Do School and School District Influence Students' Performance on Civics End-of-Course Assessment? A Multilevel Analysis

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Abstract

This study examined the influence of school and school district variables on schools' average results for the civics end-of-course (EOC) assessment. A two-level hierarchical analysis was conducted using the percentage of students from low-SES per school, school size, and school type as Level 1 predictors and the average district poverty ratio and non-Hispanic White population as Level 2 moderators. The results showed that a higher percentage of poor students, district poverty level, and the district non-Hispanic White population had a negative impact on the average number of students who score proficient on civics EOC assessments. Similarly, school size and school type were significant predictors of the average school civics EOC proficiency rate.

Key Words: standardized test, achievement gap, civics, free and reduced-price lunch (FRPL), socioeconomic status (SES), school size, end-of-course (EOC) assessment, hierarchical linear modeling (HLM)

Introduction

Engagement in civic life entails wisdom and experience for identifying and analyzing public problems, addressing issues, taking collective actions, reflecting on the actions taken, and influencing families, friends, cities, states, and the nation at large. Children can be taught to be good citizens by providing opportunities to work individually and together as citizens in classroom settings (Swan et al., 2013). Thus, the U.S. government and the U.S. Department of Education strive to provide high-quality school-based civic education for producing democratic citizens aware of the process of how the community operates (Yoder et al., 2016). Civic education informs students about the rights, duties, and responsibilities of a citizen and aims to promote career skills, democratic values, attitudes, and dispositions (Alvarez, 2017). The study of civics is deemed valuable; thus, its instruction begins with elementary school and continues through high school in the U.S. (NAEP, 2010).

How U.S. students perform on civics, social studies, or U.S. history on standardized exams affords a context for expressing the national state of history education with broad implications for social studies (Buddin, 2012; Furgione et al., 2018). Many states in the U.S. use end-of-course (EOC) assessments after semester-long classes to measure students' civic knowledge, which weighs a certain amount of the overall course grade (Delander, 2014). As of 2012–13, students in 21 states of the U.S. must take some form of social studies standardized test (CIRCLE Fact Sheet, 2012). Students who score at or above the proficiency level meet the following grade-wise expectations (NAEP, 2010):

- Grade 4 students can identify a purpose of the U.S. constitution.
- Grade 8 students are able to acknowledge the Supreme Court's role.
- Grade 12 students can explain the term '*melting-pot*' and reason if it applies to the U.S.

National Assessment of Educational Progress (NAEP) results show that a considerable majority of K–12 students score below the proficiency level (e.g., approximately 73% of 4th graders and 76% of 12th graders in 2010, and roughly 76% of 8th graders in 2018) (NAEP, n.d.). The percentage of students who score at or above the proficiency level has either remained the same or decreased slightly over time. On the other hand, as many empirical studies reported, the chance of meeting proficiency or advanced levels is highly correlated with various factors related to student, teacher, school, school district, etc. (NAEP, 2010). For example, while a total of 35%, 40%, and 37% of 4th grade White students scored at or above the proficiency levels in the years 2010, 2006, and 1998 respectively, only 9%, 10%, and 10% of Black, and 15%, 13%, and 11% of Hispanic students met that success in the same years. Likewise, while 22%, 20%, 20%, and 20% of public school students met proficiency levels in their civics EOC assessments in the years 2014, 2010, 2006, and 1998 respectively, much higher percentages (38% in 2014, 38% in 2010, and 40% in 1998) of private school students scored at or above proficiency levels in the same NAEP civic assessments (NAEP, 2018).

The above statistics suggest that K–12 students' get differential opportunities to participate in high-quality school-based learning (NAEP, 2010) especially based on the location of school (Bidwell & Kasarda, 1975), school size (McMillen, 2004), school type (Buddin, 2012), school climate (Berkowitz et al., 2017; Sanders et al., 2018); socioeconomic status (Howley & Howley, 2004; Lancour & Tissington, 2011), standardized testing system (Higgins et al., 2006), and many other factors including gender, ethnicity, disability, and limited language proficiency (Johnson, 2009; Yoder et al., 2016), which bring about the differences in their achievement. Thus, the achievement level of a student and the average achievement level of schools depend on various factors.

Although the achievement gap among student groups has indeed seen a plethora of empirical studies, there is minimal literature that assesses the impact of socioeconomic status (SES), school-size, and district level factors on standardized civics testing (Heafner & Fitchett, 2015). It has been studied together with other U.S. K–12 courses like mathematics, science, and reading, and is often given low priority (Furgione et al., 2018).

