AERA Open
January-December 2025, Vol. 11, No. 1, pp. 1–23
DOI: 10.1177/23328584251400289
Article reuse guidelines: sagepub.com/journals-permissions

Whole-School Inclusion Programs and Student Academic and Behavioral Outcomes

Michelle Yin
Northwestern University

Garima Siwach
American Institutes for Research

Alexis Orellana
Universidad Andrés Bello

This study examines the impact of a nationally scaled whole-school inclusion initiative—the Special Olympics Unified Champion Schools (UCS) program—on student academic and behavioral outcomes. Using 11 years of student-level administrative data from North Carolina and a difference-in-differences design, we analyze how exposure to UCS relates to standardized test scores, grade point average, graduation rates, absenteeism, and disciplinary incidents. Results show that longer participation in UCS is associated with improved academic performance and reductions in absenteeism and suspensions, particularly for students with intellectual disabilities. Subgroup analyses suggest larger effects for students from low-income backgrounds. As the first student-level evaluation of UCS using a rigorous empirical design, this study provides new evidence on the academic and behavioral benefits of whole-school inclusion programs. Findings highlight the potential of sustained, schoolwide approaches to support positive outcomes for students with and without disabilities and inform future efforts to strengthen inclusive practices in educational settings.

Keywords: *academic achievement, achievement gap, evaluation, special education, quasi-experimental analysis, secondary data analysis, inclusive education, student behavior, econometric analysis*

Introduction

Efforts to ensure access to high-quality education for all students continue to shape national discussions about public education. Over recent decades, special education policy in the United States has evolved from a focus on access to general education settings to an emphasis on accountability and inclusive instructional practices (Hardman & Nagle, 2004). Public schools are now expected to provide rigorous, standards-aligned instruction to all students, regardless of individual learning needs or demographic characteristics. Despite these policy advances, academic and behavioral disparities between students with and without disabilities remain substantial. For example, in 2019–2020, the average on-time graduation rate for students with disabilities was 70.6%, compared to 86.5% for all students (National Center for Education Statistics [NCES], 2021). Students with disabilities are also more likely to be chronically absent and disproportionately subject to exclusionary disciplinary practices. In 2013–2014, although students with disabilities represented 12% of the K–12 population, they accounted for 25% of law enforcement referrals, school-based arrests, and suspensions (Government Accountability Office [GAO], 2018). These challenges are often interconnected, as lower academic performance frequently co-occurs with chronic absenteeism and behavioral issues (K. P. Anderson, 2021; Gershenson et al., 2017).

Academic and social development are closely linked (Juvonen & Wentzel, 1996). Inclusive environments that cultivate social-emotional skills—such as empathy, collaboration, and problem-solving—can enhance academic engagement and reduce behavioral issues (Borghans et al., 2008; Deming, 2017; Heckman & Rubinstein, 2001). Research has shown that socially inclusive schools can foster self-awareness, positive peer relationships, and reduced fear of human differences, all of which contribute to stronger school attachment and improved student behavior (Hawkins

et al., 1999; Linares et al., 2005; Martin & Dowson, 2009; Wilson et al., 2001; Zins et al., 2004).

The 1997 amendment to the Individuals with Disabilities Education Act (IDEA) affirmed the right of students with disabilities to a free appropriate public education and access to general education settings. Yet, full integration remains elusive, particularly for students with intellectual disabilities (ID), who are among the least likely to participate in general education classrooms or extracurricular activities. In 2022, only 21% of students with ID spent at least 80% of the school day in general education settings, compared to 67% of all students with disabilities (NCES, 2024). Limited classroom and extracurricular engagement can reduce opportunities for meaningful peer interactions and may contribute to negative attitudes, social isolation, and increased vulnerability to bullying (Fisher, 1999; Pijl & Frostad, 2010; Solish et al., 2010; Symes & Humphrey, 2010).

Many school-based initiatives seek to improve relationships between students with and without ID and to enhance social-emotional development. However, existing programs often emphasize awareness or peer pairing, rather than promoting sustained and reciprocal engagement. Such approaches may not lead to meaningful inclusion and, in some cases, can reinforce stigma or lead to disengagement (Carter et al., 2010; Hughes et al., 2012; Siperstein et al., 2007). These limitations underscore the need for comprehensive models that address inclusion at the schoolwide level. Recent studies suggest that broader approaches to social inclusion are linked to fewer behavioral issues and improved student attendance (K. P. Anderson, 2021). Moreover, schools that invest in students' social and emotional development may see stronger long-term outcomes—including fewer arrests and higher rates of high school completion—compared to schools that focus solely on academic achievement (Jackson et al., 2020).

This study examines the effects of the Special Olympics Unified Champion Schools® (UCS) program, a whole-school social inclusion initiative, on student academic and behavioral outcomes. UCS is composed of three interrelated components: Unified Sports®, which brings together students with and without ID in inclusive athletic activities; inclusive youth leadership (IYL), which engages students in collaborative planning and advocacy; and whole-school engagement activities designed to create a culture of inclusion. Since its launch in 2008, UCS has expanded to more than 7,800 schools across 49 states, the District of Columbia, and Puerto Rico, reaching over 3.6 million students (Special Olympics, 2020). While previous research has documented improvements in school climate and perceptions of inclusion (Jacobs et al., 2018; Siperstein et al., 2019), rigorous evaluations using student-level outcome data remain limited.

Using student-level administrative data from North Carolina and a difference-in-differences research design, we investigate how UCS participation relates to academic outcomes (standardized test scores, grade point average [GPA], and graduation), as well as behavioral measures (absenteeism and disciplinary incidents). We find that longer exposure to UCS is associated with improved academic performance and reductions in absenteeism and disciplinary actions, especially for students with ID. Our findings align with existing literature on the role of inclusive environments in supporting student success and suggest that whole-school programs like UCS may have broad benefits for both students with and without disabilities.

UCS Program and Literature Review

UCS is a whole-school model designed to foster the social inclusion of students with intellectual disabilities (ID) by promoting meaningful interactions among all students. UCS incorporates three core components: Unified Sports®, inclusive youth leadership (IYL), and whole-school engagement. Together, these components aim to build a school culture that supports participation, belonging, and positive peer relationships across student groups (Jacobs et al., 2018).

Unified Sports brings students with and without ID together to participate in competitive and recreational sports, presenting an opportunity for participants to build connections while improving their sports skills and fitness levels. IYL creates opportunities for students of all abilities to take on leadership roles in promoting UCS or other events and activities, and to become "change agents" in their school.[1] Finally, the whole-school engagement component of the UCS program engages the whole school community in building awareness and energizing social inclusion efforts promoted by Unified Sports and IYL.[2]

Schools interested in implementing the UCS program first apply to the state Special Olympics office. Schools must identify a core leadership team that may include a primary school liaison with the state office and the proposed student leaders (typically one general education student and one special education student). Schools that apply to join will receive technical assistance and financial support from the state Special Olympics office, usually for a fixed period (e.g., around 3 years), beyond which schools are expected to sustain program implementation with relatively limited support from Special Olympics.

Studies have shown that participation in the UCS program has contributed to improved perceptions of and attitudes toward school social inclusion among students with and without ID through increased visibility and social interactions between students with ID and their peers without disability (Jacobs et al., 2018). Further, UCS school liaisons—staff responsible for supporting UCS implementation in schools—have repeatedly reported that participating in UCS contributes to positive school connectedness and peer relations by promoting social cohesion, creating opportunities for students to work together, raising awareness about

special needs students, and increasing their participation in school activities (Jacobs et al., 2018). In addition to the social benefits of the UCS program, Yin et al. (2022) found that UCS implementation led to a 1.1% increase in the high school graduation rate for all students, and a 1.4% increase for students with disabilities using school-level data. This finding is consistent with previous studies showing that whole-school approaches to inclusion lead to improved academic outcomes (Choi et al., 2017).

Despite the suggestive evidence for positive UCS impact on school climate and high school completion, no prior studies with rigorous designs have examined whether there is a spillover effect of the program on student academic achievement through improved school connectedness and peer relationships. School connectedness is a broad concept defined as the students' belief that adults and peers in the school care about their learning as well as about them as individuals, and is closely related to—or perhaps even incorporates—social inclusion (Centers for Disease Control and Prevention [CDC], 2009). The relationship between school connectedness (e.g., the closeness and quality of the relationship between students, peers, and teachers; attendance; staying in school) and academic achievement has been well-documented in academic literature (A. R. Anderson et al., 2004; Barber & Olsen, 1997; Klem & Connell, 2004; McNeely, 2003; Rosenfeld et al., 1998). Further, peer acceptance and the quality of peer relationships have specifically been found to promote academic achievement and educational attainment (Farrington et al., 2012; Flook et al., 2005). Literature also shows that school engagement indicators (e.g., behavior, tardiness, attendance, and extracurricular activities) in students with learning disabilities are significant predictors of dropout and grade completion (Reschly & Christenson, 2006). Considering the above, there are several possible mechanisms at play. First, poor relationships with peers may influence students' self-concept and the view of their abilities. Second, students who lack acceptance from peers may also be excluded from group activities, all of which lead students to form a negative academic self-concept and further disengage from school.

Therefore, this study hypothesizes that the UCS program may lead to improvements in school connectedness and student engagement, and, in turn, student academic and other behavioral outcomes. Using detailed student-level administrative data from North Carolina, we explore the relationship between exposure to the UCS program and a broad set of student outcomes, such as academic performance (standardized test scores and high school GPA), student engagement (rate of absence), and student disciplinary outcomes (suspensions/expulsions and disciplinary incidents).

Theoretical Framework

The UCS program is rooted in ecological systems theory (Simplican et al., 2015), and it is designed to foster social inclusion by operating at various levels involving multiple stakeholders (e.g., students, teachers, administrators) within multiple school contexts (Siperstein et al., 2019). The whole-school approach of UCS is intended to foster meaningful relationships among students with and without disabilities beyond physical inclusion or the classroom setting (Yin et al., 2022). The program aligns with Social Connectedness Theory (R. M. Lee & Robbins, 1995), which posits that a sense of belonging, and interpersonal closeness, is essential for positive social and academic outcomes. Similarly, the concept of School Cohesion underscores the importance of shared norms, trust, and supportive peer relationships in fostering inclusive environments (Goodenow, 1993; Libbey, 2004). By promoting inclusive sports and leadership opportunities, UCS aims to strengthen these mechanisms, ultimately enhancing the school climate and inclusion for students with disabilities.

We expect that the three UCS components—whole-school engagement, inclusive sports, and youth leadership—create structured opportunities for interaction between students with and without disabilities. These opportunities foster positive peer attitudes and relationships, which in turn increase social connectedness and school cohesion. A more inclusive school climate is expected to enhance students' sense of belonging, which in turn supports improved academic engagement, reduced behavioral issues, and overall well-being. We summarize these relationships in Figure 1.

