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Positive Youth Development and Participation in an Urban Debate League: Results from Chicago Public Schools, 1997-2007

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Research suggests that participation in co-curricular and extracurricular activities improves students' academic outcomes, but less is known about the mechanisms by which these programs impact students' educational trajectories. This study examines psychosocial factors linking participation in an urban debate league (UDL) and academic performance in a large prospective study of students in the Chicago Public Schools (N = 12,197) over a nine-year period. School, social, and civic engagement were higher among debaters than non-debaters, but mediation analysis indicated these indicators of engagement only partially explained the academic effects of UDL participation. This article discusses study implications for co-curricular programming, in particular as they relate to efforts to close racial/ethnic and socioeconomic disparities in educational attainment.

Keywords: *adolescent, education, debate, engagement*

INTRODUCTION

Substantial and potentially growing disparities based on race, ethnicity, and socioeconomic status (SES) exist in educational attainment. Male students, Black and Latino students, and students living in areas with high rates of poverty are at particularly elevated risk for not completing high school (Swanson, 2004). While 75% of U.S. students overall graduated high school in 2009, only 62% of Black students and 64% of Latino students graduated, versus 81% of White students (National Center for Health Statistics, NCHS, 2012). Healthy People 2020 includes new school-related objectives for adolescent health, aiming to improve high school graduation rates to 84.2% over the next four year period (U.S. Department of Health & Human Services, 2012), reflecting an appreciation for the importance of educational attainment to health over the life course (Winkleby et al., 1992). For example, college graduates can expect to live approximately five years longer than individuals who did not finish high school (Robert Wood Johnson Foundation, RWJF, 2011). Greater educational attainment is associated with reduced likelihood of almost every chronic disease, including asthma, heart disease, and cancer (Silles, 2009).

The impact of educational attainment is also transgenerational: parental educational attainment has a robust effect on children's likelihood of graduating from high school (Ensminger & Slusarcick, 1992). A constellation of social and contextual factors, including characteristics of the school environment, neighborhood conditions and safety, and concentrated poverty reinforce existing educational disparities (Crowder & South, 2003; Wodtke, Harding, & Elwert, 2011). Disparities in education thus perpetuate cycles of poverty and compound parallel disparities in health and related factors, including violence victimization (Krieger et al., 2005; Williams & Jackson, 2005).

Conceptual Framework: Positive Youth Development

Positive Youth Development (PYD) is a framework for understanding the patterns of risk and protective factors in adolescence that promote healthy "social, emotional, behavioral, and cognitive development" (Catalano et al., 2004). Rather than targeting a single behavior, PYD programs aim

to impact a cluster of developmental factors including bonding, resilience, social and emotional competence, and prosocial norms (Catalano et al., 2004). These domains impact multiple behavioral outcomes, including those related to academic performance and educational achievement. Improving opportunities for positive development is particularly important for adolescents most at risk for dropping out of high school or becoming engaged in delinquent behavior (Edwards, Mumford, & Serra-Roldan, 2007).

Adolescence presents a particularly salient period for altering behavioral trajectories. Adolescence is a period of experimentation with risky behaviors (e.g., experimenting with illicit substance, carrying weapons, tobacco use, sexual behavior) that can become established long-term (Eaton et al., 2010). Adolescence is also characterized by reward-seeking and risk-taking behavior (Galvan, 2010; Wolfgang, Thornberry, & Figlio, 1987) and the development of higher-level thinking and reasoning skills (Sternberg & Downing, 1982). Therefore, providing adolescents opportunities for less-risky peer socialization and engagement with pro-social institutions (i.e., school) may prevent disengagement from normative educational trajectories (Morrison et al., 2002).

School Engagement as a Mediator between Adolescent Behaviors and Educational Outcomes

Improving adolescents' engagement with school can improve youth outcomes across a range of indicators. School engagement, or students' behavioral and emotional connectedness with school, is a strong predictor of high school graduation and college attendance (Finn & Owings, 2006) and is an indicator of PYD (Catalano et al., 2004). Identifying factors that increase school engagement is a critical component of altering trajectories for at-risk adolescents. Increased behavioral engagement, such as participation in organized extracurricular activities, also increases emotional engagement through bonding with both peers and adults at school (Li & Lerner, 2011). Forming positive relationships with peers and adults, particularly in the context of purposeful activities, can prevent delinquency and improve social and academic outcomes (Catalano et al., 2004). Therefore, the opportunities for socialization during extracurricular activities, such as sports, or co-curricular activities such as academic clubs or music groups, may be a pathway to improving students' connection with teachers and with each other (Catalano & Hawkins, 1996; Fredricks & Eccles, 2008) and subsequently reduce risky behaviors (Feldman & Matjasko, 2005; Fredricks & Eccles, 2005; Gardner, Roth, & Brooks-Gunn, 2008).