The purpose of this study was to investigate the achievement gap between the students of public and other schools, and schools with a higher percentage of low- and high-SES students. In addition, this study aimed to identify the effect of school size in terms of the student population in determining such scholastic disparity. Furthermore, the researchers investigated how district level variables (i.e., percentage of people living under the poverty level, and the population of non-Hispanic White people) moderated the achievement gap, and if their interactional effect was statistically significantly higher than zero.

Based on the above discussion and per available data, the authors attempted to find answers to these five research questions:

1. To what extent does the average school civics EOC proficiency level vary by the percentage of low-SES students as determined by percentage receiving free and reduced-price lunch (FRPL)?
2. To what extent does school size impact the average school proficiency level on the civics EOC assessment?
3. To what extent is there a difference in the average percentage of students who scored at or above the proficiency level (Levels 3–5) on the civics EOC assessment between public and other schools in the year 2015–16?
4. Statewide, to what extent does the school-district poverty rate relate to schools' average civics proficiency level in the year 2015–16?
5. Statewide, to what extent does the school district population percentage of non-Hispanic White students relate to schools' average civics proficiency level?

Literature Review

Despite many measures to reduce the achievement gap among student groups, most of the research on academic achievement suggested that socioeconomic disparity, unequal access to resources, other school factors including school types, and even the composition of a community are at the root of this stubborn scholastic gap (Hung et al., 2019). Socioeconomic status has been found to have a direct impact on students' and schools' academic performance (Berkowitz et al., 2017; Caldas & Bankston, 1999; Chen & Weikart, 2008; Furgione et al., 2018; Hung et al., 2019; Okioga, 2013; Sirin, 2005;), and it is growing (Reardon, 2013). One of the seminal works was conducted by Caldas and Bankston (1999), which analyzed the impact of individual student characteristics (e.g., female-headed family structure, race, and student poverty), schoolmates, and school district characteristics on both individual and school-level academic achievement in the state of Louisiana. The researchers considered the achievement level of 42,041 tenth graders who took the Louisiana Graduation Exit Examination (GEE). They reported that schools' poverty percentage (r = -.55, p < .0001) and schools' percentage of African American students (r = -.53, p < .0001) had a negative relationship on average school academic achievement. In addition, they ran a two-level hierarchical linear modeling (HLM) analysis. The calculation of the variance components showed that the racial composition of schools explained 56.3% of the variation for school district academic achievement, and 38% of the variation for within school district test scores; similarly, school poverty and students' family structures accounted for a substantial 46.5% and 96% variation among school districts, and 41% and 59% variation within school districts, respectively (Caldas & Bankston, 1999). The researchers conducted ordinary least squares (OLS) regression on the same data that included more individual variables two years before this study. They reported that students' poverty status (β = -.069), minority race (β = -.314), family poverty status (β = -.84), and weekly work hours (β = -.091) were statistically significantly negatively associated with students' test scores. In contrast, the family social status (β = .171), English proficiency status (β = .017), and reading hours (β = .029) were positively associated (Caldas & Bankston, 1997).

A substantial amount of research examined the relationship of school size and student achievement at the K–12 level; however, results are conflicting (Arnold et al., 2005; Caldas & Bankston, 1997; Caldas & Bankston, 1999; Chen & Weikart, 2008; McMillen, 2004; Walsemann et al., 2013). Researchers argue that school size alone does not have any visible impact on students' achievement level, although, this variable is often used to test for a hypothesis as mediated by SES. The interactional effect of school size and SES in achievement level on school and district levels has interested new and veteran researchers (Howley & Howley, 2004; Johnson, 2009; Miley & Associates, 2003). Howley and Howley (2004) focused on the relationship between school size and socioeconomic status on students' academic achievement with students as the unit of analysis. The authors classified the 19,062 schools either as 'smaller' (number of students enrolled in Grade 8 in the year 1987–88 < 84) or as 'larger' (number of students enrolled in Grade 8 during the year 1987–88 > 84) and compared the schools' average achievement rates in mathematics, reading, science, and history. The results showed that the average achievement difference on history between the smallest quartile schools (total Grade 8 enrollment in the year 1987–88 was between 12 and 23 students) (M = 47.402, SD = 10.072), and the largest quartile schools (total Grade 8 student enrollment > 296) (M = 43.711, SD = 8.598) was t = 4.573, p = .00001, d = +.43. Furthermore, the researchers discovered the effect of low-SES to be higher in larger schools (M = 44.320, SD = 8.37), t = 2.7464 , p = .006, d = +.43 compared to smaller schools (M = 54.642, SD = 10.12), t = 0.3857, p = .07, in terms of students' achievement scores on standardized history tests (Howley & Howley, 2004).