The literature suggests several potential mechanisms for these channels of impact:

i. School connectedness: The term school connectedness refers to the perception of students that their peers and educators in the educational institution have a genuine interest in their personal development and academic progress (CDC, 2009). While closely related to concepts such as emotional school engagement (sense of belonging, motivation, and emotional safety) and perceived school support (sense of available resources and opportunities), school connectedness can be viewed as a more holistic feeling of being cared for by the school community. To that extent, prior research conceptualizes connectedness as multidimensional, encompassing relationships with peers, teachers, and the broader school community (Goodenow, 1993; Libbey, 2004). Evidence consistently shows that higher school connectedness predicts improved academic engagement, higher grades, and reduced dropout risk (Klem & Connell, 2004). Mechanistically, connectedness fosters motivation and persistence, which translate into better attendance and classroom participation—key precursors to academic achievement.
ii. School inclusion: Inclusiveness of students' educational settings can be an important determinant of

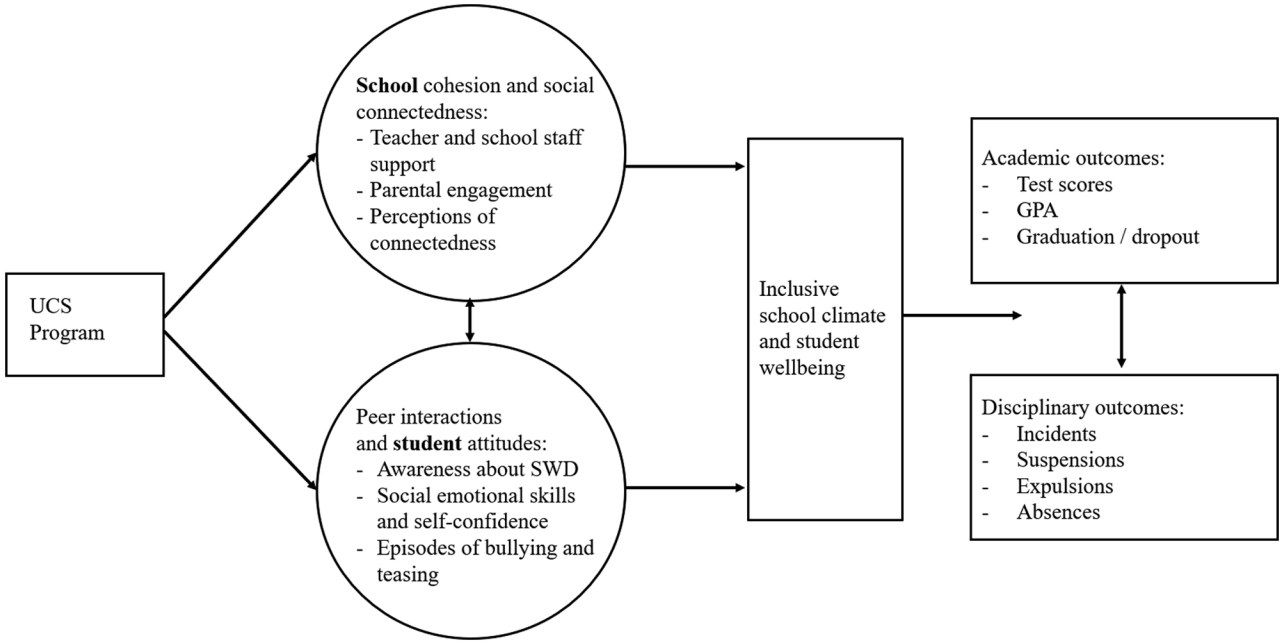

FIGURE 1. *Mechanism chain diagram.*
Note. This figure presents a diagram that summarizes the hypothesized channels by which the UCS program can affect student outcomes.

behavior and attendance, particularly for students with disabilities who are more likely to be chronically absent and receive exclusionary discipline (K. P. Anderson, 2021). For students with disabilities, social inclusion implies building peer or mentor relationships and increasing social interactions beyond the regular classroom time (Hughes et al., 2012; Simplican et al., 2015). Increased perceived support from teachers and peers is associated with improvements in attendance, high school completion, and stronger academic performance (A. R. Anderson et al., 2004; Barber & Olsen, 1997; Klem & Connell, 2004; Theobald et al., 2019). Moreover, an increased sense of community might reduce the prevalence of bullying, teasing, or the use of offensive language against SWD. Inclusive environments also mitigate bullying and social isolation—factors associated with lower academic achievement and engagement (Ladd et al., 2017). Specifically in relation to UCS, Yin et al. (2022) found an increase of perceptions about a more socially inclusive environment with the implementation of UCS.

iii. Socio-emotional learning: Inclusive settings that encourage peer interaction provide natural opportunities for developing socio-emotional skills such as empathy, cooperation, and conflict resolution. These competencies are linked to improved classroom behavior, reduced disciplinary incidents, and enhanced academic performance (Durlak et al., 2011). Socio-emotional learning also acts as a reinforcing mechanism: as students build stronger social-emotional skills, they engage more positively with peers and teachers, further strengthening connectedness and inclusion. Existing research on Special Olympics UCS shows that students in UCS programs report high levels of empathy, relationship skills, and responsible decision-making, as well as improved perceptions of school climate and belonging (Center for Social Development and Education, 2022).

Data and Sample Construction

This study employs data from three sources for school years 2007–2008 to 2017–2018: (1) student administrative data from the North Carolina Education Research Data Center (NCERDC) on student characteristics, school identifiers, and outcome measures, including end-of-grade (EOG) test scores for junior grade (Grades 3–8) students and GPA for high school students, attendance rate, and disciplinary outcomes; (2) school-level data from the Department of Education's (ED) Common Core of Data-Public School Universe (CCD-PSU) on school-level characteristics; and (3) school-level UCS implementation data from Special Olympics.

Student-Level Data From NCERDC

Student-level data from NCERDC provide student demographic measures including race, ethnicity, gender, free or

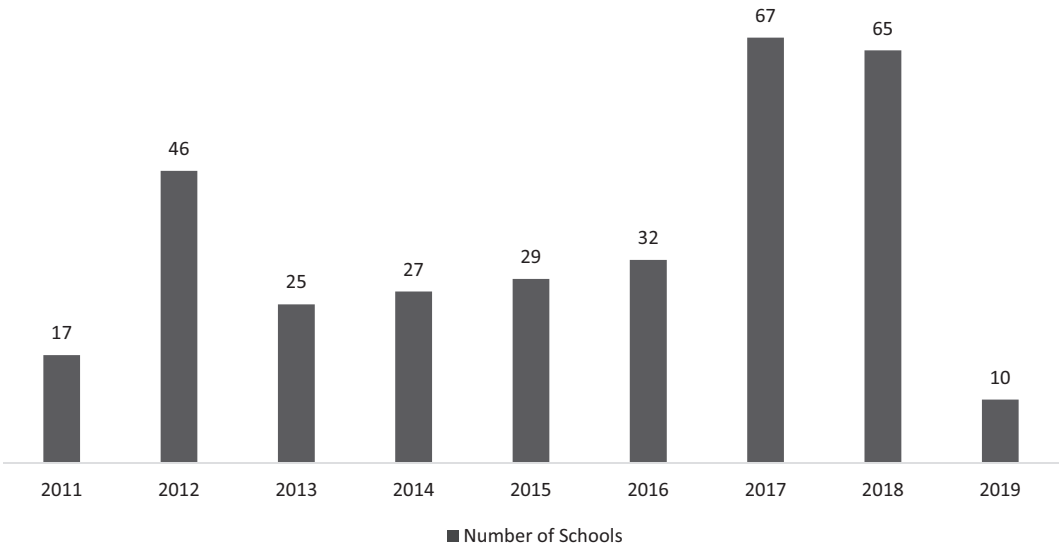

FIGURE 2. *Distribution of UCS schools by inception year (total = 318 UCS schools).*
Note. This figure shows the number of schools implementing the UCS program between 2011 and 2019.

reduced-price lunch eligibility status, eligibility for other assistance programs, limited English proficiency status, and Section 504 status. In addition, crucial to our study, we observe the student disability status as well as disability type (through student exceptionality codes) for all students. We divide students into three groups based on the exceptionality status variable: students with ID, students with other disabilities (other 12 federally classified disability categories), and students without disabilities.[3] We separately analyze each of these three groups in all analyses.

We examine three main sets of outcomes: (1) Academic achievement outcomes, available from NCERDC, are different for Grades 3–8 students and high school (Grades 9–12) students. For Grades 3–8, we observe students' annual EOG math and reading scores. For high school students, we observe their cumulative high school GPA. Because of the difference in academic achievement outcomes, we separately analyze Grades 3–8 and high school outcomes in this study. We should note that the EOG test scores analyzed in this study came from three types of tests: the Extend 1 test designed for students with significant intellectual disabilities, the Extend 2 test intended for students with an IEP, and a standard EOG test for students without disabilities. We standardized all EOG test scores by year, grade, and test type, and pooled the standardized test scores together as our outcome variables for the Grades 3–8 sample.[4] (2) Annual absence rate is calculated as the ratio of days absent to days enrolled in a school year for each student every year. (3) Disciplinary outcomes, derived from data on more than 70 different incident types in the NCERDC dataset, include an indicator of experiencing any disciplinary incident in a school year, an indicator of having any violent incident, and an indicator of receiving a suspension or expulsion in a school year.[5]

School-Level Data From CCD-PSU

The NCES reports public elementary/secondary school universe survey data in its Common Core of Data (CCD). The CCD provides essential information on all public elementary and secondary schools in the country and their students and teachers (aggregated to the school/grade-school level). Using data for school years 2007–2008 through 2017–2018, we created a panel of school-level variables on school geography, charter school status, Title I school status, student enrollment by grade, the demographic composition of students by grade, and full-time teacher equivalent (FTE) from 2,874 schools. We next merged school panel data with the student-level data from NCERDC using the NCES school and LEA codes.

Special Olympics UCS Implementation Data

Linking UCS program inception year collected by Special Olympics with CCD-NCERDC using school NCES IDs, we identified 314 middle and high schools in North Carolina that implemented the program between 2011 and 2019. We classified the remaining 2,560 schools as non-UCS schools. Program inception years vary over time and are shown in Figure 2.

Final Study Samples and Summary Statistics

We created two student-year panel datasets—one for Grades 3–8 and the second for the high school samples, with

TABLE 1
Sample Size by Level and Disability Status

	Sample	
	Grades 3–8	High School
Unique observations	4,897,555	1,122,402
Unique students	1,042,074	435,301
Students with ID	14,749	6,687
Students with other disabilities	187,298	81,382
Students without disabilities	840,027	428,614

Note. ID = intellectual disability.

each observation unique at the student-school-year level. We then dropped students who retrogressed or had crucial outcome variables missing (mostly academic achievement outcomes). Our final sample includes 1,042,074 students in Grades 3–8 and 435,301 high school students. Table 1 shows sample sizes for the three subgroups: students with ID, students with other disabilities, and students without disabilities.

Table 2 presents summary statistics for both samples by UCS implementation status (schools that had implemented UCS by 2019 and others). For Grades 3–8, we focus on EOG test scores in math and reading, standardized within reporting year, grade, subject, and type of test. Average test scores were higher among students in UCS schools than those from non-UCS schools. In contrast, the high school sample's non-achievement academic outcomes (GPA and graduation status) were similar by UCS implementation status. In both samples, the percentage of students with a disciplinary incident, suspension/expulsion rate, and absence rate were somewhat smaller in UCS schools than non-UCS schools. The proportion of students with ID and students with other types of disabilities were similar in UCS and non-UCS schools in both samples. We also observe differences in the student demographics between UCS and non-UCS schools in terms of racial composition and proportion of students eligible for free or reduced-price lunch, with a greater proportion of racial minorities and free or reduced-price lunch eligible students in the non-UCS schools than in the UCS schools.

Methods

To study the relationship between UCS implementation and student outcomes, we adopt event study and difference-in-differences models at the school and year levels. As previously described, schools choose whether and when to implement UCS. Therefore, there are two levels of school selection into the UCS program: (1) Among 2,874 total schools in our sample, 11% (or 314) implemented UCS between 2011 and 2019 and (2) Among these 314 UCS schools, there is significant variation in the timing of UCS implementation, as shown in Figure 2. The decision to adopt the program as well as the timing of implementation may depend on both observed and unobserved factors. For example, our data show that large and urban schools are more likely to adopt UCS. It is also likely that schools differ in their practices for students with disabilities, affecting their decisions to adopt the UCS program. If the decision to implement the UCS model is correlated with external school-level factors that also affect student outcomes of interest, simply regressing student outcomes on UCS exposure would generate biased estimates in that those school-level confounders are unaccounted. Adding school-level fixed effects allows us to control for both observed and unobserved time-invariant school differences (e.g., UCS schools may be more responsive to the needs of students receiving special education services). In addition, the second set of fixed effects considers common time shocks to all schools regardless of UCS adoption. The key assumption behind this empirical design is that, had treated schools not adopted UCS, outcomes would have moved in parallel for UCS and non-UCS schools.