Co-curricular Activities and Positive Youth Development: The Urban Debate League Model

Co-curricular activities are hypothesized to increase school engagement. However, the quality, intensity, and content of co-curricular activities vary substantially, and as a consequence the evidence that involvement in these activities reduces risky behavior for adolescents—especially for those at high risk of dropping out, including minority students in impoverished, urban districts—is limited (Denault, Poulin, & Pederson, 2009; Feldman & Matjasko, 2005; Gardner, Roth, & Brooks-Gunn, 2008). One notable exception is a growing body of research on the positive impact of participating in an urban debate league (UDL) on academic performance and achievement. UDLs exist in 19 public school districts in metropolitan areas around the United States. Almost 90% of UDL participants are racial/ethnic minorities, and 76% are from low-income families (National Association of Urban Debate Leagues, NAUDL, 2015). Through the UDL, high school students participate in tournaments of three to five structured, 90-minute debates in two-person teams. Debate tournaments are held throughout the school year, and students participate in afterschool practice and spend several hours per week researching their arguments (Breger, 2000).

UDL participation provides an opportunity for directly impacting adolescent development. While after-school activities have been linked to discrete behavioral and psychosocial improvements (Denault & Poulin, 2009; Farb & Matjasko, 2012), UDL participation may contribute more broadly to positive trajectories because of its highly structured nature, which involves the development and application of "non-cognitive" skills (e.g., self-control, working with peers, communicating effectively, resolving conflict, listening to others) (Huang et al., 2001) as

well as academic skills (e.g., reading, writing, analytical thinking). In addition, the competitive nature of the activity means that students are rewarded for their hard work (e.g., at the end of each tournament there is a public awards ceremony). Finally, the opportunity for social engagement with peers and adult mentors (including UDL alumni who often return as volunteer judges for tournaments) provides a pipeline for academically engaged role models.

UDL Participation and School Achievement

Both qualitative and quantitative studies indicate that participating in an UDL is predictive of higher academic achievement and performance. In a 10-year longitudinal study of over 12,000 Chicago Public School (CPS) high school students, including over 2,500 students who participated in a UDL, Mezuk and colleagues (2011) showed that even after accounting for self-selection into the UDL using propensity score matching, students who debated had higher GPA, better college entrance exams (i.e., ACT), and were more likely to graduate from high school relative to comparable students who did not debate (Mezuk, 2009; Mezuk et al., 2011). Further research on this cohort showed that intensity of debate participation (e.g., number of rounds debated, competitive success) was related to these outcomes in a dose-response manner, even among at-risk adolescents (Anderson & Mezuk, 2012). Complementing this quantitative work, qualitative studies have repeatedly demonstrated that UDL participation has positive effects on academic engagement (Cridland-Hughes, 2011, 2012).

Understanding pathways that link debate participation, school engagement, and academic outcomes is needed to improve program design in order to impact both short-term (e.g., school attendance, GPA) and long-term (e.g., high school completion, college matriculation) outcomes. In particular, it is unknown whether psychosocial indicators related to school engagement (i.e., student-teacher trust, civic engagement) mediate the impact of debate on academic achievement.

PRESENT STUDY

Racial and socioeconomic disparities in educational attainment are large, accumulate over generations, and have been resistant to a multitude of education reform efforts over the past decades (U.S. Department of Education, 2014). However, empirical evidence in line with the PYD framework suggests that improving school engagement can impact social and academic outcomes for adolescents. Therefore, research should identify opportunities both within and outside the classroom to increase school engagement, particularly among students most at risk for dropping out. Activities that improve prosocial bonding contribute to school engagement, but to date little research has examined whether such factors explain the relationship between co-curricular activities and major markers of PYD. School engagement and debate are associated with short-term academic outcomes (Finn & Owings, 2006; Li & Lerner, 2011; Mezuk, 2009; Mezuk et al., 2011), but the relationship between debate, school engagement, and academic outcomes has not been investigated.