Chen and Weikart (2008) investigated the effect of school, district, and students' SES on students' achievement scores among 212 schools located in New York City during the 2003–04 school year. The parameter estimates of the structural equation modeling (SEM) delineated students' low-SES to be associated with a higher level of school disorder, lower level of school attendance, and lower academic achievement. The researchers found that a higher level of student SES was associated with a higher level of student performance ($\beta = .65$) in mathematics and English language arts. Likewise, larger school size was associated with lower academic achievement ($\beta = .65$), but it was not statistically significant (Chen & Weikart, 2008). A similar study was conducted by Bidwell and Kasarda (1975), which analyzed data from 104 school districts in Colorado to assess the causal relationships between the school district and students' median test scores on math and reading achievement. Standardized partial regression coefficients results showed negative relationships of pupil-teacher ratio ($M = 21.2$, $SD = 2.8$), percentage of disadvantaged students ($M = 17.7$, $SD = 11.2$), and percentage of non-White population in school district ($M = 2.23$, $SD = 3.44$) with reading achievement scores, ($\beta = -.284$), ($\beta = -.286$), ($\beta = -.201$), and math achievement scores, ($\beta = -.296$), ($\beta = -.268$), and ($\beta = -.255$), respectively, and they were statistically significantly different from zero (Bidwell & Kasarda, 1975). These findings were consistent with the findings of similar studies (e.g., Arnold et al., 2005; Eamon, 2005; Fowler & Walberg, 1991, etc.). Furthermore, researchers agree on the fact that students from minority households have significantly lower achievement levels than mainstream non-Hispanic White students (Song & Elliott, 2012).

Additionally, the location of the school and its surroundings plays a vital role in the academic outcome of the schools in that locality (Fowler & Walberg, 1991; Tate, 2008). One of the most rigorous studies in this area was reported by Tate (2008), which compared the geography of opportunity between two metropolitan regions (Dallas and St. Louis) of the U.S. The results suggested that the percentage of 10th-graders who scored at or above the proficiency level on mathematics and science were associated with the percentage of unemployed population in the corresponding school districts (Tate, 2008). Consistent with these findings, Eamon (2005) reported that students' academic achievements were directly affected by schools' ecological environments (e.g., neighborhood, home-school system). Using the data of 388 Latino youths (Ages 14 & 21) extracted from the pool of 12,686 participants in the National Longitudinal Survey of Youth (NLSY), the researcher conducted a hierarchical multiple regression. Results suggested that a higher poverty ratio statistically significantly reduced students' reading achievement ($\beta = -.23$) while having no effect on math achievement scores (Eamon, 2005).

The achievement gap between public schools and other schools (e.g., Catholic schools, private schools, etc.) are well understood (Buddin, 2012; Gamoran, 1996; Hung et al., 2019; Lubienski & Lubienski, 2006; Sander, 1999;). In general, public schools in the U.S. were found to perform significantly lower than private and magnet schools (Buddin, 2012); however, these findings are contested (Lubienski & Lubienski, 2006). Carbonaro & Covay (2010) studied if the standards based on accountability reforms of the past decades reduced the math achievement gap among private, public, and Catholic schools using 13,440 10th-graders from the Educational Longitudinal Study (ELS) in the year 2002. The researchers reported that public schools had the least effect of reforms ($\beta = 0.383$, $p > .05$) compared to the Catholic ($\beta = 0.0594$, $p < .01$), Private-other religious ($\beta = 0.0859$, $p < .05$), and Private-secular schools ($\beta = 0.1227$, $p < .01$). They concluded that a decade of standards-based reform did not reduce the gap in achievement progress among public and private high schools (Carbonaro & Covay, 2010). Similarly, Braun and colleagues studied 4th- and 8th-grade reading and math using 2003 NAEP data from 7,834 and 6,486 schools, respectively. The HLM analysis yielded mixed findings, i.e., private school advantage on 8th-grade reading, private school disadvantage on 4th-grade math, and statistically non-significant differences between public and private school students in 4th-grade math and 8th-grade reading (Braun et al., 2006).