Within UCS schools, however, the timing of UCS adoption may further depend on time-varying factors. For example, schools may decide to adopt UCS after observing relatively poor outcomes for students with disabilities or the entry of a new principal or special education staff. We test whether UCS and non-UCS schools follow similar trends before the adoption of the program by using an event study approach that incorporates period-specific indicators and interacts them with an indicator for being an UCS school.

We examine three sets of outcomes: academic achievement (including standardized math and reading EOG scores by grade for students in Grades 3–8, and GPA and graduation status for high school students), disciplinary outcomes (including any disciplinary incidence, violent incidence, and suspension or expulsion by grade), and annual absence rates (days absent/days enrolled). For each outcome, we perform our analysis for three subsamples—students with ID, students with other types of disabilities, and those without disabilities. The long panels of annual student-level outcomes allowed us to construct two measures to study the impact of the UCS model: (1) a binary variable to indicate whether a student ever enrolled in a UCS school and (2) the total number of years of exposure to the program. To estimate the relationship between exposure to the UCS program and student outcomes, we first employ the following event study specification:

$$y_{isgt} = \sum_{\substack{k\in\{-6,\ldots,5\}\\ k\neq -2}} \beta_k \cdot 1(UCS_{st} = k) + \gamma_1 X_{isgt} + \gamma_2 S_{st} + \xi_s + \phi_t + \eta_g + \epsilon_{isgt} \quad (1)$$

where *i,s,g* and *t* index the student, school, grade, and year, respectively. y_{isgt} denotes the student-level grade-specific annual outcomes. $1(UCS_{st} = k)$ are indicators equal to

TABLE 2
Summary Statistics

	Grades 3–8		High School	
	UCS Schools	Non-UCS Schools	UCS Schools	Non-UCS Schools
Academic Outcomes				
High school GPA			3.386	3.281
Graduated HS			0.499	0.490
Standardized math end-of-grade score	0.204	0.009		
Standardized reading end-of-grade score	0.169	0.002		
Disciplinary and Behavioral Outcomes				
Any disciplinary incident	0.140	0.153	0.181	0.210
Any violent incident	0.072	0.084	0.041	0.044
Any suspension/expulsion	0.056	0.066	0.069	0.085
Absenteeism rate	0.037	0.038	0.046	0.047
Student Characteristics				
Student with ID	0.178	0.184	0.012	0.017
Student with other disabilities	0.191	0.199	0.195	0.196
Female	0.493	0.490	0.498	0.503
Asian	0.005	0.016	0.007	0.022
Hispanic	0.037	0.026	0.032	0.022
Black	0.145	0.158	0.128	0.142
White	0.206	0.263	0.236	0.272
Not eligible for free or reduced-price lunch	0.675	0.580	0.735	0.658
School Characteristics				
Teacher FTE	49.47	40.99	89.24	64.87
% FRPL	0.386	0.469	0.229	0.279
% White	0.491	0.443	0.364	0.337
% Female	0.401	0.408	0.307	0.309
Charter school	0.033	0.050	0.008	0.049
Title 1 school	0.718	0.844	0.708	0.822
City	0.193	0.229	0.288	0.229
Suburban	0.236	0.142	0.282	0.214
Town	0.075	0.092	0.054	0.137
Rural	0.496	0.537	0.377	0.420
***N* of observations**	**544,385**	**4,353,170**	**455,366**	**667,036**

*Note.*This table presents summary statistics for the samples of Grades 3-8 and high school students. GPA = grade point average; HS = high school; ID = intellectual disabilities; FTE = full-time equivalent; FRLP = free or reduced-price lunch.

one if school s had implemented the program in period k. Given the number of years available in our data, we consider periods $k \in \{-6,\ldots,5\}$. X_{isgt} is a vector of student-specific characteristics, including gender, race, type of disability classification, and program participation status (free or reduced-price lunch eligibility status, Targeted Assistance Program status, and Section 504 status). S_{st} is a vector of time-varying school-level characteristics, including school size, the share of female students, white students, and students who qualify for free or reduced-price lunch, an indicator for the rural/urban classification status, an indicator for charter school, and an indicator for Title I school. Finally, ξ_s, φ_t and η_g denote the full set of school-, year- and grade-specific indicators.

The coefficients of interest in Equation 1 are β_k, which capture the relationship between the timing of UCS implementation and student outcomes at the end of the school year. Since this specification includes school and year fixed effects, the coefficients β_k identify the differences in outcomes between students enrolled in UCS schools before and after the program implementation compared to students who were enrolled in schools which did not adopt the program. The event study specification flexibly allows to assess whether the trajectories of UCS and non-UCS

schools diverged prior to the implementation of the program. To the extent that there are no differences in outcomes during the pre-treatment periods (i.e., $\beta_k = 0$, $k < 0$), this would be suggestive that the set of controls and fixed effects capture the unobserved determinants of selection into the UCS program.

We summarize the relationship between any UCS exposure and student outcomes using the following difference-in-differences specification:

$$y_{isgt} = \beta_1 UCSExposure_{st} + \gamma_1 X_{isgt} + \gamma_2 S_{st} + \xi_s + \phi_t + \eta_g + \epsilon_{isgt} \quad (2)$$

where $UCSExposure_{st}$ is a dummy variable indicating whether school s implemented the UCS program in year t. The variable of interest is β_1, which captures the relationship between UCS implementation and student outcomes at the end of the school year. In this specification, β_1 identifies the average difference in outcomes between students who were enrolled in a school that adopted UCS by the time they were enrolled compared to students who were not. It is important to highlight two features of the data we employ in this study. First, we can observe which schools participated in the UCS but, unfortunately, we cannot distinguish which students effectively enrolled in the program or the exact nature of their participation. In this sense, the event study and difference-in-differences specifications identify the average effect of exposure to UCS on each of the outcomes we study. Although we cannot explore heterogeneous effects by type of participation, we estimate differential effects by disability status. Second, since high school GPA and graduation outcomes are only observed once per student, the effective specification for the high school sample becomes a repeated cross-sectional model instead of a longitudinal model.[6]

In addition, we estimate the non-linear effects of UCS participation based on the number of years since its implementation using the following specification:

$$y_{isgt} = \sum_{k \in \{1,2,3,4\}} \beta_k \cdot 1\left(TotalExposure_{it} = k\right) + \gamma_1 X_{isgt} + \gamma_2 S_{st} + \xi_s + \phi_t + \eta_g + \epsilon_{isgt} \quad (3)$$

In this specification, the variable of interest is $TotalExposure_{it}$, which denotes the total number of years between Grade 3 and Grade g that student i is exposed to UCS treatment by year t. Unlike Equation 2, which captures the average change of exposure to UCS, Equation 3 allows us to estimate the marginal effect of an additional year of exposure. When analyzing the degree of exposure, we focus on a panel of students who had a complete schooling history available from Grade 3 to their current grade. That is, we drop students who dropped out of the sample at any point. Although the sample size decreased significantly, this approach allows us to calculate the total years of UCS exposure over the same number of years for all students in a given grade. Figures 3 and 4 present the conditional distribution of the years of exposure for Grades 3–8 and high school students, respectively. Finally, in all of our analyses, we cluster standard errors at the school level to allow for arbitrary dependence of the error term $\in_{isgt}$ within schools across years.

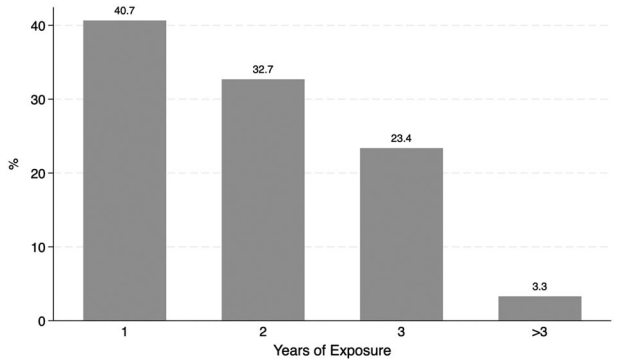

FIGURE 3. *Distribution of years of exposure (Grades 3–8).*
Note. This figure shows the distribution of the number of years of exposure to the UCS program for students enrolled in Grades 3–8.

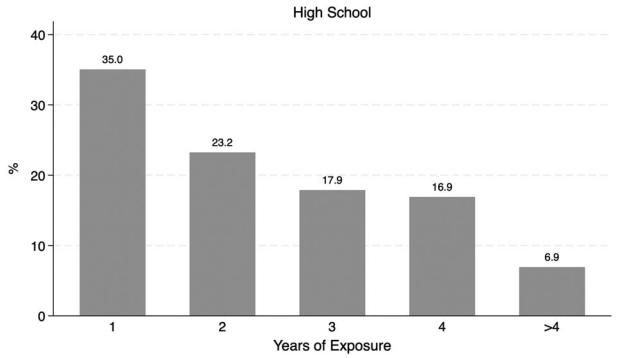

FIGURE 4. *Distribution of years of exposure (high school).*
Note. This figure shows the distribution of the number of years of exposure to the UCS program for students enrolled in high school.

Results

Unified Champion Schools Exposure and Academic Outcomes

Figure 5 presents our estimates from the event study specifications described in Equation 1, using all students in the sample and key outcomes observed in our Grades 3–8 and high school samples. These plots show no evidence of differential trends in EOG test scores, high school GPA, or the likelihood of graduation between UCS and non-UCS schools prior to the implementation of the program. We test these differences formally using an *F*-test of joint significance of all pre-treatment estimates and we report the *p*-values in each plot.[7] In all cases, we cannot reject that all

