Relationships of Economically Disadvantaged and Minority Student Enrollment in Texas Middle Schools

John R. Slate

Sam Houston State University

Relationships of Economically Disadvantaged and Minority Student Enrollment in Texas Middle Schools

Research Questions

The following research questions were addressed in this study: (a) What is the relationship between the percent of economically disadvantaged students and the percent of minority students enrolled at Texas middle schools for the 2003-2004 school year?; (b) What is the relationship between the percent of economically disadvantaged students and the percent of minority students enrolled at Texas middle schools for the 2004-2005 school year?; and (c) What is the relationship between the percent of economically disadvantaged students and the percent of minority students enrolled at Texas middle schools for the 2005-2006 school year?;

Results

Sample sizes, means, and standard deviations pertaining to the two variables of interest (i.e., percent of economically disadvantaged students and percent of minority students) for all three years are presented in Table 1. An examination of the scatterplots (not presented) suggested the presence of linearity for the two variables for each of the three years of data analyzed. The presence of linearity permitted the use of correlation coefficients. With respect to the distribution of scores underlying these measures, the standardized skewness coefficients (i.e., skewness divided by the standard error of skewness) and the standardized kurtosis coefficients (i.e., kurtosis divided by the standard error of kurtosis) revealed serious departures from normality for the two variables of interest for all three years of data analyzed. Specifically, for the percent of economically disadvantaged students, the standardized skewness coefficients were -202.38, -146.81, and -146.52, for each of the three years respectively. Similarly, the

standardized kurtosis coefficients for the percent of economically disadvantaged students were -6.65, -6.48, and -10.86 for each of the three years respectively.

Concerning the standardized skewness coefficients for the percent of minority student enrollment, all three coefficients were outside of the limits of normality, -111.43, -162.24, and -130.92 for the 2003-2004, 2004-2005, and 2005-2006 school years respectively. The standardized kurtosis coefficients for minority student enrollment were -10.77, -10.92, and -6.74 for each of the three years respectively. Therefore, all six standardized skewness coefficients and all 6 standardized kurtosis coefficients were outside of the limits of normality, +/- 3, and were indicative of serious departures from normality (Onwuegbuzie & Daniel, 2002). Accordingly, a nonparametric procedure, the Spearman's rank order correlation coefficient (i.e., Spearman's rho) was performed to address each research question previously delineated.

The Spearman's rho revealed a statistically significant relationship between the percent of economically disadvantaged students and the percent of minority students enrolled in Texas middle schools during the 2003-2004 school year ($r_s[1528] = .76$, $p < .001$). The effect size of this relationship was large (Cohen, 1988). Squaring the correlation coefficients indicated that 58.4% of the variance in the percent of economically disadvantaged students was explained by the presence of minority students. Similarly, 58.4% of the variance in the percent of minority student enrollment was accounted for by the presence of economically disadvantaged students.

For the 2004-2005 school year, the Spearman's rho revealed a statistically significant relationship between the percent of economically disadvantaged students and the percent of minority students enrolled in Texas middle schools, ($r_s[1554] = .76$, $p < .001$). The effect size of this relationship was large (Cohen, 1988). Squaring the correlation coefficients indicated that 58.2% of the variance in the percent of economically disadvantaged students was explained by

the presence of minority students. Similarly, 58.2% of the variance in the percent of minority student enrollment was accounted for by the percent of economically disadvantaged students.

The Spearman's rho revealed a statistically significant relationship between the percent of economically disadvantaged students and the percent of minority students enrolled in Texas middle schools during the 2005-2006 school year ($r_s[1563] = .78$, $p < .001$). The effect size of this relationship was large (Cohen, 1988). Squaring the correlation coefficients indicated that 60.2% of the variance in the percent of economically disadvantaged students was explained by the presence of minority students. Similarly, 60.2% of the variance in the percent of minority student enrollment was explained by the presence of economically disadvantaged students.