Conversely, Lubienski and Lubienski (2006) analyzed the math achievement gap among the 4^{th-} and 8^{th}-graders of public, private, and Catholic schools using the NAEP 2003 data. The study found that the math achievement level of private school students was statistically significantly higher than Catholic and public schools after controlling for students' background characteristics (Lubienski & Lubienski, 2006, p. 30). On the other hand, a study commissioned by the Center on Educational Policy (CEP) conducted longitudinal research on 1,003 8^{th} graders across the country attending urban high schools, which was a subset of more than 13,000 students who participated in the National Educational Longitudinal Study of 1988. The participants were from various school types (e.g., magnet, public, Catholic), and they were tested in history, reading, math, and science. They were retested and surveyed in 1990 and two years later in the year 1992 again as 12^{th} graders followed by surveys in the years 1994 and 2000 to track their status after school (Wenglinsky, 2007). The regression analysis results on 12^{th}-grade student achievement showed comparable findings between private and public schools. However, the author reported that the Catholic religious schools demonstrated a lead over public schools, and it was about half the effect of SES. Finally, the outcome at age 26 findings suggested that some private school effects still existed in some circumstances; however, they were limited and inconsistent (Wenglinsky, 2007).

Despite the efforts to draw on prior social studies, civics, or U.S. history empirical studies, the researchers realized a severe lack of research in this area. In addition, underlying achievement gaps among students that may be undetected due to the dearth of research on K–12 civics, U.S. history, or other social studies related subjects underscores the urgency for an expansion of the literature, which justifies this research.

Method

Dataset

This non-experimental correlational study utilized publicly available data from two different sources. School-level data were drawn from the Florida Department of Education (FLDOE, n.d.) online portal. This archival data set listed the total number of students based on their grade level and provided their performance on the civics EOC assessment in the academic year 2015–16, including FRPL status. The district-level data that provided the required statistics of the district-wise population composition of non-Hispanic White and poverty percentages were drawn from the Bureau of Economic and Business Research (BEBR, 2016) and the study of the U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE). According to the most recent poverty measures, the U.S. government compares families' annual gross income against a poverty threshold to establish if they are poor. The limits vary by family size and ages of the members (e.g., the poverty threshold for a family of four (2 adults & 2 children) was \$24,008 in the year 2014) (Sandoval, 2015).

In general, the civics EOC dataset does not provide individual student-level results but the school-level data, including the number of first-time civics EOC test takers and average school achievement rates. In the academic year 2015–16, there were a total of 1,173 schools with 197,966 first-time EOC testers in the state of Florida in Grades 3–12. Data did not report the average school achievement rate for 142 schools that had ten or fewer testers in the spring of 2016 assessment. Furthermore, the original dataset treated university-run research schools ($n = 5$), Deaf/Blind Schools ($n = 1$), Florida virtual school ($n = 1$), and Blind Middle school ($n = 1$) under distinct district identification codes, and they were excluded from this study as they lacked the Level 2 covariates. The researchers cross-referenced the sample against provided FRLP statistics and found that 27 schools failed to report that covariate. It resulted in a final sample size of 996 schools with a range of 30 to 3,075 total students per school.

Measures

Achievement of civics EOC assessment was measured on a scale of 1–5, and it is the standard procedure of the FLDOE to dichotomize the scales into non-proficient (0; Achievement Levels 1–2), and proficient (1; Achievement Levels 3–5). The measures of SES in this study came from the school reported percentage of FRPL recipient students. Though using this variable ignores many essential indicators of one's SES status, it has been suggested as the last resort of economic indicators (Entwislea & Astone, 1994) in many studies. A student is FRPL eligible if their household income is up to 85% higher than the federal poverty line (Furgione et al., 2018).

Outcome/Dependent Variable

The outcome variable for this study was the percentage of students per school who scored at or above the proficiency level (Levels 3–5) on the civics EOC assessment. The researchers collapsed the percentage of students who met the proficiency level in all grades (i.e., Grades 3–12) into this composite outcome variable, and it was denoted by *G312CIV1.* It was a continuous percentage variable.

School-level covariates

The percentage of students receiving FRPL was measured during the spring of 2016. A single composite variable was created by adding the percentage of students who received free lunch, students who received reduced-priced lunch, and the percentage of students who were enrolled in the United States Department of Agriculture (USDA) approved Community Eligibility Provision (CEP) schools and were identified as eligible for free meals based on Direct Certification determination.

The type of school was coded as public or other. *Public*, in this study, refers to general U.S. public schools, while *other* refers to the sum of all privately-owned schools, charter schools, and gifted schools. These variables were denoted by *PUBLIC*, coded as *0,* and *OTHER*, coded as *1*, to facilitate the analyses.

School size *(SCHL_SZ)* was a continuous variable. This Level 1 variable represented the number of students who attended each of the schools during the 2015–16 academic year during the spring semester.