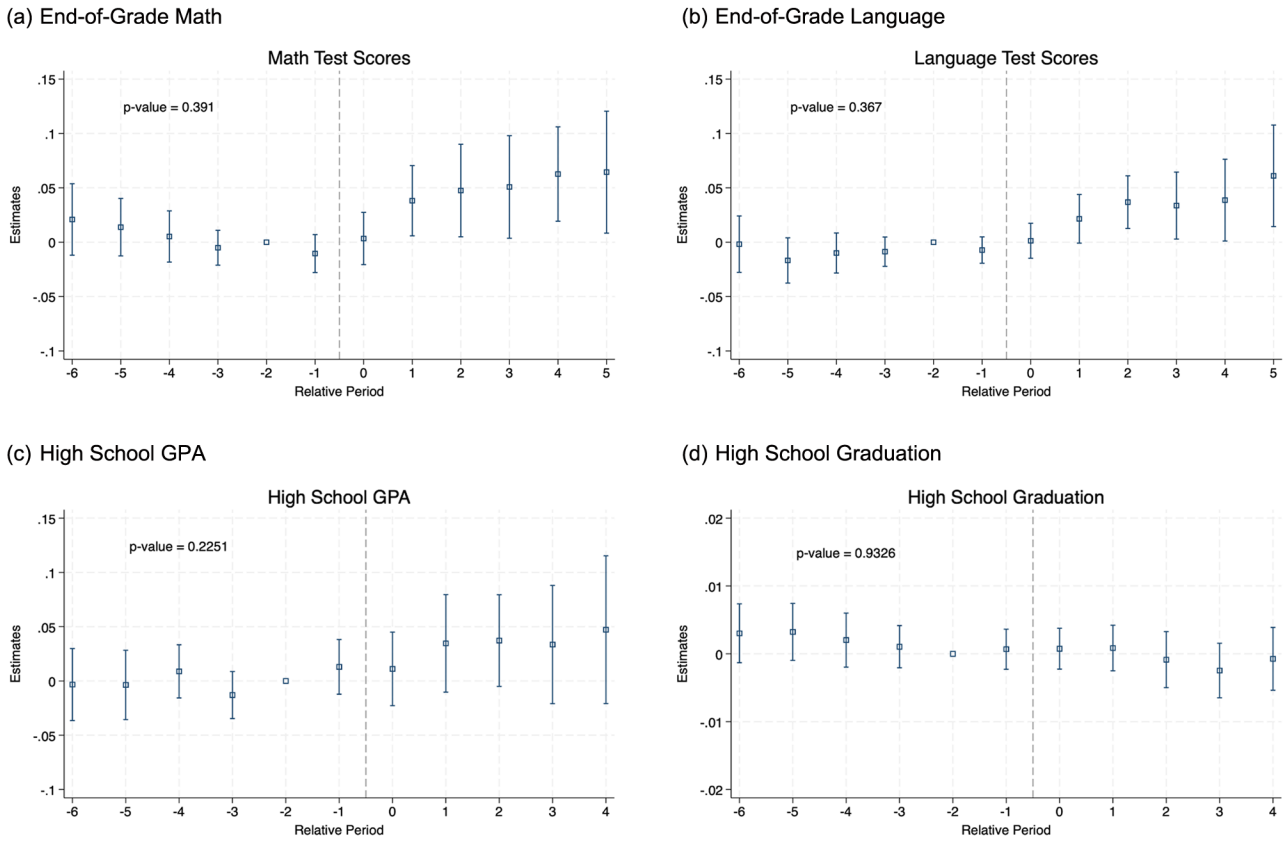

FIGURE 5. *Event study specifications for academic outcomes (Grades 3–8 and high school samples): (a) End-of-Grade Math, (b) End-of-Grade Language, (c) High School GPA, and (d) High School Graduation.*

Note. Each figure presents estimates of an event study specification from Equation 1 using the corresponding outcome. The x-axis corresponds to the relative period of implementation of the UCS program. Subfigures (a) and (b) use the sample of Grade 3–8 students while Subfigures (c) and (d) use the sample of high school students. Whiskers indicate confidence intervals at the 95% level. Standard errors are clustered at the school level. The *p*-value displayed in each plot corresponds to an *F*-test of joint significance of all pre-treatment estimates being equal to zero.

pre-treatment estimates are jointly equal to zero, which assuages concerns related to the existence of unobserved determinants of selection into the UCS program that could bias our estimates. For Grades 3–8 outcomes, we observe an increase in average test scores for schools that implemented UCS of approximately 0.5 *SD* after 4 years from the start of the program. For high school outcomes we do not find, on average, statistically significant differences between UCS and non-UCS schools. Table A1 in the Appendix reports all estimates for these regressions.

Table 3, Panel A presents the regression estimates from our difference-in-differences specification in Equation 2 for the relationship between UCS implementation and standardized math and reading EOG scores for Grades 3–8. Results suggest mixed but promising evidence on the relationship between UCS implementation and student EOG scores. Specifically, UCS implementation was associated with a 0.02 standard deviation increase in math score for students without disabilities ($p < .1$), but there was no statistically significant increase in math scores associated with UCS exposure for students with ID or other disabilities. In terms of reading scores, UCS implementation was associated with an increase of 0.12 ($p < .05$) and 0.02 ($p < 0.05$) standard deviations for students with ID and those without disabilities, respectively.

Panel B presents the relationship between UCS exposure and high school GPA and graduation outcomes. We do not see a significant relationship between UCS implementation in high school and high school GPA or graduation outcomes for students with and without disabilities. There are two caveats to note here. First, the UCS implementation variable is a binary variable for whether the student was enrolled in the high school after that high school implemented UCS. Therefore, it does not capture any effects of the student's previous exposure to UCS during middle school. Second, we estimate the association between UCS implementation and the graduation outcome restricting the sample to students enrolled in Grade 9, reflecting the graduation likelihood

TABLE 3
Unified Champion Schools Exposure (Yes/No) and Academic Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	Panel A: Academic Achievement for Grades 3–8					
	Standardized Math Score			Standardized Reading Score		
UCS Exposure (Yes)	0.066	−0.005	0.023*	0.123**	0.005	0.017**
	(0.052)	(0.014)	(0.012)	(0.055)	(0.016)	(0.007)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487
R-Squared	0.26	0.26	0.23	0.29	0.26	0.21
Dep. Var. Mean	−0.771	−0.506	0.166	−0.839	−0.580	0.171
	Panel B: High School Outcomes					
	High School GPA			Graduation (0/1)		
UCS Exposure (Yes)	0.020	0.016	−0.009	0.005	0.003	−0.002
	(0.055)	(0.014)	(0.015)	(0.018)	(0.004)	(0.001)
Observations	13,928	99,757	720,139	18,341	114,858	802,764
R-Squared	0.26	0.38	0.41	0.38	0.24	0.05
Dep. Var. Mean	2.507	2.622	3.222	0.680	0.933	0.976

Note. UCS = Unified Champion Schools; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level. Observations in Panel B were restricted to Grade 12 enrollees. Sample size differences between GPA and graduation analyses reflect observations with missing GPA information.
***$p < .01$, **$p < .05$, *$p < .1$.

conditional on an earlier period, rather than at the end of high school. We choose this more restrictive approach to assuage concerns related to differential attrition or likelihood of dropping out between students exposed and not exposed to the program. However, it should be noted that it is likely that these estimates underestimate the true relationship between UCS and high school graduation.

We investigate in more detail the relationship between the number of years of exposure to UCS and student outcomes using our specification outlined in Equation 3. This approach identifies not only the effect of exposure to UCS at the time the student is enrolled in a UCS school, but also the potentially non-linear effect of the UCS program. We first estimate a simplified version of Equation 3, where the regressor of interest is the total number of years exposed to UCS, so that our estimates indicate the association between an additional year of exposure and changes in student outcomes. As shown in Table 4, Panel A, more prolonged UCS exposure was positively correlated with standardized math and reading scores of students with ID. An additional year of UCS exposure was associated with a 0.037 standard deviation increase in math score ($p < .1$) and a 0.044 standard deviation increase in reading score ($p < .1$) for students with ID. We obtain mixed findings for students with other disabilities and those without disabilities. We find that an additional year of UCS exposure has a statistically significant effect of 0.015 ($p < .01$) and 0.007 ($p < .05$) standard deviations on math and reading test scores, respectively. At the same time, we do not find statistically significant associations for students with other disabilities.

For high school students, we find that an additional year of UCS exposure was associated with significant increases in GPA for all students (Table 4, Panel B). For students with ID, each additional year of UCS exposure increased GPA by 0.138 points ($p < 0.01$). For students with other disabilities and without disabilities our estimates show increases of approximately 0.05 GPA points, both statistically significant at the 1% level. We do not find a strong relationship between program exposure in Grade 9 and high school graduation 4 years after for any of the three subgroups. All of our estimates are small or not statistically significant.

As a robustness check, we also consider a more flexible specification that allows for school-specific linear time trends. This additional set of controls helps to account for time-varying differences in determinants of the outcomes between UCS and non-UCS schools which are not necessarily captured by the school controls S_{st}. We present our results in Appendix Table A3. Overall, our estimates change slightly but the conclusion remain largely consistent with our preferred specification displayed in Table 4.

Figures 6 and 7 present estimates from Equation 3 where we allow the treatment parameter to vary as a function of the

TABLE 4

Unified Champion Schools Exposure (Number of Years) and Academic Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	Panel A: Academic Achievement for Grades 3–8					
	Standardized Math Score			Standardized Reading Score		
UCS Exposure (Years)	0.037*	0.006	0.015***	0.044*	0.006	0.007**
	(0.020)	(0.006)	(0.006)	(0.023)	(0.005)	(0.003)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487
R-Squared	0.26	0.26	0.23	0.29	0.26	0.21
Dep. Var. Mean	−0.771	−0.506	0.166	−0.839	−0.580	0.171
	Panel B: High School Outcomes					
	High School GPA			Graduation (0/1)		
UCS Exposure (Years)	0.138***	0.048***	0.053***	0.006	−0.001	0.000
	(0.051)	(0.011)	(0.009)	(0.007)	(0.001)	(0.001)
Observations	1,494	22,817	110,849	6,533	79,675	339,759
R-Squared	0.39	0.39	0.33	0.59	0.72	0.81
Dep. Var. Mean	2.621	2.857	3.430	0.615	0.771	0.853

Note. UCS = Unified Champion Schools; ID = students with intellectual disabilities; SWD = students with other disabilities; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level. Observations in Panel B were restricted to students with complete enrollment history from Grade 3 through Grade 12. Sample size differences between GPA and graduation analyses reflect observations with missing GPA information. ***$p < .01$, **$p < .05$, *$p < .1$.

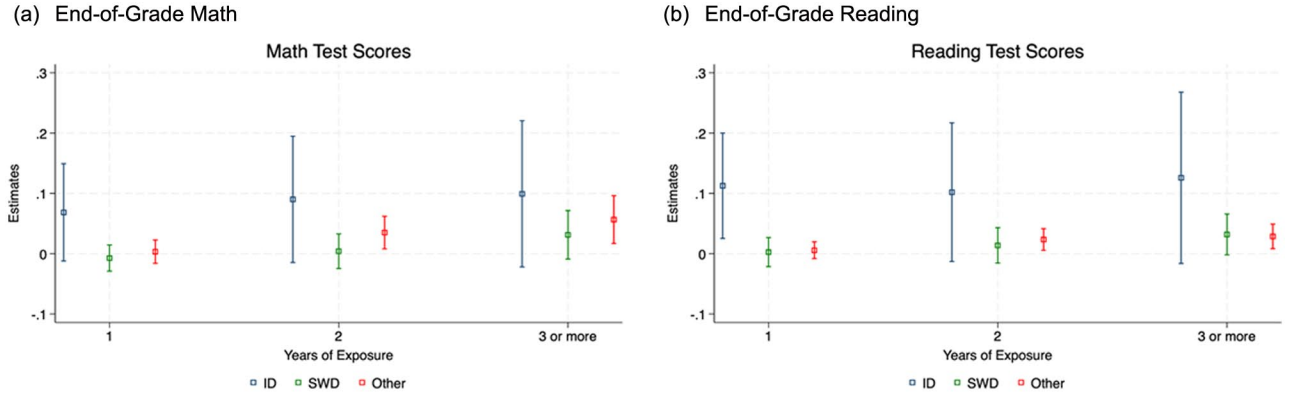

FIGURE 6. *UCS exposure (number of years) and academic outcomes for Grade 3–8 students: (a) End-of-Grade Math, and (b) End-of-Grade Reading.*

Note. This figure presents estimates of Equation 2 using end-of-grade math and language test scores as the corresponding outcomes, separately by students with an intellectual disability (ID), students with other disabilities (SWD), and students without a disability (Other). Whiskers indicate confidence intervals at the 95% level. Standard errors are clustered at the school level.

number of years of exposure to UCS, allowing to test for the presence of non-linearities in the relationship between exposure to UCS and academic outcomes. Figure 6 presents estimates of the effect on standardized test scores for Grade 3–8 students who were exposed to UCS for 1, 2, and more than 2 years, compared to students enrolled in non-UCS schools. We observe that the rise in test scores is larger for students who were exposed to UCS for more than 2 years. In math, our estimates show that more than 2 years of exposure associate with an increase of 0.102 ($p < .1$) and 0.051 ($p < .05$) standard deviations for students with ID and those without disabilities. For language test scores, the estimates are similar

