American Indian	-.028	.013	-.011	.024
Asian	-.009	.011	-.004	.419
African American	-.013	.003	-.027	<.001
Hispanic	-.001	.010	-.001	.888
Free/Reduced Lunch	.014	.003	.031	<.001
Gifted	.026	.010	.028	<.001
Prior Achievement ELA	.012	.003	.049	<.001
Prior Achievement MATH	.008	.002	.035	.001
Prior Achievement SCI	.008	.002	.036	<.001
Prior Achievement SST	-.001	.002	-.006	.476

Table continued

Current Achievement ELA	-.036	.003	-.148	<.001
Current Achievement MATH	-.034	.003	-.138	<.001
Current Achievement SCI	-.007	.002	-.030	.002
Current Achievement SST	-.013	.002	-.054	<.001

Note: $R^2 = 0.060$.

As shown in Table 10, there were several significant predictors of retention status in Grade 7. Those predictors found to be the strongest in magnitude were gender and current year achievement in English Language Arts and Math. Again, the ethnicity predictors were not found to be strong predictors of retention when all other predictors were taken into account.

Two discriminant analyses were also run to determine if demographics, prior year test achievement, and current year test achievement could predict retention status. The first analysis included all available data from the 7th grade student file. The overall Wilks' Lambda was found to be significant ($\Lambda = .944$, $\chi^2 (17, N= 48272) = 2797.12$, $p < .01$).

This indicates that there is a significant difference between retained and not retained students across the predictor variables. Also, an overall canonical correlation of .237 was found. Squaring this number gives you an effect size indicator of .056, which tells us that 5.6% of the variance between retained and not retained students is shared with the predictors for grade 7.

The correlation coefficients with the discriminant function revealed that current year achievement was most strongly correlated, followed by prior year achievement, and most weakly correlated were the demographic variables. Examining the classification

results it was found that 93.8% of the original grouped cases were correctly classified, and only 12 students were predicted to be retained, 6 of whom were actually retained and 6 of whom were promoted.

A second discriminant analysis was run on the 7th grade data using the exclusionary criteria described for the unconfounded group above.

In this analysis, the overall Wilks' Lambda was also found to be significant ($\Lambda = .940, \chi^2 (15, N= 39675) = 2458.30, p < .01$). This shows that there were also differences between the retained and not retained students across predictors in the 7th grade unconfounded group. The canonical correlation for this analysis was .245, indicating that 6.0% of the variance between retained and promoted students is shared with the predictors. This is very similar to the analysis of all records in the 7th grade data, in which 5.6% of the variance was accounted for. Again, the correlation coefficients with the discriminant function revealed that current year achievement was most highly correlated, followed by prior year achievement, and finally demographic variables.

The classification results for the 7th grade unconfounded group were also similar to the first analysis. 94.4% of the original grouped cases were correctly classified, and only 18 students were predicted to be retained, 8 of who were actually retained, and 10 of who were promoted. These results are displayed in Table 11 below.

TABLE 11

Classification of Cases by Retention Prediction Model

Table continued

Actual Group	No. of Cases	Predicted Group			
		Promoted		Retained	
		N	%	N	%
Promoted	45287	37434	100.0	10	0.0
Retained	3002	2223	99.6	8	0.4

Note: 94.4% Correctly Classified

Also, two logistic regression analyses were run on the grade 7 data, one for all cases and one for the unconfounded group, in order to obtain odds ratios for retention. The results for the unconfounded group are displayed in Table 12 below.