District-Level Covariates

There are 67 counties in the state of Florida, representing the same number of school districts. (The 7 remaining districts not associated with a county are not included in this study.) The school district population percentage of children living in poverty (*POV_PER*) in the year 2015 was included as a Level 2 covariate. The percentage of the non-Hispanic White population per school district (*WHT_PER*) in 2015–16 was a Level 2 covariate. The data were drawn from the BEBR online resource (BEBR, 2016).

Analytic Strategy

This study included 996 schools within 67 counties in the state of Florida. Schools were nested within their corresponding school district, and they were not statistically mutually independent observations. Thus, a two-level HLM was used as the data analytics strategy. HLM provides the capability to examine the moderating effects of higher-level groups (i.e., school districts) with lower-level units (i.e., schools) (Raudenbush & Bryk, 2002). Additionally, HLM allows both higher- and lower-level unit variance in the outcome variable to be modeled by both Level 1 and Level 2 covariates (Yuan et al., 2017).

School-level variables were group-mean centered to facilitate the estimation and interpretation, while district-level variables were grand-mean centered (Hofmann & Gavin, 1998). Group-mean centering eliminates between-cluster variation from the predictor and offers a precise estimate of the Level 1 regression coefficient (Enders & Tofighi, 2007). In other words, group-mean centering of Level 1 variables allowed this study to assess the differences in the average percentage of the students per school who scored at or above the proficiency level in the civics EOC assessment in the academic year 2015–16, including the interactions between all Level 1 predictors. Grand-mean centering of Level 2 variables was recommended as a rule of thumb in Enders and Tofighi (2007) to allow for the examination of the Level 2 covariates independently of Level 1 control variables. HLM v. 7.01 using full information maximum likelihood (FIML) was used to estimate the models.

Results

Descriptive statistics for the sample are shown in Table 1. At the school level, the proportion of students achieving proficiency (Level 3 or higher) on the civics EOC was 64.57% (*SD* = 20.40). The average school size was 776.25 students (*SD* = 427.53). The average school FRPL population was 64.33% (*SD* = 27.82). At the district level, the proportion of non-Hispanic White students averaged 69.14% (*SD* = 15.45). The average poverty rate was 19.68% (*SD* = 5.46), and it ranged from 9.60–33.90% of the total population. The total number of schools per school district ranged from 1 to 152, and the average number of schools per district was 14.87.

Table 1. *Variable Information and Descriptive Statistics for Level 1 and Level 2 Predictors*

Variable	Notation	*M*	*SD*	Min	Max
Level 1: School		401.96	13.89	335	444
Public (*n* = 872; 87.6%)	*PUBLIC (0)*	355	14.001	335	444
Other (*n* = 124; 12.4%)	*OTHER (1)*	370	12.513	370	430
School size	*SCHL_SZ*	776.25	427.53	30	3075
Free or reduced-price lunch	*FRPL*	64.33	27.82	0.93%	100%
Civics EOC (Grades 3–12)	*G312CIV1*	64.57	20.4	1	99
Level 2: District					
Poverty percentage	*POV_PER*	19.68%	5.46%	9.6%	33.9%
White population percentage	*WHT_PER*	69.14%	15.45%	14.32%	89.80%

Note. Level 1 consists of schools (*N* = 996) that were nested in school districts (*n* = 67) in the state of Florida. Imputation for records with missing data was not included in the descriptive statistics reported here. Min = minimum value; Max = maximum value.

The analyses proceeded in three stages. First, an unconditional model was estimated to examine the amount of variability within and between schools. The results of the null model are presented in Table 2. The average school mean civics EOC assessment score was, $\beta_0 = 64.98$, $t(66) = 71.25$, $p < .001$, with a 95% CI [58.09, 71.9]. Variation in the school mean outcome existed (as explained by tau, $\tau = 12.46$), and this variation was statistically significantly different from zero. The intraclass correlation (ICC) measured variation between school districts, and this value was .03, suggesting that 3% of the total variability in civics EOC achievement could be attributed to the school districts (between school districts). Additional Level 1 (school-level) and Level 2 (district-level) variables were then modeled to reduce the variation within and between the school districts, respectively.

Table 1. *Solution for Unconditional HLM Model for Proficiency Level*

Fixed Effect	Coefficient	SE	t value	Pr > /t/
Intercept, $\gamma 00$	64.98	0.93	70.001	<.001
Random Effect	VC	df	χ^2	p
Intercept1, $u0$	13.60	66	92.01	.019
Level-1, r	405.38			

Note. Estimates shown were N = 996 schools dispersed within n = 67 school districts. VC = Variance Components.