This analysis aims to evaluate whether indicators of PYD (i.e., student–teacher trust, educational expectations, social competence) mediate of the association between UDL participation and academic performance. Furthermore, the authors will examine whether these relationships vary as a function of intensity of debate participation and competitive success. The primary hypothesis is that the effect of UDL participation on academic outcomes is partially mediated by greater levels of school, social, and civic engagement among debate participants.

METHODS

Sample

Data were obtained from Chicago Public Schools (CPS) and the Consortium on Chicago School Research (CCSR) at the University of Chicago. The CCSR has maintained enrollment, demographic, and academic data on CPS high school students since 1991. CPS district includes 116 high schools with enrollment of approximately 112,000 students. Public and charter schools

were not included. The racial/ethnic makeup of the CPS district is 47% Black, 39% Latino, 8% White, 3% Asian, and 3% multi-racial (CPS, 2009).

Data linkage for this study has been previously described (Mezuk, 2009; Mezuk et al., 2011). Briefly, data come from the linkage of CPS academic records with Chicago Debate League (CDL) tournament participation records. Students were identified as debaters from CDL tournament records from the 1997-98 through 2006-07 school years. The CCSR linked these tournament registration records with CPS enrollment, demographic and academic data for the same time period. Next, a random sample of comparison students who did not debate was selected for each debater: In order to account for school-level factors, comparison students were selected from the pool that attended the same school and entered high school in the same year as each debate participant (Mezuk, 2009). Additionally, to maximize statistical power, the selection targeted four comparison students for every one debate participant (actual sampling ratio was 3.978:1). Overall, 12,179 CPS students enrolled in high school at some point during the 1997-98 through 2006-07 school years were selected, of which 2,449 (20%) had participated in at least one CDL tournament. This analysis was limited to students with data from at least one indicator of school, social, or civic engagement ($N = 9,320$).

The study was originally approved by the CPS Office of Research and the Institutional Review Board at the University of Michigan. This analysis received exempt status from the Institutional Review Board at Virginia Commonwealth University.

Measures/Independent Variables

For this analysis students who participated in at least one UDL tournament were considered *debaters*; comparison non-debater students were identified from CPS records as described. Among debaters we examined two indicators of debate intensity: (a) quantity of participation (the total number of tournaments in which the student participated over high school), and (b) competitive success (the ratio of the number of rounds won to the total number of rounds debated over the student's entire participation in the UDL).

Mediators: Social, Civic, and School Engagement

Indicators of student engagement (Table 1) were assessed as part of the CPS/CCSR 5 Essentials School Survey, a self-administered questionnaire that is conducted on an annual basis by CPS/CCSR (CCSR, 2013). Surveys are administered to students in their classrooms during the fall and spring semester of each academic year. Specific variables included civic commitment, social competence, social conscience, student–teacher trust, and educational expectations. School-level reliability for these survey items was as follows: school engagement (0.837), student–teacher trust (0.912), social competence (0.862), and educational expectations (0.932) (CCSR, 2013). All items in Table 1 were assessed using a Likert scale, ranging from 1 (strongly disagree) to 10 (strongly agree). Because the specific survey measures assessed varied from year to year, the data available for any one measure are limited (i.e., the sample size for the measures ranged from 2,109 students for the measures of civic commitment to 9,260 students for the measure of student-teacher trust). In order to increase statistical power and preserve the representativeness of the analytic sample, these five measures of engagement were combined into a single Engagement Index variable. For this combined variable each measure was first mean-standardized, and then all available survey scores were averaged to produce a single continuous Engagement Index (range -2.45–2.69).

A small subset of students (sample size ranging from 714 for importance of education to 2,328 for social competence) had more than one assessment of these engagement indicators during the study period; for this subset the change in engagement over time was calculated for debaters and comparison students. If a student had more than one of a measure, only the first was used in the creation of the Engagement Index.

Table 1

Survey Items from the CPS/CCSR Five Essentials School Survey

Measure	Mean (range)1 = strongly disagree 10 = strongly agree	Item Wording
Civic engagement	5.17 (0-10)	• Everyone has a responsibility to be concerned with state and local issues. • I have a responsibility to be actively involved in community issues. • I expect to be involved in improving the community. • I have good ideas for programs or projects that would help solve community problems.
School engagement		
Educational expectations	5.70 (0-10)	• Working hard in high school matters for success in the work force. • High school teaches me valuable skills. • I'm getting a good education at my school.
Student–teacher trust	4.63 (0-10)	• My teacher really cares about me. • My teacher always keeps their promises. • My teacher always tries to be fair. • I feel safe and comfortable with my teacher at this school. • When my teacher tells me not to do something, I know he/she has a good reason. • My teacher treats me with respect.
Social engagement		
Social conscience	4.59 (0-10)	• I should just take care of myself and let others take care of themselves. • It is important to help others in my community. • It is important to work to solve the problems of poor people.
Social competence	4.42 (0-10)	• I'm good at helping people. • I'm good at taking turns and sharing things with others. • I'm very good at working with other students. • I listen carefully to what other people say to me. • I can always find a way to help people end arguments.