TABLE 12

Odds Ratios and Percent Increase in Probability of Retention

<i>Independent Variable</i>	Exp (B)	% increase odds ratio in probability	p
Gender	0.64	-2.37	<0.01

Table continued

American Indian	0.52	-3.09	0.05
Asian	0.35	-4.09	0.04
African American	0.72	-1.93	<0.01
Hispanic	1.04	-0.17	0.87
Free/Reduced Lunch	1.50	2.28	<0.01
Gifted	0.67	-2.21	0.05
Prior Achievement SCI	1.12	0.3	0.01
Prior Achievement SST	0.95	-0.62	0.21
Prior Achievement ELA	1.14	0.4	0.02
Prior Achievement MTH	0.99	-0.43	0.81
Current Achievement SCI	0.87	-1.09	<0.01
Current Achievement SST	0.76	-1.7	<0.01
Current Achievement ELA	0.50	-3.21	<0.01
Current Achievement MATH	0.56	-2.84	<0.01

Table 12 displays the results of the regression analysis for grade 7 in terms of odds ratios and percent increase in probability. The percent increase in probability shows that for each unit increase in the predictor variable, the probability of being retained increases or decreases by the given percent controlling for all other variables in the model. The current year achievement data in English Language Arts and Mathematics, gifted status, and American Indian and Asian ethnicity have the largest decreases in the probability of being retained for grade 7. Similar to all previous grades, free and reduced

lunch status shows the largest percent increase in probability of being retained when the effect for all other variables is controlled.

Grade 8

A total of 43,611 records were analyzed for students in grade 8, the second high stakes testing year in Louisiana analyzed for this study. Of those, 41,694 students were found to be promoted, 1,874 were found to be retained, and 43 were missing retention information. Of those retained, 1,608 failed the *LEAP-21* test and 266 passed the test. Of those promoted, 13,011 failed the test and 28,683 passed the test. Again, it is interesting that in a high stakes year, 13,011 students failed the *LEAP-21* test and were promoted. Of these students, 1,376 had been retained the prior year, 4,072 passed the test in the summer retake, 2,250 were in Special Education, and 92 had Limited English Proficiency. That leaves 5221 cases of students who failed the *LEAP-21* and were still promoted for reasons that cannot be accounted for with the information contained in the database. In addition to the exceptions provided to 4th grade students, there is also an option for 8th grade students who fail the *LEAP-21* to be placed in a Pre-GED program in which they would be considered promoted to the 9th grade for testing purposes.

Two multiple regression analyses were run for grade 8, as described above for grade levels 4-7, with retention status as the dependent variable and demographic, prior year achievement, and current year achievement variables as the predictor variables. The first regression examined all predictors for all students. The second regression analyzed the unconfounded group, as described previously. This term is used to connote that the assessment is not confounded by rule exceptions. The two regressions were compared to

determine R^2 improvement. Interestingly, 8th grade was the only grade in which the unconfounded R^2 accounted for *less* variance than the analysis run with all student records. This could be due to the exception for 8th grade students which allows the option of placing students in a Pre-GED program, in which they are considered promoted to the 9th grade. The results for the 8th grade analysis are reported in Table 13 below.

TABLE 13

Summary of Multiple Regression Analysis of Variables Related to Retention Status

Independent Variable	B	SE B	β	p
Gender	-.014	.002	-.041	<.001
American Indian	-.015	.010	-.007	.145
Asian	.026	.008	.017	.001
African American	-.012	.002	-.036	<.001
Hispanic	-.001	.008	-.001	.873
Free/Reduced Lunch	.004	.002	.011	.055
Gifted	.037	.003	.060	<.001
Prior Achievement ELA	-.001	.002	-.004	.597
Prior Achievement MATH	.007	.002	.040	<.001
Prior Achievement SCI	.014	.002	.082	<.001
Prior Achievement SST	.010	.001	.056	<.001
Current Achievement ELA	-.022	.002	-.081	<.001
Current Achievement MATH	-.051	.002	-.190	<.001

Table continued

Current Achievement SCI	-.020	.002	-.099	<.001
Current Achievement SST	-.025	.002	-.122	<.001

Note: $R^2 = 0.084$.

As shown in Table 13, there were several significant predictors of retention status. Those predictors found to be the strongest were gender, gifted status, African American ethnicity and prior and current year achievement data. The other ethnicity predictors as well as the free and reduced lunch status were not found to be strong predictors of retention when all other predictors were taken into account.