In the second phase, the Level 1 predictors were included with FRPL added first. The slopes were allowed to vary randomly. The results suggested that FRPL had a negative effect (β_{FRPL1} = -0.47) on average school percentage of students scoring at or above the proficiency level on the civics EOC assessment. The sum of between and within variability decreased. The variance between school districts increased by 11% ($ICC_{null} – ICC_{FRPL}$= 0.14), and the within school district variability decreased (σ^2) by 40%, suggesting that FRPL accounted for approximately 40% of the school-level variance. Model fit was also examined using the Akaike information criteria (AIC), comparing the unconditional model with the FRPL model (AIC_{null} - AIC_{FRPL} = 459.19). The AIC suggested this model was a statistically significantly better-fitting model.

In the third stage, school size (*SCHL_SZ*) and type of school (*OTHER*) were included in the model with randomly varying slopes. School size, χ^2 (2, N = 996) = 6.6347, p < .05, was a statistically significant predictor, however school type was not, χ^2 (2, N = 996) = 5.3825, p = .06. The results of this model are reported in Table 3. The variance-covariance matrix suggested that the correlation between the intercept and the school size (β_2 = - 0.16) was negative, while the relationship between intercept and the average percentage of FRPL students was positive (β_3 = 0.24).

The final model was decided based on the chi-square tests for each slope. The researchers included both Level 2 covariates (*POV_PER*, and *WHT_PER*) as moderators for Level 1 predictors in both randomly varying (*SCHL_SZ* and *FRPL*) and fixed (*PUBLIC*) slopes. Letting school types vary randomly in slopes did not provide a statistically significant difference; thus, school type had a fixed slope in the final model. None of the Level 2 variables interacted statistically significantly with school type and school size in predicting the average percentage of students who scored at or above the proficiency level per school. Thus, the final model did not include poverty percentage and non-Hispanic White population percentage underneath the slopes of school type and school size. The final model is expressed by the following Level 1 (school) and Level 2 (school district) equations:

Level 1

$$G312CIV1_{ij} = \beta 0j + \beta 1j*(PUBLIC_{ij}) + \beta 2j*(SCHL\_SZ_{ij}) + \beta 3j*(FRPL_{ij}) + rij$$

Level 2

$$\beta 0j = \gamma 00 + \gamma 01*(POV\_PER_j) + u0j$$
$$\beta 1j = \gamma 10$$
$$\beta 2j = \gamma 20 + u2jt$$
$$\beta 3j = \gamma 30 + \gamma 31*(POV\_PER_j) + \gamma 32*(WHT\_PER_j) + u3j$$

The results are reported in Table 3. The comparison of AIC (AIC_{model2} - AIC_{model3} = 18.71) between Model 2 and the final model revealed that the latter model was a statistically significantly better model. By adding the Level 2 predictor, poverty percentage (*POV_PER*), the between school district variability on the average proportion of school civics EOC proficiency level was reduced by almost 76% (R^2 Level 2 = .76). In the same way, adding Level 2 predictors (*POV_PER* and *WHT_PER*) in the average percentage of FRPL eligible students (*FRPL*) per school, the within school district variability in the effect of FRPL decreased by about 18% (R^2 Level 2 = .18).

Once the best-fitting model was identified, the researchers examined data for the underlying assumptions. The test of homogeneity of Level 1 variance was statistically significant ($\chi^2 = 126.47$, $df = 42$, $p = 0.00$), suggesting that there was variability among Level 2 units (school districts) in terms of the residual of Level 1 (school level) variance. The histogram and normal Q-Q plot of Level 1 residuals (i.e., discrepancies between the observed and fitted values) appeared to be reasonably normal. A small number of outliers (two, to be exact) were present, and Mahalanobis distance was ordered to estimate the influence of outliers. The results showed that they did not violate the rule of thumb, i.e., 4/n; thus, these cases were retained. Residual analysis for Level 2 was conducted, and the results suggested that the assumptions of normality and homoscedasticity (i.e., constant variances between within school district, between school district intercept, and slope residuals) were not violated.