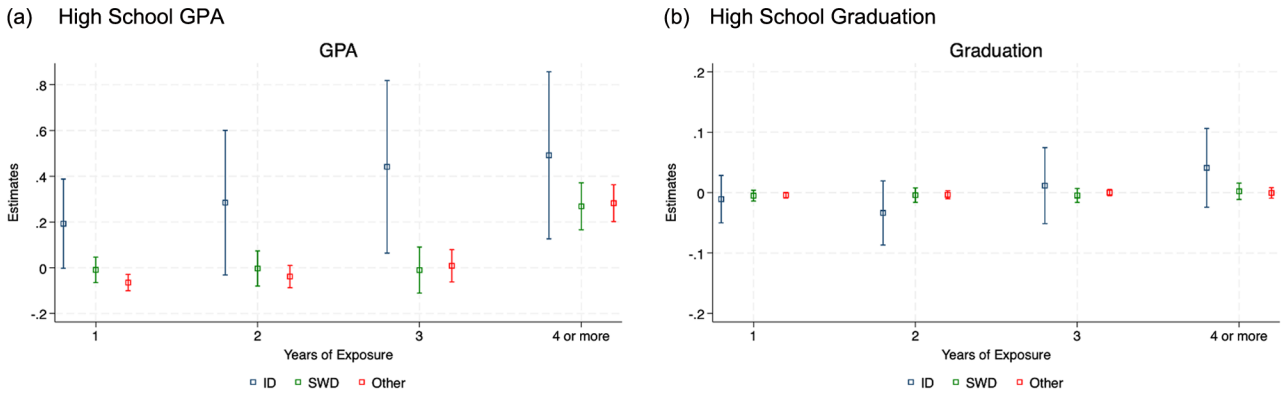

FIGURE 7. *UCS exposure (number of years) and academic outcomes for high school students: (a) High School GPA, and (b) High School Graduation.*

Note. This figure presents estimates of Equation 2 using high school GPA and an indicator of graduation as the corresponding outcomes, separately by students with an intellectual disability (ID), students with other disabilities (SWD), and students without a disability (Other). Whiskers indicate confidence intervals at the 95% level. Standard errors are clustered at the school level.

although in this case we also find a statistically significant estimate of 0.03 ($p < .1$) for students with other disabilities.

Similarly, Figure 7 presents estimates for high school students. In this case, our estimates for GPA suggest a non-linear positive relationship between this variable and years of exposure for SWD and students without a disability. While we find no differences in GPA between treated and non-treated students with up to 3 years of exposure, we find a positive difference of approximately 0.2 points for students exposed to UCS for 4 years or more. Interestingly, for students with ID we find a more linear relationship. On average students with ID exposed for at least 4 years to the program experience increases of around 0.5 GPA points compared to similar students enrolled in non-UCS schools. In terms of graduation rates, we do not find evidence of non-linearities for SWD and students without a disability. There is some evidence of improvements in graduation rates for students with ID exposed for 3 or more years to the program. However, this estimate is not statistically significant at conventional levels. As discussed above, in this case we are estimating the effects of exposure on an outcome observed 4 years later. Consequently, our estimates do not capture the additional effect of exposure during high school.

Since GPA grades can vary across schools due to factors such as teacher behavior, curriculum, or grading leniency, we consider two additional outcomes for our sample of high school students, conditional on enrolling in ninth grade: grade repetition and on-time graduation. Table A2 in the Appendix shows that an additional year of exposure to UCS associates with a reduction of 1.8 percentage points in the likelihood of repeating any grade ($p < .05$) for students with ID and reductions of approximately 0.6 percentage points for the other two groups. At the same time, we find an increase of 0.9 percentage points in the likelihood of graduating on time for students with ID, but the estimate is not statistically significant at the 10% level. These additional results suggest that the UCS program associates with improvements in academic outcomes in high school, beyond mere GPA inflation.

To contextualize the practical significance of these findings, our effect sizes can be interpreted using contemporary educational benchmarks. According to Kraft (2020), educational intervention effects smaller than 0.05 standard deviations are considered small, while effects between 0.10 and 0.15 are substantial in educational contexts. Our findings show effect sizes that are educationally meaningful: for students with ID, the 0.037 and 0.044 standard deviation increases per year of exposure in math and reading respectively represent approximately 1.5 to 1.8 months of typical learning gains (Hill et al., 2008). The 0.138 GPA point increase per year for students with ID is particularly notable, as research indicates that each 0.1 GPA point increase is associated with meaningful improvements in graduation rates and post-secondary outcomes (Allensworth & Easton, 2007).

UCS Exposure and Disciplinary Outcomes

Results from the previous section suggest that exposure to UCS is positively correlated with academic achievement. Next, we investigate whether exposure to UCS also correlates with improved student behavior, measured by disciplinary outcomes and absence rates. The UCS program may affect student behavior through increased school engagement and overall positive experiences. In other words, students who participated in UCS activities may be less likely to engage in disciplinary infractions or be suspended and have better attendance. At the same time, as our mechanism chain in Figure 1 suggests, improvements in student behavior might also improve academic outcomes, potentially

TABLE 5
Unified Champion Schools Exposure (Number of Years) and Disciplinary Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	ID	SWD	Other	ID	SWD	Other	ID	SWD	Other	ID	SWD	Other
	Any Disciplinary Incident			Violent Incident			Suspension/Expulsion			Absence Rate		
Panel A: Grades 3–8												
UCS Exposure	−0.018***	−0.002	−0.002	−0.020***	−0.002	−0.000	−0.008**	−0.002	−0.001	−0.003**	−0.001	−0.000
(Years)	(0.005)	(0.003)	(0.002)	(0.007)	(0.003)	(0.001)	(0.004)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487	70,156	876,734	3,833,487	41,231	524,838	2,301,108
R-Squared	0.20	0.17	0.13	0.11	0.10	0.06	0.14	0.13	0.09	0.13	0.07	0.07
Dep. Var. Mean	0.229	0.215	0.138	0.159	0.145	0.069	0.125	0.103	0.055	0.055	0.045	0.036
Panel B: High School												
UCS Exposure	−0.005	−0.002	−0.002	0.002	−0.001	−0.001*	−0.006	−0.001	−0.001	−0.002	−0.001***	−0.001***
(Years)	(0.006)	(0.002)	(0.002)	(0.006)	(0.002)	(0.001)	(0.005)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Observations	16,564	199,372	887,656	16,564	199,372	887,656	16,564	199,372	887,656	10,833	130,840	594,088
R-Squared	0.18	0.15	0.14	0.08	0.07	0.04	0.13	0.10	0.07	0.15	0.14	0.12
Dep. Var. Mean	0.279	0.256	0.186	0.106	0.071	0.036	0.158	0.115	0.069	0.064	0.053	0.045

Note. UCS = Unified Champion Schools; ID = students with intellectual disabilities; SWD = students with other disabilities. Robust standard errors in parentheses were clustered at the school level. Observations in Panel B were restricted to students with complete enrollment history from Grade 3 through Grade 12. Sample sizes are relatively smaller than academic outcomes due to missing attendance information.
***$p < .01$, **$p < .05$, *$p < .1$.

mediating the overall effect we present in Tables 3 and 4. However, fully disentangling the different channels that mediate these effects is beyond the scope of this work. We created four measures to test this hypothesis: dummy variables for whether the student had (1) any disciplinary incident; (2) any violent incident; (3) any suspension or expulsion, and (4) their annual absence rate.

Consistent with previous findings, the results presented in Table 5 suggest a mixed but potentially positive impact of UCS on students' behavioral outcomes. For students in Grades 3–8, an additional year of UCS exposure was associated with a decrease in the likelihood of observing any disciplinary incident of 1.8 percentage points ($p < .01$), a violent incident by 2 percentage points ($p < .01$), and any suspension/expulsion by 0.8 percentage points ($p < .05$) for students with ID. For students with disabilities other than ID and without a disability we do not find any statistically significant associations. Columns 10 to 12 in Table 5 present estimates of the association between absence rates and years of exposure to UCS. Similar to the previous behavioral outcomes, we find a negative and statistically significant association of 0.3 percentage points ($p < .05$) for students with ID and no association for the other groups. For the high school sample (Panel B in Table 5), the results suggest that each additional year of UCS exposure is correlated only with a significant decline of 0.01 percentage points ($p < .01$) in the absence rates of students with other disabilities and without a disability. We do not find statistically significant estimates for students with ID. Table A4 in the Appendix presents estimates of our more flexible specification allowing for the effect of exposure to vary by the number of years. Similarly to academic outcomes, we find that the improvements on behavioral outcomes concentrate on students who were exposed to UCS for a longer number of years.

Sensitivity Tests

Given that our data span multiple years for each student, it is important to note that a significant portion of students in our sample switched schools or transitioned from elementary to middle schools at some point in the panel. In our sample of students in Grades 3–8, 25% changed or switched schools at some point, with most changing from elementary to middle school after Grade 5. Switching schools is less prevalent—around 4%—in our high school sample because we restricted the sample to students enrolled in Grade 12 only. In our main analysis, we only take into account the total number of years a student was exposed to the program without considering whether a student switched from or to a UCS school and how that might have affected their outcomes. Yet, changing or switching schools may cause ambiguity in the interpretation of our estimates. For example, 1-year exposure to the UCS program might mean a student attended 1 year of UCS elementary school and transitioned into non-UCS middle schools, or a student attended 1 year of UCS middle school. Not taking into account the time since students' last exposure might lead to biased estimates, especially if there are strong short-term contemporaneous effects of the program. To test this, we performed a robustness check in which we add indicators of school switches between UCS and non-UCS schools. Therefore, we compare student outcomes also controlling for the timing of school changes, Results in Table 6 show that our main findings are mostly robust to adding additional controls for school switchers. An additional year of UCS exposure led to significant increases in math and reading scores for students with ID and significant increases in high school GPA for all students.

Heterogeneous Effects

We also explored the impacts of UCS on student academic outcomes by socioeconomic status (SES) as students from economically disadvantaged backgrounds may face greater isolation, lower social engagement, and more susceptibility to bullying (Tippett & Wolke, 2014). Considering the average effects across groups presented in Table 4, we focus on the differences for students with intellectual disabilities by free or reduced-price lunch eligibility, which we employ as a proxy of socioeconomic status. Table 7 shows our main findings for these two subsamples.

For students in Grades 3 through 8, we find significant effects on reading and mathematics scores for students with ID who were eligible for free or reduced-price lunch, while no statistically significant effect was identified for those who were not eligible. Each additional year of UCS exposure increased test scores by 0.05 standard deviations in math ($p < .01$) and 0.06 standard deviations in reading ($p < .05$) for students with ID from families of low SES. Panel B presents differences by SES for the high school sample. We find that students with ID who were ineligible for free or reduced-price lunch have higher improvements in their GPA scores relative to their FRL-eligible counterparts. For graduation, we find a positive effect only for students with ID who were eligible for subsidized lunch. We present differences by socioeconomic status for the other two groups in Tables A5 and A6 in the Appendix. Overall, we do not see meaningful differences by SES for students with other disabilities and without any disability.

Conclusion

Limited opportunities for social participation and peer interaction are well-documented predictors of student disengagement in K–12 education. This challenge is particularly pronounced for students with disabilities, for whom a lack of social integration is linked to diminished social-emotional

TABLE 6

Sensitivity Test: Unified Champion Schools Exposure (Number of Years) and Academic Outcomes Among Non-Switchers

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	Panel A: Academic Achievement for Grades 3–8					
	Standardized Math Score			Standardized Reading Score		
UCS Exposure (Years)	0.037*	0.006	0.015**	0.045**	0.006	0.007**
	(0.020)	(0.006)	(0.006)	(0.023)	(0.005)	(0.003)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487
R-Squared	0.26	0.26	0.23	0.29	0.26	0.21
Dep. Var. Mean	−0.771	−0.506	0.166	−0.839	−0.580	0.171
	Panel B: High School Outcomes					
	High School GPA			Graduation (0/1)		
UCS Exposure (Years)	0.147**	0.067***	0.071***	0.007	−0.001	0.000
	(0.065)	(0.015)	(0.010)	(0.007)	(0.001)	(0.001)
Observations	1,398	21,615	106,048	6,236	76,423	328,632
R-Squared	0.38	0.38	0.33	0.60	0.21	0.82
Dep. Var. Mean	2.621	2.880	3.453	0.802	0.964	0.980

Note. UCS = Unified Champion Schools; ID = students with intellectual disabilities; SWD = students with other disabilities; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level. Observations in Panel B were restricted to students with complete enrollment history from Grade 3 through Grade 12. Sample size differences between GPA and graduation analyses reflect observations with missing GPA information.
***$p < .01$, **$p < .05$, *$p < .1$.

development, lower academic achievement, and increased risk of school dropout. Prior research has established that school connectedness and peer relationships are strongly associated with academic and behavioral engagement (Wang & Holcombe, 2010). Against this backdrop, programs that aim to improve students' sense of belonging and participation may have broader effects on educational outcomes.