Two discriminant analyses were run on the 8th grade data to determine if demographics, prior year test achievement, and current year test achievement could predict retention status. As with the prior grades, the first analysis included all available data from the 8th grade student file. The overall Wilks' Lambda was found to be significant ($\Lambda = .89$, $\chi^2 (17, N= 43111) = 5016.32$, $p < .01$). This indicates that there is a significant difference between retained and not retained students across the predictor variables. Also, an overall canonical correlation of .331 was found. Squaring this number gives you an effect size indicator of .110, which tells us that 11.0% of the variance between retained and not retained students is shared with the predictors. This is the highest proportion of shared variance of any other grade level except grade 4.

The correlation coefficients with the discriminant function revealed that current year achievement was most strongly correlated, followed by prior year achievement, and most weakly correlated were the demographic variables. Examining the classification results it was found that 95% of the original grouped cases were correctly classified.

A second discriminant analysis was run on the 8th grade data using the exclusionary criteria described for the unconfounded group above.

In this analysis, the overall Wilks' Lambda was also found to be significant ($\Lambda = .916, \chi^2 (15, N= 36333) = 3171.61, p < .01$). This shows that there were also differences between the retained and not retained students across predictors in the unconfounded group. The canonical correlation for this analysis was .289, indicating that 8.4% of the variance between retained and promoted students is shared with the predictors. Again, the correlation coefficients with the discriminant function revealed that current year achievement was most highly correlated, followed by prior year achievement, and finally demographic variables.

The classification results for the 8th grade unconfounded group showed an improvement over the first analysis. 97.2% of the original grouped cases were correctly classified, as displayed in Table 14 below.

TABLE 14

Classification of Cases by Retention Prediction Model

Actual Group	No. of Cases	Predicted Group			
		Promoted		Retained	
		N	%	N	%
Promoted	41694	35140	99.6	157	0.4
Retained	1874	846	81.7	190	18.3

Note: 97.2% Correctly Classified

Finally, two logistic regression analyses were run on the grade 8 data, one for all cases and one for the unconfounded group, in order to obtain odds ratios for retention.

The results for the unconfounded group are displayed in Table 15 below.

TABLE 15

Odds Ratios and Percent Increase in Probability of Retention

<i>Independent Variable</i>	Exp (B)	% increase in odds ratio probability	p
Gender	0.63	-1.65	<0.01
American Indian	0.52	-2.11	0.19
Asian	1.49	1.73	0.26
African American	0.57	-1.93	<0.01
Hispanic	0.79	-1.02	0.47
Free/Reduced Lunch	1.48	1.66	<0.01
Gifted	1.15	0.43	0.59
Prior Achievement SCI	1.20	0.59	0.01
Prior Achievement SST	1.04	-0.01	0.51
Prior Achievement ELA	0.85	-0.80	0.02
Prior Achievement MTH	0.84	-0.80	0.02
Current Achievement SCI	0.77	-1.08	<0.01
Current Achievement SST	0.61	-1.76	<0.01
Current Achievement ELA	0.39	-2.67	<0.01
Current Achievement MATH	0.24	-3.28	<0.01

For grade 8, Table 15 displays the results of the regression analysis in terms of odds ratios and percent increase in probability. The percent increase in probability shows that for each unit increase in the predictor variable, the probability of being retained increases or decreases by the given percent controlling for all other variables in the model. Consistent with grade 4, the other high stakes testing year, the current year achievement data have the largest decreases in the probability of being retained. Again, the variable that shows the largest increase in the probability of retention when controlling for all other variables is free and reduced lunch status.