Note. All items were coded on a scale from 1-10 with responses ranging from strongly disagree (1) to strongly agree (10). The first social conscience item was reverse-coded.

Outcomes

Three indicators of academic performance were examined: (a) graduation from high school, (b) dropping out of high school, and (c) American College Test (ACT) scores.

High school completion status was derived from CPS records, which indicated whether students were still enrolled in CPS or whether they had completed high school (either through graduation or alternate modalities, including GED), transferred out of the CPS district, or dropped out of school. Two dichotomous variables were created pertaining to high school completion. The first variable (graduate) represented the proportion of students who graduated, in which the denominator included both students who transferred out of CPS and dropped out. The second variable (drop out) represented the proportion of students who dropped out of CPS during high school, and the denominator included graduates and students who transferred.

ACT scores were derived from CPS records. The ACT is a standardized assessment used in college admissions consisting of four sections: (a) Reading, (b) English, (c) Mathematics, and (d) Science. Each test is scored on a scale of 1 to 36, and the total reported score is an average of these four scores. The ACT is generally taken in the spring before students apply to college (spring of 11th grade). The ACT assesses a student's "college readiness" based on a designated benchmark score (English $\geq$ 18, Mathematics $\geq$ 22, Reading $\geq$ 21, Science $\geq$ 24). A score at or above the benchmark indicates that a student has a $\geq$ 50% probability of earning a grade of B or better in a college course in that subject area (ACT, 2006). For this analysis, dichotomous variables were created that indicated whether or not the students' scores met or exceeded the benchmark in each of the four subject tests.

Confounders

Analyses adjusted for gender, race/ethnicity (White, Black, Hispanic, and other), age in 9th grade, and a composite index indicating "at risk" adolescents.

Academic performance prior to high school, student SES, and neighborhood poverty were combined into a risk index, as previously described (Anderson & Mezuk, 2012). Briefly, the risk index included the following factors:

- dichotomous indicator of free lunch status,
- dichotomous indicator of special education status,
- neighborhood poverty as indicated by the 2000 US Census,
- 8th grade standardized math scores and
- 8th grade standardized reading scores.

Neighborhood poverty was calculated by census block from the percent of adult males who were employed, and the percent of families with incomes above the poverty line; these scores were standardized relative to the Chicago mean. Two tests were used by CPS to assess 8th grade student performance during this study period: the Iowa Test of Basic Skills and the Illinois Standards Achievement Test. These scores were separately mean-standardized to yield one estimate for 8th grade reading and one estimate for 8th grade math.

The risk index was evaluated on a six-point scale ranging from zero to five, with one point assigned for each of the five risk factors. For the continuous variables (i.e., neighborhood poverty, 8th grade math and reading scores) a score of 1 was assigned if they were more than 0.5 standard deviations below the mean. Because of small cell sizes, the two highest risk groups were combined for analysis, resulting in a five-point scale (ranging from 0 to 4).

Analyses

Initially, linear regression was used to compare the individual indicators of school, social, and civic engagement, as well as the combined Engagement Index, of debaters and non-debaters, adjusting for demographic variables and risk index. Next, multivariable logistic regression was used to assess

the relationship between debate participation and the Engagement Index with the academic outcomes (high school completion, ACT performance).

Mediation analysis was used to test the direct effect between debate and high school graduation, and for the indirect effect via improved school engagement. This analysis used the criteria for mediation described by Baron and Kenny (1986):

- the primary independent variable (debate) must be significantly associated with the potential mediator (Engagement Index);
- the primary independent variable must be significantly associated with the dependent variable (academic performance); and
- the mediator must be significantly associated with the dependent variable after controlling for the independent variable.

These criteria were tested using linear and logistic regression, adjusting for demographics and risk score. The PROCESS macro (Hayes, 2012) was used to test whether these effects are different from zero. Bootstrapping (1,000 replicates), a procedure in which samples are repeatedly drawn from available data (Preacher & Hayes, 2008), was used to estimate and generate 95% confidence intervals for the direct and indirect effects of debate on academic outcomes.