Table 3. *Solution for the Random Intercept, Fixed Slope (Model 2), and Random Intercept, Random Slope (Final Model)*

			Model 2		
Fixed Effects	Estimate	*SE*	*df*	*t* value	Pr > /t/
Intercept	64.6938	1.0139	66	63.809	<.001
POV_PER	-	-	-	-	-
OTHER	3.6527	1.5315	794	2.385	.017
SCHL_SZ	0.0143	0.0019	66	7.705	<.001
FRPL	-.4726	0.0305	66	-15.491	<.001
Random Effects	*SD*	VC	*df*	χ^2	Pr > /t/
Intercept	5.8399	34.104	46	147.4925	<.001
SCHL_SZ	0.0067	0.00004	46	78.4619	.002
FRPL	0.1122	0.0126	46	77.7660	.003
Level 1	14.6180	213.6866	-	-	-
			Final Model		
Fixed Effects	Estimate	*SE*	*df*	*t* value	Pr > /t/
Intercept	63.2328	1.015	65	62.297	<.001
POV_PER	-0.8362	0.2127	65	-3.931	<.001
OTHER	3.6353	1.4058	794	2.586	.010
SCHL_SZ	0.0140	0.0018	66	7.955	<.001
FRPL	-0.5686	0.0488	64	-11.006	<.001
WHT_PER	-0.0055	0.0015	64	-4.332	<.001
POV_PER	-0.0227	0.0106	64	-2.153	.026
Random Effects	*SD*	VC	*df*	χ^2	Pr > /t/
Intercept	4.7618	22.6745	45	119.2216	<.001
SCHL_SZ	0.0062	0.00004	46	77.2075	.003
FRPL	0.1106	0.0122	45	80.4702	<.003
Level 1	14.6231	213.8347	-	-	-

Note. Estimates shown were *N* = 996 schools nested within *n* = 67 school districts. *OTHER* = School type (Public was coded as *0,* and Other as *1*); *SCHL_SZ* = total number of students per school; *FRPL* = percentage of free and reduced-price lunch recipients; *POV_PER* = percentage of people per school district who live below the poverty line; *WHT_PER* = percentage of non-Hispanic White people per school district.

Model 2 with random slopes for *SCHL_SZ* and average percentage of FRPL students and fixed slope for school type (*PUBLIC*) was estimated. The tau matrix indicated that schools with fewer students had higher proficiency levels, and schools with a higher percentage of proficiency level had a lower percentage of FRPL students. The unadjusted overall average percentage of the civics EOC proficiency level for school districts was 64.69, $t(66) = 63.81$, and it was statistically significantly different from zero ($p < .001$). The confidence interval of the average school-district mean proficiency level was 53.48 to 75.94. After controlling for the variance explained by other Level 1 variables, one percentage point increase in the number of private schools in a school district was associated with an increase of approximately 3.65 percentage points in the average percentage of students who scored at or above the proficiency level per school in that school district, ($\beta_1 = 3.65$, $SE = 1.53$). Similarly, other Level 1 variables, school size, $\beta_2 = 0.014$, $t(66) = 7.705$, $p < .001$, and the percentage of FRPL eligible students per school, $\beta_3 = -0.473$, $t(66) = -15.491$, $p < .001$, statistically significantly explained the average percentage of proficient students on the civics EOC assessment.

Likewise, the final model showed regression results of the average percentage of students per school who scored proficient on the civics EOC assessment in the spring of 2016 when Level 2 covariates were included in the model. The mean civics EOC proficiency level per school district after controlling for district poverty percentage was 63.23%. There was a decrease in mean school civics EOC proficiency percentage ($\beta_{01} = -0.84$) for school districts that had a higher poverty rate, and this decrease was statistically significant. As the district poverty level increased by one percentage point, the average percentage of students who scored proficient on the civics EOC decreased by almost 0.84% per school in that school district. Like Model 2, the final model results showed that school type ($\beta_1 = 3.64$, $SE = 1.40$), and school size ($\beta_2 = 0.014$, $SE = 0.002$) were statistically significant predictors of the average school civics EOC proficient percentage for the schools that matched the mean student population.

Furthermore, after controlling for other variables in the final model, the effect of average percentage of FRPL eligible students per school on civics EOC assessment for public schools (*PUBLIC* = 0) was negative, $\beta_3 = -0.57$, $t(64) = -11.01$, $p < .001$. As the average school FRPL eligible students increased by one percentage point, average civics EOC proficient students decreased by approximately .57 percentage points. Likewise, after controlling for district poverty percentage, the effect of district population other than non-Hispanic White was negatively associated with the average school FRPL eligible students in public schools, and that was statistically significantly different from zero, $\beta_{31} = -0.01$, $t(64) = -4.332$, $p < .001$. In the same way, controlling for average district non-Hispanic White population, the average district poverty percentage had a negative impact on the school average FRPL percentage, $\beta_{32} = -0.023$, $t(64) = -2.153$, $p = .035$. To elaborate further, when the average district non-Hispanic White population was controlled, every 1% increase in district poverty was associated with an approximate 0.2% increase in the average school FRPL eligible population within that district, and this increase was statistically significantly different from zero.