Discussion

When thinking about potential predictors of retention, one would probably hypothesize that academic achievement would be very strongly correlated with retention status. The results of the discriminant analysis run in this study revealed that current year achievement predictors were the most strongly correlated with retention, followed by prior year achievement predictors, and then demographic predictors. This finding held true over all grade levels examined. However, academic achievement was not found to be as strong a predictor as one might expect. Grade 4, a high stakes testing year, was the exception to this. Examining the results of the logistic regression, it was found that for each unit increase in current achievement for social studies, science, mathematics and English/language arts, the probability of being retained decreased by between 10.80 and 15.36 percent. For the remaining grades 5-8, the range of percent decrease in probability of retention was much lower, from 0.68 to 3.28. Although grade 8 is a high stakes testing grade, its percent decrease remained low. This finding is likely due to the option of placing students with low achievement into a Pre-GED program in which they would be considered promoted to grade 9. Thus, in low-stakes testing years, academics are not playing as large a role as expected in retention decisions. That suggests that other factors, such as social behavior or working in a school with a high rate of retention, could be issues considered in retention decisions. This is consistent with the findings of Grissom and Shepard (1989), in which they found that non-academic characteristics such as gender, size, immaturity, or being young for grade do make students more likely to be retained when equally poor achievement levels are taken into account.

Another finding that is surprising is that even in “high stakes” testing years, test performance is *not* the sole determinant of retention. As seen by examining the grade 4 and grade 8 data, many exceptions to the high stakes testing rules exist. Exceptions to high stakes testing rules in Louisiana include special education status, prior retention status, limited English proficiency, the option of a summer test re-take, and, for grade 8, the option of being placed in a Pre-GED program. In grade 4, 10,335 students failed the *LEAP-21* and were still promoted. Also of interest, 165 students passed the high stakes test and were still retained. Similarly, in 8th grade, 13,011 students failed the *LEAP-21* test and were promoted, while 266 students passed the high stakes test and were retained. In conclusion, the perception that in high stakes testing years, test performance is the nearly exclusive determinant of retention decisions is incorrect.

Consistent with findings of previous studies (Byrd & Weitzman, 1994; Ferguson et al., 2001; Meisels & Liaw, 1993), for equally low achievement levels, low socio-economic status, as captured by the free and reduced lunch variable, is a significant predictor of whether or not a student will be retained. This was found reliably in the logistic regression results across grade levels. Students who received free or reduced price lunch consistently had an increase in the probability of being retained. Being male was also found to be a significant predictor of retention, consistent with the findings of Grissom and Shepard (1989). Results of both the multiple regression and the logistic regression in grade 4 through grade 8 consistently showed that being female reduced a student’s probability of being retained, with all other predictors taken into account. Thus, for equally low achievement, a male is more likely to be retained than a female.

Several previous research findings, such as those described by Hauser in 2000, have found that minorities are more likely to be retained or to be subject to the ramifications of retention. Interestingly, for equally low achievement levels, the results of this study show that being a member of a minority group actually *decreased* your probability of being retained in Louisiana. Though minority students are retained in higher numbers than Caucasian students, this study found that for a Caucasian student and a minority student with equally low achievement, the Caucasian student is more likely to be retained. This finding could be due to higher expectations of teachers for Caucasian students or the likelihood that Caucasian students are in a school environment where overall achievement is higher. Thus, while the Caucasian student's performance may be low in comparison to others within their school, it may be higher than many students throughout the state who are not retained.

One major limitation of this study is that its subjects were all from the state of Louisiana, so the results of this study may have limited generality to other states using high stakes tests to make retention decisions. The rules and exceptions for high stakes testing vary from state to state, as well as the demographic characteristics and the high stakes tests themselves. Therefore, the data regarding high stakes exceptions can only be used to draw conclusions about the policies of the state of Louisiana. Also, this study only examined predictors of students who were retained in the 2004 school year, and thus repeated that grade in 2005. It has not been shown that these results would generalize or hold true over multiple testing years.

There are several avenues for future research that could replicate or extend the findings of this study. First, it would be interesting to extend the current study over

several years to determine if the findings of this study are generalizable over time. Also, this study only examined possible predictors of retention. It would be an interesting to look at retained students academic achievement in subsequent years after their retention in order to assess the academic consequences of retention. Replication of this study on a database from another state that has implemented a high stakes testing policy would also provide useful data. As the reality of high stakes testing becomes more and more prevalent in our society, more research and attention should be focused on the consequences that these high stakes decisions, particularly the decision to retain a student, can bring.

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