Among UDL participants, logistic regression assessed the relationship between the measures of debate participation, engagement, and academic outcomes. Finally, among the subset of students with repeated assessments of the engagement measures, the authors examined whether change in these metrics differed for debaters and comparison students.

All models adjusted for gender, race/ethnicity, age in 9th grade, and risk score. All analyses were conducted using SAS 9.3 (SAS, 2011), and all *p*-values refer to two-tailed tests.

RESULTS

Demographic and academic characteristics of the sample have been previously described (Anderson & Mezuk, 2012; Mezuk et al., 2011). Briefly, debaters were more likely to be women, score lower on the risk index, and were more likely to graduate from high school and reach college readiness benchmarks of the ACT. Women and students who graduated from high school had higher scores on the Engagement Index.

Debate Participation and School, Civic, and Social Engagement

Overall, debaters had higher scores on each measure of engagement and on the composite Engagement Index than non-debaters (Table 2). Compared to students who had never debated, debaters reported significantly higher social conscience ($p < .001$), social competence ($p < .001$), civic commitment ($p < .01$), and importance of education ($p < .001$). Among the subset of students who completed repeated assessments during the study period, social conscience, civic commitment, and student–teacher trust scores decreased over time for both debaters and non-debaters (Table 3). In contrast, social competence increased among debaters but decreased among non-debaters ($p < .05$). Finally, scores on the indicator of the importance of education decreased among debaters but increased among non-debaters ($p < .05$).

Debate, Engagement, and High School Completion

Debaters had 2.8 times higher odds ($p < 0.001$) of graduating from high school than non-debaters (Table 4). Consistent with the PYD framework, higher scores on the Engagement Index were also associated with greater likelihood of graduating from high school ($p < .01$) and lower likelihood of dropping out of school ($p < .001$). The association between debating and high school completion was attenuated, but remained statistically significant after including the Engagement Index in the model, and model fit improved with the addition of the index as indicated by the likelihood ratio

test. Figure 1 illustrates the results from the mediation analyses, which indicated both significant direct and indirect effects of debate on graduation via improved engagement; additional results of the mediation analysis are shown in Supplemental Table 1 and Supplemental Table 2 in the appendix.

Table 2

Indicators of Social, Civic, and School Engagement by Debate Status

	Debaters			Non-debaters		
	N	***Raw score***	***Mean-standardized***	***N***	***Raw score***	***Mean-standardized***
Social engagement						
Social conscience	1231	4.87***	0.128	4561	4.51	-0.035
Social competence	1594	4.69***	0.123	6040	4.35	-0.032
Civic commitment	487	5.42**	0.125	1627	5.10	-0.037
School engagement						
Student–teacher trust	1950	4.66	0.017	7318	4.62	-0.005
Importance of education	821	5.90**	0.084	2706	5.63	-0.026
Engagement index	1964	4.91***	0.077	7356	4.66	-0.030

Note. **p < .01; ***p < .001. Means are adjusted for gender, race/ethnicity, age in 9th grade, and risk index.

Table 3

Change in Social, Civic, and School Engagement by Debate Status

	Debaters		Non-debaters	
	Raw score	***N***	***Raw score***	***N***
Social engagement				
Social conscience	-0.593	317	-0.389	1119
Social competence	0.190*	524	-0.056	1804
Civic commitment	0.111	248	-0.203	752
School engagement				
Student–teacher trust	-0.512	518	-0.615	1750
Importance of education	-0.400*	173	0.174	541

Note. *p < .05. Adjusted for gender, race/ethnicity, age in 9th grade, and risk index.

In the full model, Black students (p < .001), Latino students (p < .05) and students of other race/ethnicity (p < .001) were more likely than White students to graduate from high school after accounting for the risk index; however, the influence of debate on high school completion did not vary by race. Similarly, there was no evidence that the relationship between the Engagement Index and high school completion differed by race/ethnicity. This suggests that participating in the CDL benefited all students equally.