Discussion

The fundamental goal of civics education in the U.S. K–12 school system is to prepare youth to participate in civic life actively and make an informed decision on overall aspects of their lives and even groom them for higher education and careers (Baumann & Brennan, 2017). These missions of civics education seem to be farfetched, given that only a small percentage of students meet the proficiency level every year. Moreover, there remain the undulating civics achievement gaps between students based on their demographic characteristics, including school and district level variables. As researchers, we are both discouraged by these findings and encouraged with a hope that it will inspire further investigations on school and district variables and their impact on standardized civics assessments. To that end, this study addressed the lack of research on the effects of school size, percentage of FRPL students, school type, school districts' poverty percentage, and the average non-Hispanic White population on average civics EOC assessment scores and validated the findings of prior research.

The primary focus of this research was to parse variance in students' civics EOC achievement rate into school and district components. This study found that approximately 3% of the variability was accounted for by school districts. In contrast, almost 97% of the variance in the average percentage of students who scored at or above the proficiency level on civics EOC assessments was accounted for by the school components. This finding was consistent with a study by Chingos et al. (2015), which employed a variance decomposition analysis using HLMs. The researchers found that among Florida and North Carolina schools, the school district accounted for only 1–2% of the total variation in student achievement. Similarly, Whitehurst et al. (2013) found that only 1% of the variance in student achievement was attributed to school districts when they analyzed the mathematics and reading achievement scores among 4th- and 5th-graders for the 2009–10 academic year. However, in this study, the district level variance increased by almost 11% after controlling for the Level 1 predictors.

Consistent with most of the prior research, this study found that schools with a higher percentage of low-SES students had fewer students who scored proficient on their standardized civics exams, and the number decreased when the poverty rate of the school district increased (e.g., Anderson, 2019; Arnold et al., 2005; Furgione et al., 2018; Sampson et al., 1997). In addition, the percentage of the non-Hispanic White population was positively associated with schools' average civics EOC proficiency percentage and schools' average number of FRPL non-eligible students. This finding contrasts with the results of the Bidwell & Kasarda (1975) study that concluded that school district poverty and population composition had a negligible impact on student achievement in mathematics and reading among 104 Colorado schools.

Similarly, this study found school size and school types to be the statistically significant predictors of schools' average civics EOC assessment scores. They did not interact significantly with the district poverty rate and the non-Hispanic White population. Many prior studies reported that small schools were associated with lower class size and higher achievement gain (e.g., Caldas, 1997; Howley & Howley, 2004; Wendung & Cohen, 1981); however, the findings are not conclusive (e.g., McMillen, 2004; Arnold et al., 2005). In the same way, this study failed to identify the effect of either higher or lower student population from average school size (i.e., 776 students) on average civics EOC proficiency rate per school.

Limitation and Future Research

The findings of this study should be approached with caution. First, the end-of-course assessment itself is a relatively new standardized test; thus, research about its overall effect may not be appropriate. Second, this study fails to address the diversity of student population, population composition of the school district, and other key factors (e.g., English learners, availability of resources, teacher's qualification, parents' level of education and profession, etc.) that contribute toward academic achievement. Future research should include these instructive covariates that were not included in this study.

This study used school types (public and other) in its model; however, it did not offer any conclusive results about their comparative impacts. Thus, future research that identifies different school types may provide better insights into the achievement gaps. In addition, this study did not take the test instrument into consideration. In many cases, high-stakes tests are blamed for measuring students' language ability rather than their content-area knowledge.

Finally, the present study is also limited in terms of the data type. The EOC assessment data dichotomize the assessment results, which may jeopardize the findings as each of the lower or higher achievement accounted for much within variability. Finally, as discovered by recent studies, there is a chance that reported FRPL statistics may be either understated because of the social stigma associated with it or inflated due to the increasing fraudulent enrollment by families that are not eligible for this program (Bass, 2010; Furgione et al., 2018).

All in all, the relationship among variables such as students, parents, schools, school districts, and even policies and student outcomes on civics, U.S. history, or social studies requires ample attention to understand many unexplained phenomena. Future studies that investigate schools' average proficiency percentage on civics EOC assessment by individual grades and school levels (elementary, middle, and high) may shed light on the issues beyond the scope of this study. In addition, future longitudinal and comparative studies may provide insights for teachers, schools, school districts, and test makers alike that will assist in their abilities to address the populations in need.

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