This study provides the first rigorous student-level evaluation of the Special Olympics Unified Champion Schools program using administrative data from North Carolina and a difference-in-differences design spanning 11 years. Our findings contribute to several important literature streams while revealing both consistencies and departures from prior research.

Our results align with recent meta-analytic evidence on inclusive education. Krämer et al., (2021) found a significant positive effect of 0.35 standard deviations for cognitive outcomes among students with general learning difficulties in inclusive versus segregated settings. Our findings for students with ID show cumulative effects of similar magnitude through sustained exposure: each additional year of UCS exposure was associated with increases of 0.037 and 0.044 standard deviations in mathematics and reading test scores, respectively. Unlike the Dalgaard et al., (2022) Campbell Collaboration review that found minimal effects (*SD* 0.04–0.05) for traditional inclusion approaches, our whole-school intervention demonstrates that comprehensive ecological approaches may achieve meaningful impacts through sustained implementation.

To contextualize the practical significance of our findings, these effect sizes represent educationally meaningful improvements. According to contemporary educational benchmarks (Kraft, 2020), our effect sizes fall within the range of successful educational interventions, representing approximately 1.5 to 1.8 months of learning gains per year of exposure for students with ID. The 0.138 GPA point increase per year for high school students with ID is particularly notable, as research indicates that each 0.1 GPA point increase is associated with meaningful improvements in graduation rates and post-secondary outcomes.

Our findings demonstrate educationally significant improvements that compare favorably to other whole-school interventions. Meta-analyses of inclusion programs typically show effect sizes ranging from 0.04 to 0.35 standard deviations (Dalgaard et al., 2022; Krämer et al., 2021), positioning UCS effects within the upper range of successful inclusion interventions. Unlike single-year interventions, UCS effects are sustained and cumulative, with each additional year of exposure producing incremental gains that compound over time.

TABLE 7

Unified Champion Schools Exposure (Number of Years) and Academic Outcomes by Free or Reduced-Price Lunch Eligibility Status for Students With Intellectual Disability

	(1)	(2)	(3)	(4)
	FRL	No FRL	FRL	No FRL
	Panel A: Grades 3–8			
	Math Score		Reading Score	
UCS Exposure	0.052**	0.000	0.061**	0.016
(Years)	(0.024)	(0.028)	(0.027)	(0.030)
Observations	49,868	20,116	49,868	20,116
R-Squared	0.28	0.32	0.31	0.34
Dep. Var. Mean	−0.800	−0.698	−0.894	−0.701
	Panel B: High School			
	High School GPA		Graduation (0/1)	
UCS Exposure	0.140*	0.288***	0.006	0.003
(Years)	(0.071)	(0.074)	(0.010)	(0.012)
Observations	906	461	4,331	2,138
R-Squared	0.41	0.53	0.60	0.64
Dep. Var. Mean	2.567	2.706	0.234	0.283

Note. UCS = Unified Champion Schools; FRL = students receiving free or subsidized price lunch; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level.
***$p < .01$, ** $p < .05$, * $p < .1$.

Our findings can be contextualized within the broader landscape of educational interventions targeting students with disabilities and inclusive practices. School-wide social-emotional learning programs typically produce effect sizes of 0.22 to 0.27 standard deviations (Durlak et al., 2011; Taylor et al., 2017), while UCS effects, though smaller per year, are sustained over multiple years and target specific populations showing greatest need. Professional development for inclusive teaching produces large effects on teacher knowledge, but limited academic outcomes for students (Göllner et al., 2023), suggesting that systematic whole-school approaches like UCS may translate teacher development into measurable student gains more effectively.

The practical implications suggest several feasible implementation strategies. For students with intellectual disabilities: prioritize sustained, multi-year UCS participation to maximize cumulative benefits; focus on early implementation in elementary and middle school years when effects appear strongest; and target students from low-income backgrounds who show the largest effect sizes. For school districts: implement UCS as part of comprehensive inclusion strategy rather than standalone intervention; provide adequate funding for 3+ year implementation periods to achieve maximum impact; and consider UCS expansion in high-poverty schools where effects are most pronounced.

We explored two mechanisms through which UCS may improve academic outcomes: student behavior and attendance. For student behavior, we find that each additional year of UCS exposure lowered the likelihood of suspensions or expulsions for students with ID by 0.8 percentage points in Grades 3–8. For students with other disabilities, UCS exposure reduced the likelihood of any disciplinary incident, violent incident, and suspension or expulsion. Additionally, UCS exposure lowered absence rates for students with ID, suggesting improved school engagement and connectedness. Future research could benefit from understanding the specific channels that mediate the effects we document, particularly for Grade 3–8 students.

The benefits of the UCS model extend beyond students with disabilities. Students without disabilities also demonstrated gains in academic and behavioral measures, supporting the theoretical prediction that whole-school inclusion initiatives create positive spillover effects. This addresses ongoing concerns that inclusion may detract from the learning experiences of students without disabilities (Francisco et al., 2020). Our findings instead suggest that well-structured, school-wide inclusion models strengthen the broader school climate and benefit all students.

The UCS program demonstrates the potential of sports-based interventions in promoting social cohesion. Consistent with prior research showing that sports foster interpersonal trust and relationship-building (Grandisson et al., 2019; Morgan & Parker, 2017), UCS leverages inclusive athletic activities as a vehicle for broader school culture change. These considerations are particularly timely given the COVID-19 pandemic's disruption to students' social development opportunities (Colao et al., 2020), especially for students with disabilities who experienced disproportionate academic regression and mental health challenges (Asbury et al., 2021; Elharake et al., 2023; J. Lee, 2020).

Our study has several important limitations. First, the UCS program is implemented as a whole-school intervention, meaning that students may not be exposed homogeneously or at the same intensity. Second, disciplinary events are rare, making it difficult to detect changes in low-frequency outcomes. Third, our high school analyses consider outcomes observed only once, significantly limiting the panel size for graduation analyses.

While our findings provide robust evidence for UCS effects within North Carolina, several factors may limit generalizability to other states and contexts. North Carolina's education system has distinctive features that may influence UCS effectiveness. The state ranks 44th in school finance nationally and has experienced significant education policy instability over the past decade (North Carolina Justice Center, 2018), potentially creating conditions where whole-school social inclusion programs fill critical gaps in student support.

However, several factors support broader generalizability. North Carolina's student demographics and urbanicity patterns are relatively representative of national averages, with similar proportions of students with disabilities (15% vs.

15% nationally) and comparable racial/ethnic diversity. UCS has been implemented across 49 states with similar programmatic components, suggesting that core intervention elements are adaptable to diverse contexts. Our effects align with international evidence from UCS implementations showing similar improvements in social inclusion and peer relationships (Yin & Jodl, 2021).

The most significant limitation for generalizability may be our study's focus on sustained implementation over multiple years. States with higher teacher turnover, more limited special education resources, or different accountability pressures may experience different implementation fidelity and corresponding effects. Future research should examine UCS effectiveness across diverse state policy contexts to establish the boundary conditions for these positive effects.

Future studies may extend knowledge of whole-school programs by examining longer-term effects, such as postsecondary enrollment or workforce participation; exploring the interaction of the program with parental engagement and expectations; and expanding the set of behaviors studied to out-of-school contexts such as involvement with the justice system. These investigations can help identify the most effective implementation strategies to ensure sustained program impact across diverse school contexts.

As schools and districts consider rebuilding supportive learning environments in the post-pandemic era, our findings highlight the value of schoolwide inclusion efforts like UCS in strengthening both academic and social outcomes. As of 2024, UCS programs have been implemented in over 10,000 schools across the United States and internationally, demonstrating the scalability and adaptability of this whole-school inclusion model. The consistent positive effects across diverse implementation contexts suggest that comprehensive approaches to social inclusion can produce meaningful educational benefits for students with and without disabilities alike.

TABLE A1
Estimates From Event Study Specifications

	(1)	(2)	(3)	(4)
	Math EOG	Language EOG	High School GPA	High School Graduation
Relative Period = −6	0.021	−0.002	−0.033	0.003
	(0.017)	(0.013)	(0.017)	(0.002)
Relative Period = −5	0.014	−0.017	−0.036	0.003
	(0.013)	(0.011)	(0.016)	(0.002)
Relative Period = −4	0.005	−0.010	0.009	0.002
	(0.012)	(0.009)	(0.012)	(0.002)
Relative Period = −3	−0.005	−0.009	−0.013	0.001
	(0.008)	(0.007)	(0.011)	(0.002)
Relative Period = −1	−0.010	−0.007	0.013	0.001
	(0.009)	(0.006)	(0.013)	(0.002)
Relative Period = 0	0.003	0.001	0.011	0.001
	(0.012)	(0.008)	(0.017)	(0.002)
Relative Period = 1	0.038**	0.022	0.035	0.001
	(0.016)	(0.011)	(0.023)	(0.002)
Relative Period = 2	0.048**	0.037***	0.037	−0.001
	(0.022)	(0.012)	(0.022)	(0.002)
Relative Period = 3	0.051**	0.034**	0.034	−0.002
	(0.024)	(0.016)	(0.028)	(0.002)
Relative Period = 4	0.063***	0.039**	0.047	−0.001
	(0.022)	(0.019)	(0.035)	(0.002)
Relative Period = 5	0.064**	0.061**		
	(0.029)	(0.024)		
Observations	4,780,370	876,734	599,509	936,024
R-Squared	0.20	0.17	0.44	0.17

Notes. EOG = end-of-grade test; GPA = grade point average. This table presents the estimates and standard errors from the regressions displayed in Figure 4. Robust standard errors in parentheses were clustered at the school level. The estimates of the reference period are omitted.
***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A2

Unified Champion Schools Exposure (Number of Years) and Grade Progression for High School Students

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	High School Outcomes					
	Repeated Any Grade (0/1)			On-Time Graduation (0/1)		
UCS Exposure (Years)	−0.018**	−0.006***	−0.005***	0.009	−0.001	0.000
	(0.009)	(0.002)	(0.001)	(0.007)	(0.002)	(0.001)
Observations	6,533	79,675	339,759	6,533	79,675	339,759
R-Squared	0.16	0.11	0.09	0.46	0.20	0.20
Dep. Var. Mean	0.172	0.130	0.072	0.748	0.922	0.954

Note. UCS = Unified Champion Schools; ID = students with intellectual disabilities; SWD = students with other disabilities. Robust standard errors in parentheses were clustered at the school level. Observations consider students enrolled in ninth grade.
***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A3

Robustness Test: Main Results Adding School-Specific Linear Time Trends

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	Panel A: Academic Achievement for Grades 3–8					
	Standardized Math Score			Standardized Reading Score		
UCS Exposure (Years)	0.037*	0.006	0.015***	0.044*	0.006	0.007**
	(0.021)	(0.006)	(0.006)	(0.023)	(0.005)	(0.003)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487
R-Squared	0.26	0.26	0.23	0.29	0.26	0.21
Dep. Var. Mean	−0.771	−0.506	0.166	−0.839	−0.580	0.171
	Panel B: High School Outcomes					
	High School GPA			Graduation (0/1)		
UCS Exposure (Years)	0.160*	0.053***	0.056***	−0.005	0.001	0.000
	(0.088)	(0.013)	(0.010)	(0.007)	(0.001)	(0.001)
Observations	1,493	22,818	110,848	6,536	79,680	339,768
R-Squared	0.50	0.40	0.34	0.63	0.72	0.81
Dep. Var. Mean	2.620	2.857	3.430	0.615	0.771	0.853

*Note.*UCS = Unified Champion Schools; ID = students with intellectual disabilities; SWD = students with other disabilities; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level.
***$p < .01$, ** $p < .05$, * $p < .1$.