Debate, Engagement, and ACT Performance

Debaters were more likely to score at or above the benchmark on each section of the ACT (Supplemental Table 3 in the appendix). This association was strongest for the English, Science, and Reading sections of the ACT (p < .001). Higher Engagement Index scores predicted greater likelihood of reaching the benchmark on the English (p < .05), Math (p < .01), and Reading (p < .01) sections of the ACT. When the Engagement Index was added to these regression models,

Table 4

Logistic Regression Predicting Likelihood of High School Completion

		Graduate		Drop out	
		Model 1 OR (95% CI)	**Model 2 OR (95% CI)**	**Model 1 OR (95% CI)**	**Model 2 OR (95% CI)**
Debate participant *(ref: No)*	Debater	2.84 (2.43-3.31)***	2.81 (2.41-3.28)***	0.41 (0.34-0.50)***	0.42 (0.34-0.51)***
Race/ethnicity *(ref: White)*	Black	1.41 (1.20-1.67)***	1.42 (1.20-1.67)***	1.02 (0.83-1.25)	1.01 (0.82-1.24)
	Latino	1.19 (1.01-1.41)*	1.20 (1.01-1.41)*	0.92 (0.74-1.13)	0.91 (0.74-1.13)
	Other	2.52 (1.90-3.35)***	2.53 (1.91-3.36)***	0.29 (0.18-0.45)***	0.28 (0.18-0.44)***
Gender *(ref: Men)*	Women	1.71 (1.55-1.89)***	1.67 (1.51-1.85)***	0.58 (0.52-0.66)	0.61 (0.54-0.69)***
Age *(years)*		0.58 (0.51-0.64)***	0.57 (0.51-0.64)***	1.86 (1.64-2.12)***	0.81 (0.75-0.89)***
Risk index *(ref: Zero)*	1	0.49 (0.39-0.60)***	0.48 (0.39-0.60)***	2.37 (1.73-3.25)***	2.41 (1.76-3.30)***
	2	0.33 (0.27-0.42)***	0.33 (0.27-0.41)***	3.87 (2.81-5.32)***	3.93 (2.86-5.41)***
	3	0.23 (0.19-0.29)***	0.23 (0.19-0.29)***	5.52 (3.98-7.65)***	5.57 (4.02-7.73)***
	4 or 5	0.23 (0.18-0.29)***	0.22 (0.18-0.29)***	5.89 (4.20-8.25)***	5.95 (4.24-8.34)***
Engagement index			1.11 (1.04-1.19)**		0.81 (0.75-0.89)***
Model chi-square		970.02***	978.60***	778.88***	802.07***
-2 log likelihood		9023.80	9015.21	6715.97	6692.78
Total graduated/ dropped out		5716	5716	1403	1403
Total *N*		8173	8173	8173	8173

Note. *$p < .05$; **$p < .01$; ***$p < .001$; Model 1: adjusted for age, race/ethnicity, gender, and risk index. Model 2: Adjusted for Model 1 and the school engagement index.

debate participation remained a significant predictor of reaching the benchmark on the English, Science, and Reading sections, but was no longer significantly related to performance on the Math ACT. Mediation results indicated that the Engagement Index fully mediated the effect of debate participation on reaching the benchmark on the Math ACT ($p < .01$), and it partially mediated the relationship for the English and Reading sections, and did not mediate the relationship between debate and the Science ACT.

Debate Intensity, Engagement, and High School Completion

The association between debate intensity and the Engagement Index among students who participated in the UDL was notably weaker than the association between the index and whether or not a student participated in debate (Supplemental Table 4 in the appendix). Greater competitive success was associated with higher scores on student–teacher trust ($p < .05$), and greater quantity of participation was associated with higher scores on civic commitment and importance of education ($p < .05$). The Engagement Index was associated with greater competitive success ($p < .05$) but not with quantity of participation. Both measures of participation intensity were associated with increased likelihood of high school completion. However, in these models (which were limited to debate participants), the Engagement Index did not predict high school completion. This indicates that engagement does not mediate the effect of debate intensity on academic outcomes among debaters.

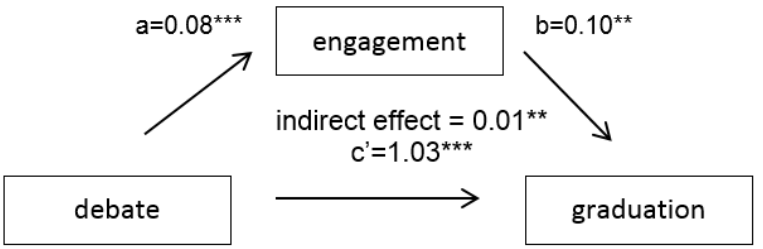

Figure 1. The mediating effect of school engagement on the relationship between debate participation and high school completion. *Note*. **$p <$ .01; ***$p <$ .001. Estimates are adjusted for gender, race/ethnicity, age in 9th grade, and risk index.