In summary, results across the three years of data were consistent. Effect sizes for all three years were large (Cohen, 1988). Moreover, the percent of variance explained by each variable was consistent, ranging from 58.4% to 60.2%. Thus, findings revealed herein were supportive of a consistent relationship between the percent of economically disadvantaged students and the percent of minority students enrolled in Texas middle schools.

References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9*(1), 73-90.

Table 1

Sample Sizes, Means, and Standard Deviations for Percentages of Economically Disadvantaged Students and Minority Student Enrollment for the 2003-2004, 2004-2005, and 2005-2006 School Years

Year and Variable	*n*	*M*	*SD*
2003-2004 School Year			
Economically Disadvantaged	1,528	51.46	26.28
Minority Students	1,528	54.54	31.33
2004-2005 School Year			
Economically Disadvantaged	1,554	54.66	25.60
Minority Students	1,554	56.95	31.03
2005-2006 School Year			
Economically Disadvantaged	1,563	54.70	25.36
Minority Students	1,563	57.88	30.73

Appendix

SPSS Statistical Output

Statistics for the 2003-2004 school year

		Economically Disadvantaged, Percent	Percentage of Minority Students on Middle School Campuses
N	Valid	1528	1528
	Missing	0	0
Mean		51.455	54.5418
Std. Deviation		26.2783	31.33159
Skewness		-12.75	-7.02
Std. Error of Skewness		.063	.063
Kurtosis		-.831	-1.346
Std. Error of Kurtosis		.125	.125

Correlations/Spearman rho for the 2003-2004 school year

			Percentage of Minority Students on Middle School Campuses	**Economically Disadvantaged, Percent**
Spearman's rho	Percentage of Minority Students on Middle School Campuses	Correlation Coefficient	1.000	**.764(**)**
		Sig. (2-tailed)	.	**.000**
		N	1528	**1528**
	Economically Disadvantaged, Percent	Correlation Coefficient	.764(**)	1.000
		Sig. (2-tailed)	.000	.
		N	1528	1528

** Correlation is significant at the 0.01 level (2-tailed).

Statistics for the 2004-2005 School Year

		Economically Disadvantaged, Percent	Percentage of Minority Students Enrolled on Campus
N	Valid	1554	1554
	Missing	0	0
Mean		54.656	56.9502
Std. Deviation		25.6027	31.02597
Skewness		-9.102	-10.059
Std. Error of Skewness		.062	.062
Kurtosis		-.803	-1.354
Std. Error of Kurtosis		.124	.124

Correlations/Spearman rho for 2004-2005

			Economically Disadvantaged, Percent	**Percentage of Minority Students Enrolled on Campus**
Spearman's rho	Economically Disadvantaged, Percent	Correlation Coefficient	1.000	**.763(**)**
		Sig. (2-tailed)	.	**.000**
		N	1554	**1554**
	Percentage of Minority Students Enrolled on Campus	Correlation Coefficient	.763(**)	1.000
		Sig. (2-tailed)	.000	.
		N	1554	1554

** Correlation is significant at the 0.01 level (2-tailed).

Statistics for the 2005-2006 school year

		Middle School Minority Students Percentage	Economically Disadvantaged, Percent
N	Valid	1563	1563
	Missing	0	0
Mean		57.8774	54.700
Std. Deviation		30.73075	25.3641
Skewness		-9.084	-8.117
Std. Error of Skewness		.062	.062
Kurtosis		-1.347	-.836
Std. Error of Kurtosis		.124	.124

Correlations/Spearman rho for the 2005-2006 school year

			Middle School Minority Students Percentage	Economically Disadvantaged, Percent
Spearman's rho	Middle School Minority Students Percentage	Correlation Coefficient	1.000	**.776**(**)
		Sig. (2-tailed)	.	.000
		N	1563	1563
	Economically Disadvantaged, Percent	Correlation Coefficient	.776(**)	1.000
		Sig. (2-tailed)	.000	.
		N	1563	1563

** Correlation is significant at the 0.01 level (2-tailed).