TABLE A4

Unified Champion Schools Exposure (Non-Linear) and Disciplinary Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	ID	SWD	Other	ID	SWD	Other
	Any Disciplinary Incident			Suspension/Expulsion		
Panel A: Grades 3–8						
Years of Exposure = 1	−0.019*	0.007	0.006	−0.003	0.006*	0.003*
	(0.011)	(0.006)	(0.004)	(0.010)	(0.003)	(0.002)
Years of Exposure = 2	−0.045***	0.005	−0.000	−0.020*	−0.002	−0.001
	(0.014)	(0.008)	(0.005)	(0.010)	(0.005)	(0.002)
Years of Exposure > 2	−0.057***	−0.018	−0.010	−0.026*	−0.011	−0.004
	(0.018)	(0.011)	(0.008)	(0.014)	(0.007)	(0.003)
Observations	70,156	876,734	3,833,487	70,156	876,734	3,833,487
R-Squared	0.20	0.17	0.13	0.14	0.13	0.09
Dep. Var. Mean	0.229	0.215	0.138	0.125	0.103	0.055
Panel B: High School						
Years of Exposure = 1	−0.018	−0.004	0.016	−0.040	−0.005	0.000
	(0.053)	(0.014)	(0.012)	(0.044)	(0.009)	(0.005)
Years of Exposure = 2	0.060	−0.011	0.002	−0.036	−0.020	−0.002
	(0.072)	(0.019)	(0.012)	(0.064)	(0.014)	(0.006)
Years of Exposure = 3	−0.082	0.022	−0.017	−0.053	−0.008	−0.001
	(0.075)	(0.022)	(0.012)	(0.070)	(0.016)	(0.008)
Years of Exposure > 3	−0.145*	−0.016	−0.057***	−0.183**	−0.035**	−0.027***
	(0.085)	(0.026)	(0.015)	(0.081)	(0.017)	(0.009)
Observations	1,945	24,084	114,271	1,945	24,084	114,271
R-Squared	0.28	0.15	0.14	0.24	0.10	0.06
Dep. Var. Mean	0.233	0.202	0.162	0.119	0.075	0.053

Note. ID = students with intellectual disabilities; SWD = students with other disabilities. Robust standard errors in parentheses were clustered at the school level. Observations in Panel B were restricted to students with complete enrollment history from Grade 3 through Grade 12.
***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A5

Unified Champion Schools Exposure (Number of Years) and Academic Outcomes by Free or Reduced-Price Lunch Eligibility Status for Students With a Disability (Other Than ID)

	(1)	(2)	(3)	(4)
	FRL	No FRL	FRL	No FRL
	Panel A: Grades 3–8			
	Math Score		Reading Score	
UCS Exposure (Years)	−0.003	0.005	0.006	−0.003
	(0.009)	(0.007)	(0.008)	(0.006)
Observations	423,880	452,824	423,880	452,824
R-Squared	0.17	0.28	0.18	0.26

(continued)

TABLE A5 (CONTINUED)

	Panel B: High School			
	High School GPA		Graduation (0/1)	
UCS Exposure	0.058***	0.043***	0.001	0.000
(Years)	(0.015)	(0.014)	(0.002)	(0.002)
Observations	7,123	15,636	32,792	46,861
R-Squared	0.27	0.39	0.65	0.76

*Note.*FRL = students receiving free or reduced-price lunch; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level.
***$p<.01$, ** $p<.05$, * $p<.1$.

TABLE A6
Unified Champion Schools Exposure (Number of Years) and Academic Outcomes by Free or Reduced-Price Lunch Eligibility Status for Students Without a Disability

	(1)	(2)	(3)	(4)
	FRL	No FRL	FRL	No FRL
	Panel A: Grades 3–8			
	Math Score		Reading Score	
UCS Exposure	0.017**	0.009	0.011**	0.002
(Years)	(0.007)	(0.006)	(0.005)	(0.003)
Observations	1,495,379	2,338,048	1,495,379	2,338,048
R-Squared	0.11	0.20	0.10	0.16
	Panel B: High School			
	High School GPA		Graduation (0/1)	
UCS Exposure	0.056***	0.049***	0.001	0.000
(Years)	(0.015)	(0.009)	(0.001)	(0.001)
Observations	27,833	82,990	108,252	231,497
R-Squared	0.20	0.30	0.74	0.84

*Note.*UCS = Unified Champion Schools; FRL = students receiving free or reduced-price lunch; GPA = grade point average. Robust standard errors in parentheses were clustered at the school level.
***$p<.01$, ** $p<.05$, * $p<.1$.

Acknowledgments

The authors are grateful to Ashlyn Smith and Andrea Cahn at Special Olympics for their helpful comments, three referees for their insightful comments, and Aditi Pathak and Dajun Lin for their excellent assistance with data cleaning and analysis. Views expressed in this study are solely those of the authors.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was supported by funding from the Special Olympics International.

Open Practices

The data and analysis files for this article can be found at: https://doi.org/10.3886/E238864V1.

ORCID iDs

Michelle Yin https://orcid.org/0000-0001-9333-1535
Alexis Orellana https://orcid.org/0000-0002-7906-1628

Notes

1. For example, this may be achieved through the establishment of Unified Clubs, a non-academic, school-based club that brings students with and without ID together for planning and participating in Special Olympics activities, including Unified Sports as well as social and community activities that foster understanding and acceptance and promote leadership and collaborative skill building.

2. The whole-school engagement activities may include a respect campaign, assembly, or rally; a school-wide Unified Sports Day; or a disability awareness activity (Special Olympics, 2020).

3. When creating the disability status variable, we noticed changes/inconsistencies over time for some students. Throughout our analysis, we labeled disability status based on whether a student has ever been classified as having a specific disability. In the case of a student reporting both ID and other disabilities, we coded the student as having ID.

4. Throughout the period of our study, we have observed two significant changes in the EOG tests. Starting from the 2012–2013 school year, the range of the raw score of the Extend 2 test was changed. Next, starting from the 2014–2015 school year, the Extend 2 test was cancelled, and the usual group of students taking the Extend 2 could either take the standard test or the Extend 1 test, if they qualified. Since test score standardization is conditional on test type, not disability status, we observe a noticeable change in the average standardized test scores across all three subsamples (students with ID, students with other disabilities, and other students). The students with other disabilities sample saw the largest change in average standardized EOG test scores. Given that we perform all our analyses on separate subsamples, the addition of school year fixed-effects controls for these changes, which occurred at the same time for all students.

5. Although it is possible for one student to have multiple disciplinary incidents within a school year, we observe from the data that only a very small fraction of students incurs multiple incidents. Hence, we believe the three indicator outcome variables capture meaningful variation in the disciplinary outcomes and forgo the information on multiple disciplinary incidents at the student-year level.

6. We suppress the grade fixed effect η_g from the specifications using the high school sample.

7. Specifically, we test the following null hypothesis. $H_0 : \beta_{-6} = \beta_{-5} = \beta_{-4} = \beta_{-3} = \beta_{-1} = 0$

Reference

Allensworth, E. M., & Easton, J. Q. (2007). *What matters for staying on-track and graduating in Chicago public high schools*. Consortium on Chicago School Research. https://consortium.uchicago.edu/publications/what-matters-staying-track-and-graduating-chicago-public-schools

Anderson, A. R., Christenson, S. L., Sinclair, M. F., & Lehr, C. A. (2004). Check & Connect: The importance of relationships for promoting engagement with school. *Journal of School Psychology*, *42*(2), 95–113. https://doi.org/10.1016/j.jsp.2004.01.002

Anderson, K. P. (2021). The relationship between inclusion, absenteeism, and disciplinary outcomes for students with disabilities. *Educational Evaluation and Policy Analysis*, *43*(1), 32–59. https://doi.org/10.3102/0162373720968558

Asbury, K., Fox, L., Deniz, E., Code, A., & Toseeb, U. (2021). How is COVID-19 affecting the mental health of children with special educational needs and disabilities and their families? *Journal of Autism and Developmental Disorders*, *51*(5), 1772–1780. https://doi.org/10.1007/s10803-020-04577-2

Barber, B. K., & Olsen, J. A. (1997). Socialization in context: Connection, regulation, and autonomy in the family, school and neighborhood, and with peers. *Journal of Adolescent Research*, *12*(2), 287–315. https://doi.org/10.1177/0743554897122008

Borghans, L., Weel, B. T., & Weinberg, B. A. (2008). Interpersonal styles and labor market outcomes. *Journal of Human Resources*, *43*(4), 815–858. https://doi.org/10.1353/jhr.2008.0029

Carter, E. W., Sisco, L. G., Chung, Y. C., & Stanton-Chapman, T. L. (2010). Peer interactions of students with intellectual disabilities and/or autism: A map of the intervention literature. *Research and Practice for Persons with Severe Disabilities*, *35*(3–4), 63–79. https://doi.org/10.2511/rpsd.35.3-4.63

Centers for Disease Control and Prevention. (2009). *School connectedness: Strategies for increasing protective factors among youth*. U.S. Department of Health and Human Services. https://www.cdc.gov/healthyyouth/protective/pdf/connectedness.pdf

Center for Social Development and Education. (2022). *Special Olympics Unified Champion Schools: Social and emotional learning in Unified Sports (2021–2022)*. University of Massachusetts Boston. https://www.umb.edu/media/umassboston/editor-uploads/center-for-social-development-and-education/documents/Unified-Champion-Schools-SEL-in-Unified-Sports-(2021-2022)-reduced.pdf

Choi, J. H., Meisenheimer, J. M., McCart, A. B., & Sailor, W. (2017). Improving learning for all students through equity-based inclusive reform practices: Effectiveness of a fully integrated schoolwide model on student reading and math achievement. *Remedial and Special Education*, *38*(1), 28–41. https://doi.org/10.1177/0741932516644054

Colao, A., Piscitelli, P., Pulimeno, M., Colazzo, S., Miani, A., & Giannini, S. (2020). Rethinking the role of the school after COVID-19. *The Lancet Public Health*, *5*(7), Article e370. https://doi.org/10.1016/s2468-2667(20)30124-9

Dalgaard, N. T., Bondebjerg, A., Viinholt, B. C. A., & Filges, T. (2022). The effects of inclusion on academic achievement, socioemotional development and wellbeing of children with special educational needs. *Campbell Systematic Reviews*, *18*(2), Article e1291. https://doi.org/10.1002/cl2.1291

Deming, D. J. (2017). The growing importance of social skills in the labor market. *The Quarterly Journal of Economics*, *132*(4), 1593–1640. https://doi.org/10.1093/qje/qjx022

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Elharake, J. A., Akbar, F., & Malik, A. A. (2023). Mental health impact of COVID-19 among children and college students: A systematic review. *Child Psychiatry & Human Development*, *54*, 913–925. https://doi.org/10.1007/s10578-021-01297-1

Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2012). *Teaching adolescents to become learners the role of noncognitive factors in shaping school performance: A critical literature review*. https://consortium-pub.uchicago.edu/sites/default/files/2018-10/Noncognitive%20Report_0.pdf