DISCUSSION

The primary findings from this study are that

- debaters report greater social, civic, and school engagement than non-debaters;
- engagement partially mediates the association between debate participation and academic outcomes; and
- while higher levels of engagement are associated with debate competitive success, engagement does not mediate the relationship between debate intensity and academic outcomes.

While previous studies have shown a link between UDL participation and academic outcomes (Anderson & Mezuk, 2012; Mezuk et al., 2011), these reports were limited in their ability to examine the pathways and processes that explain these associations. Findings are consistent with the framework of Positive Youth Development, which conceptualizes the relationship between youth development and academic achievement in a broad, holistic manner.

Debaters reported greater social conscience, social competence, civic commitment, and importance of education compared to non-debaters. These factors represent elements of debate activity that may connect skills taught in school (e.g., reading comprehension) with social skills, working as part of a team, and involvement with community issues. These higher levels of

engagement may be a consequence of UDL participation (i.e., debate causes greater engagement), or they may reflect an inherent difference between students who choose to participate in an UDL and those who do not (i.e., students who have higher levels of engagement elect to debate). Regardless of the association between debate and academic achievement, it is important to note that civic and school engagement in adolescence is associated with greater civic participation and community involvement in adulthood (Duke et al., 2009). Therefore, UDL participation may have important and long-lasting social benefits to communities independent of its apparent positive impact on student academic performance.

The Engagement Index partially mediated the relationship between UDL participation and academic outcomes. Specifically, engagement partially mediated the association between debate and high school completion and performance on the English and Reading sections of the ACT, and it fully mediated the association for the Math section of the ACT. These findings are consistent with the interpretation that the positive academic outcomes previously linked to debate participation reflect a combination of improved academic skills involved in debate participation (e.g., critical thinking, reading comprehension, argument construction) and increased school engagement resulting from socialization as a part of a debate team.

Among the subset of students who had repeated measures of engagement, scores on scales for social conscience, civic commitment, importance of education, and student–teacher trust scores declined over time. This finding is consistent with other research reporting decreasing school engagement among adolescents over time (Janosz et al., 2008; Li & Lerner, 2011). Debaters' social competence scores increased significantly over time as compared to non-debaters, potentially reflecting the collaborative nature of participating in a debate team. In contrast, scores regarding the importance of education decreased significantly over time for debaters; however, scores on this scale were still higher for debaters as compared to non-debaters, irrespective of this decline.

Among debaters, greater quantity of participation was associated with higher civic commitment and perceived importance of education, and greater competitive success was associated with greater student–teacher trust and the overall Engagement Index. However, these relationships did not mediate the association between debate intensity and academic outcomes. There are several potential explanations for this finding. First, there may have been inadequate variation in levels of engagement among debaters, since debaters' engagement overall was high (i.e., a ceiling effect). Consistent with previous results (Anderson & Mezuk, 2012), even students with low competitive success and limited participation in debate tournaments were still more likely to graduate from high school and reach college-readiness benchmarks on the ACT. This suggests that aspects of debate participation other than competitive success or quantity of involvement (e.g., peer relationships and support, coaching, mentorship, development and application of non-cognitive skills) may be more salient features of this activity as it relates to academic success. Future research should explore these characteristics as potential mediators of debate participation and academic performance.

After accounting for the risk index, which represents a composite of socioeconomic factors and academic achievement prior to high school, Black, Latino, and students of other race/ethnicity were more likely to graduate from high school than White students. Neither debate participation nor the Engagement Index explained these racial/ethnic differences, nor did the effect of debate or engagement on high school completion vary by race. This suggests that UDLs may be a vehicle for improving quality of education and fostering positive youth development in urban, predominantly minority school districts (Lee, 2004).

Findings should be interpreted in light of study limitations. While analyses accounted for indicators that place students at "high risk" for poor academic achievement (i.e., neighborhood poverty, special education status, poor academic performance in 8th grade), students were not randomly assigned to participate in the UDL, and therefore, we cannot exclude the impact of residual confounding by self-selection. However, we note that prior analyses using propensity score techniques still found that debate participation was significantly predictive of academic success (Mezuk et al., 2011). Also, the study sample was limited to a single urban district, and

therefore results may not be generalizable to students in suburban or rural areas. This study also has a number of strengths, including the longitudinal study design and application of multiple indicators of engagement. This is the largest and most comprehensive quantitative study to date to examine the mediators of debate participation and academic achievement.