Fisher, D. (1999). According to their peers: Inclusion as high school students see it. *Mental Retardation*, *37*(6), 458–467. https://doi.org/10.1352/0047-6765(1999)037<0458:attpia>2.0.co;2

Flook, L., Repetti, R., & Ullman, J. B. (2005). Classroom social experiences as predictors of academic performance. *Developmental Psychology*, *41*(2), 319–327. https://pdfs.semanticscholar.org/1fe0/9a0e67251d0ddcac8dc6ed3af801617fec2e.pdf

Francisco, M. P. B., Hartman, M., & Wang, Y. (2020). Inclusion and special education. *Education Sciences*, *10*(9), Article 238. https://doi.org/10.3390/educsci10090238

Gershenson, S., Jacknowitz, A., & Brannegan, A. (2017). Are student absences worth the worry in U.S. primary schools? *Education Finance and Policy*, *12*(2), 137–165. https://doi.org/10.1162/edfp_a_00207

Göllner, R., Damian, R. I., Nagengast, B., Roberts, B. W., & Trautwein, U. (2023). Does professional development effectively support the implementation of inclusive education? A meta-analysis. *Educational Psychology Review*, *35*(2), 1–31. https://doi.org/10.1007/s10648-023-09752-2

Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, *30*(1), 79–90. https://doi.org/10.1002/1520-6807(199301)30:1<79::aid-pits2310300113>3.0.co;2-x

Government Accountability Office. (2018). *K–12 education: Discipline disparities for black students, boys, and students with disabilities*. https://www.gao.gov/assets/gao-18-258.pdf

Grandisson, M., Marcotte, J., Milot, É., Allaire, A. S., & Lamontagne, M. E. (2019). Perspectives on strategies to foster inclusion through sports: Advantages, disadvantages, and considerations for implementation. *Inclusion*, *7*(2), 140–153. https://doi.org/10.1352/2326-6988-7.2.140

Hardman, M. L., & Nagle, K. (2004). Public policy: From access to accountability in special education. In A. M. Sorrells, H. J. Rieth, & P. T. Sindelar (Eds.), *Critical issues in special education: Access, diversity, and accountability* (pp. 277–292). Pearson.

Hawkins, J. D., Catalano, R. E., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatrics and Adolescent Medicine*, *153*(3), 226–234. https://doi.org/10.1001/archpedi.153.3.226

Heckman, J. J., & Rubinstein, Y. (2001). The importance of noncognitive skills: Lessons from the GED testing program. *American Economic Review*, *91*(2), 145–149. https://doi.org/10.1257/aer.91.2.145

Hill, C. J., Bloom, H. S., Black, A. R., & Lipsey, M. W. (2008). Empirical benchmarks for interpreting effect sizes in research. *Child Development Perspectives*, *2*(3), 172–177. https://doi.org/10.1111/j.1750-8606.2008.00061.x

Hughes, C., Kaplan, L., Bernstein, R., Boykin, M., Reilly, C., Brigham, N., Cogsriff, J., Hellingoetter, J., & Harvey, M. (2012). Increasing social interaction skills of secondary school students with autism and/or intellectual disability: A review of interventions. *Research and Practice for Persons with Severe Disabilities*, *37*(4), 288–307. https://doi.org/10.2511/027494813805327214

Jackson, C. K., Porter, S. C., Easton, J. Q., Blanchard, A., & Kiguel, S. (2020). School effects on socioemotional development, school-based arrests, and educational attainment. *American Economic Review: Insights*, *2*(4), 491–508. https://doi.org/10.1257/aeri.20200029

Jacobs, E. H., Osborne, K., Landis, K., Van Gaasbeek, E., Smith, L., McDowell, E., & Siperstein, G. N. (2018). *The Special Olympics Unified Champion Schools Program: Year 10 evaluation report, 2017–2018*. Center for Social Development and Education, University of Massachusetts Boston. https://www.umb.edu/editor_uploads/images/UCS_-_Y10-_Evaluation_Report_Submitted.pdf

Juvonen, J. E., & Wentzel, K. R. (1996). *Social motivation: Understanding children's school adjustment*. Cambridge University Press. https://doi.org/10.1017/CBO9780511571190

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, *74*(7), 262–273. https://doi.org/10.1111/j.1746-1561.2004.tb08283.x

Kraft, M. A. (2020). Interpreting effect sizes of education interventions. *Educational Researcher*, *49*(4), 241–253. https://doi.org/10.3102/0013189x20912798

Krämer, S., Möller, J., & Zimmermann, F. (2021). Inclusive education of students with general learning difficulties: A meta-analysis. *Review of Educational Research*, *91*(3), 432–478. https://doi.org/10.3102/0034654321998072

Ladd, G. W., Ettekal, I., & Kochenderfer-Ladd, B. (2017). Peer victimization trajectories from kindergarten through high school: Differential pathways for children's school engagement and achievement? *Journal of Educational Psychology*, *109*(6), Article 826. https://doi.org/10.1037/edu0000177

Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health*, *4*(6), Article 421. https://doi.org/10.1016/s2352-4642(20)30109-7

Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The social connectedness and the social assurance scales. *Journal of Counseling Psychology*, *42*(2), Article 232. https://doi.org/10.1037//0022-0167.42.2.232

Libbey, H. P. (2004). Measuring student relationships to school: Attachment, bonding, connectedness, and engagement. *Journal of School Health*, *74*(7), 274–283. https://doi.org/10.1111/j.1746-1561.2004.tb08284.

Linares, O. L., Rosbruch, N., Stern, M. B., Edwards, M. E., Walker, G., & Abikoff, H. B. (2005). Developing cognitive-social-emotional competencies to enhance academic learning. *Psychology in the Schools*, *42*(4), 405–417. https://doi.org/10.1002/pits.20066

Martin, A. J., & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues, and practice. *Review of Educational Research*, *79*(1), 327–365. https://doi.org/10.3102%2F0034654308325583

McNeely, C. (2003). *Connections to school as an indicator of positive development* [Paper presentation]. Indicators of Positive Development Conference, Washington, DC. https://

cms.childtrends.org/wp-content/uploads/2013/05/Child_Trends-2003_03_12_PD_PDConfMcNeely.pdf

Morgan, H., & Parker, A. (2017). Generating recognition, acceptance and social inclusion in marginalised youth populations: The potential of sports-based interventions. *Journal of Youth Studies*, *20*(8), 1028–1043. https://doi.org/10.1080/13676261.2017.1305100

National Center for Education Statistics. (2021). *Common Core of Data, America's public schools*. https://nces.ed.gov/ccd/tables/ACGR_RE_and_characteristics_2019-20.asp

National Center for Education Statistics. (2024). *The condition of education: Children and youth with disabilities*. https://nces.ed.gov/programs/coe/indicator/cgg

North Carolina Justice Center. (2018). *The Unraveling: Poorly-crafted education policies are failing North Carolina's children*. https://www.ncjustice.org/wp-content/uploads/2018/11/UNRAVELING-7-Years-of-Bad-Policies-ED-LAW.pdf

Pijl, S. J., & Frostad, P. (2010). Peer acceptance and self-concept of students with disabilities in regular education. *European Journal of Special Needs Education*, *25*(1), 93–105. https://doi.org/10.1080/08856250903450947

Reschly, A. L., & Christenson, S. L. (2006). Prediction of dropout among students with mild disabilities: A case for the inclusion of student engagement variables. *Remedial and Special Education*, *27*(5), 276–292. https://doi.org/10.1177/07419325060270050301

Rosenfeld, L. B., Richman, J. M., & Bowen, G. L. (1998). Low social support among at-risk adolescents. *Social Work in Education*, *20*(4), 245–260. https://doi.org/10.1093/cs/20.4.245

Simplican, S. C., Leader, G., Kosciulek, J., & Leahy, M. (2015). Defining social inclusion of people with intellectual and developmental disabilities: An ecological model of social networks and community participation. *Research in Developmental Disabilities*, *38*, 18–29. https://doi.org/10.1016/j.ridd.2014.10.008

Siperstein, G. N., McDowell, E. D., Jacobs, H. E., Stokes, J. E., & Cahn, A. L. (2019). Unified extracurricular activities as a pathway to social inclusion in high schools. *American Journal on Intellectual and Developmental Disabilities*, *124*(6), 568–582. https://doi.org/10.1352/1944-7558-124.6.568

Siperstein, G. N., Parker, R. C., Bardon, J. N., & Widaman, K. F. (2007). A national study of youth attitudes toward the inclusion of students with intellectual disabilities. *Exceptional Children*, *73*(4), 435–455. https://doi.org/10.1177/001440290707300403

Solish, A., Perry, A., & Minnes, P. (2010). Participation of children with and without disabilities in social, recreational and leisure activities. *Journal of Applied Research in Intellectual Disabilities*, *23*(3), 226–236. https://doi.org/10.1111/j.1468-3148.2009.00525.x

Special Olympics. (2020). *Five benefits of inclusive education*. https://www.specialolympics.org/stories/impact/5-benefits-of-inclusive-education

Symes, W., & Humphrey, N. (2010). Peer-group indicators of social inclusion among pupils with autistic spectrum disorders (ASD) in mainstream secondary schools: A comparative study. *School Psychology International*, *31*(5), 478–494. https://doi.org/10.1177/0143034310382496

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171. https://doi.org/10.1111/cdev.12864

Theobald, R., Goldhaber, D., Gratz, T., & Holden, K. (2019). Career and technical education, inclusion, and postsecondary outcomes for students with learning disabilities. *Journal of Learning Disabilities*, *52*(2), 109–119. https://doi.org/10.1177/0022219418775121

Tippett, N., & Wolke, D. (2014). Socioeconomic status and bullying: A meta-analysis. *American Journal of Public Health*, *104*(6), e48–e59. https://doi.org/10.2105/ajph.2014.301960

Wang, M. T., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal*, *47*(3), 633–662. https://doi.org/10.3102/0002831209361209

Wilson, D. B., Gottfredson, D. C., & Najaka, S. S. (2001). School-based prevention of problem behaviors: A meta-analysis. *Journal of Quantitative Criminology*, *17*(3), 247–272. https://doi.org/10.1023/a:1011050217296

Yin, M., & Jodl, J. (2021). *Social inclusion of students with intellectual disabilities: Global evidence from special olympics unified schools*. Special Olympics Global Center for Inclusion in Education. Research Brief 103. https://resources.specialolympics.org/community-building/youth-and-school/unified-champion-schools/social-inclusion-of-students-with-intellectual-disabilities-global-evidence-from-special-olympics-unified-schools

Yin, M., Siwach, G., & Belyakova, Y. (2022). The Special Olympics Unified Champion Schools Program and high school completion. *American Educational Research Journal*, *59*(2), 315–344. https://doi.org/10.3102/00028312211032744

Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (Eds.). (2004). *Building academic success on social and emotional learning: What does the research say?* Teachers College Press. https://psycnet.apa.org/record/2004-21939-000

Authors

MICHELLE YIN, PhD, is an associate professor at the School of Education and Social Policy at Northwestern University, 633 Clark Street, Evanston, IL 60208; michelle.yin@northwestern.edu. Her research investigates policies and technologies, particularly AI, digital learning, and assistive tools, that strengthen education-to-employment pathways and economic mobility for marginalized populations.

GARIMA SIWACH, PhD, is a principal economist at the American Institutes for Research, 1400 Crystal Dr, Arlington, VA 22202; gsiwach@air.org. Her research focuses on topics related to education, employment, and livelihoods in the global context.

ALEXIS ORELLANA, PhD, is an assistant professor at the Institute for Economic Policies at Universidad Andrés Bello, Fernández Concha 700, Las Condes, Santiago, Chile; boris.orellana@unab.cl. His research focuses on labor economics, education policy, and the economics of education.