Findings from this interdisciplinary project have implications for education researchers, policymakers, and community stakeholders. Such research can inform efforts to close racial/ethnic and socioeconomic disparities in educational attainment, with reverberating benefits to health and development throughout the lifespan (Williams & Collins, 2001). The association between debate and the various markers of social, civic, and school engagement examined underscores the importance of investing in co-curricular and after-school programs for adolescents. Such investments are particularly important for urban districts seeking to increase academic engagement, raise graduation rates, and improve college readiness for at-risk students.

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Appendix

Tables are Adjusted for Gender, Race/Ethnicity, Age in 9th grade, and Risk Index

Supplemental Table 1. Analysis of the mediating effect school engagement on the relationship between debate participation with high school completion and ACT performance engagement

	b	***SE***	***95% Confidence Interval***
Graduation			
Direct effect	1.027***	0.078	0.874, 1.180
Indirect effect	0.008**	0.004	0.002, 0.017
Dropping out			
Direct effect	-0.857***	0.101	-1.055, -0.659
Indirect effect	-0.016***	0.006	-0.030, -0.008
English ACT			
Direct effect	0.574***	0.075	0.427, 0.722
Indirect effect	0.005*	0.004	0.0004, 0.016
Math ACT			
Direct effect	0.137	0.074	-0.008, 0.282
Indirect effect	0.009**	0.004	0.002, 0.020
Reading ACT			
Direct effect	0.436***	0.068	0.303, 0.570
Indirect effect	0.008**	0.004	0.002, 0.018
Science ACT			
Direct effect	0.333***	0.084	0.169, 0.498
Indirect effect	0.003	0.003	-0.003, 0.012

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

Supplemental Table 2. Associations between debate intensity measures and survey scores

	Duration/intensity Total rounds	**Competitive success Wins ratio**
	β (*p*-value)	**β (*p*-value)**
Social engagement		
Social conscience	0.002 (p = .17)	0.29 (p = .06)
Social competence	-0.001 (p =. 54)	0.08 (p = .58)
Civic commitment	0.006 (p = .03)*	0.48 (p = .07)
School engagement		
Student–teacher trust	0.001 (p = .64)	0.26 (p = .04)*
Importance of education	0.004 (p = .04)*	0.17 (p = .41)
Engagement average	0.001 (p = .16)	0.19 (p = .03)*

Note. *p < .05.

Supplemental Table 3. Logistic regression analysis predicting likelihood of reaching college-readiness benchmarks on the ACT

Outcomes	Predictors	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Total Reaching Benchmark	*N*
English ACT	Debater (ref: no)	1.76 (1.52-2.05)***	1.76 (1.51-2.04)***	3365	5941
	Engagement index		1.09 (1.00-1.19)*		
Math ACT	Debater (ref: no)	1.16 (1.00-1.35)*	1.15 (0.99-1.34)	1540	5941
	Engagement index		1.16 (1.05-1.27)**		
Science ACT	Debater (ref: no)	1.42 (1.20-1.68)***	1.42 (1.20-1.68)***	953	5936
	Engagement index		1.03 (0.92-1.15)		
Reading ACT	Debater (ref: no)	1.54 (1.35-1.76)***	1.53 (1.34-1.75)***	2290	5939
	Engagement index		1.13 (1.04-1.23)**		

Note. *p<.05; **p<.01;***p<.001.

Supplemental Table 4. Logistic regression analysis predicting likelihood of graduating from high school or dropping out, by debate intensity measures

Outcomes	Predictors	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Total graduated/ dropped out	*N*
Graduate	Wins ratio	4.59 (2.16-9.77)***	4.60 (2.16-9.80)***	1442	1662
	Engagement index		0.98 (0.81-1.20)		
	Total rounds debated	1.03 (1.02-1.04)***	1.03 (1.02-1.04)***	1469	1694
	Engagement index		0.98 (0.81-1.19)		
Dropout	Wins ratio	0.15 (0.05-0.40)***	0.15 (0.05-0.40)***	121	1662
	Engagement index		1.01 (0.78-1.30)		
	Total rounds debated	0.98 (0.97-0.99)**	0.98 (0.97-0.99)**	124	1694
	Engagement index		1.02 (0.79-1.31)		

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

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