

The COVID-19 pandemic has threatened to widen racial achievement and attainment gaps, reinforcing a need to understand how education policy can work to advance racial equity. For example, in higher education, FAFSA applications from low-income schools and community college enrollment have declined since the onset of the pandemic (Fields, 2021; Sutton, 2021). This could signal potentially decreased college-going rates for low-income and racially minoritized youth for years to come. Dual enrollment (DE) programs offer a potential policy solution that could increase college-going for these students. DE participation has consistently been associated with increased rates of college-going and completion, but these findings are heterogeneous among student demographics (An & Taylor, 2019; Taylor, 2015). This study examines how DE program may have differential benefits based on a participant's intersectional identities (Collins, 2014; Crenshaw, 1989, 1995). Using a critical quantitative (QuantCrit) and intersectional quantitative approach (Covarrubias & Vélez, 2013; Gillborn et al., 2018; Landry, 2007; López et al., 2018; Scott & Siltanen, 2017) and multiple national datasets, I investigate (1) how does DE access vary based on proximity to a widely accessible college/university, and (2) does DE have differential benefits for participation based on a student's race, gender, and proximity to a widely accessible college/university? This work adds a nuanced, intersectional understanding of DE access and benefits from participation that can guide policy makers at colleges, school districts, states, and nationally.

To study DE access and benefits to participation, I utilize a QuantCrit theoretical framework. QuantCrit applies tenets of critical race theory (CRT) to guide critical approaches to quantitative research (Gillborn et al., 2018). From this framework, tenets that guide this project include the (1) centrality of racism, (2) that racial categories are not natural, and (3) use of numbers for social justice (Gillborn et al., 2018).

The United States has been, and continues to be, shaped by racism (Bell, 1992; Kendi, 2016). Educational institutions like colleges and universities are racialized (Byrd, 2021; Dancy et al., 2018; Ray, 2019) and K–12 schools are growing more segregated and fractured along racial lines (Frankenberg et al., 2017; Fuller et al., 2019). This segregation in part stems from remnants of legalized racial residential segregation (Rothstein, 2017), and geography continues to impact educational opportunities and outcomes for racially minoritized youth (Hogrebe & Tate, 2017; Reardon, 2016; Reardon et al., 2019; Tate, 2008; Vélez & Solórzano, 2017). By centering racism and geography, I acknowledge that the color line (Du Bois, 1903/2003) remains a critical problem in the twenty-first century that scholarship must continue to directly address.

Racial categories are not natural or neutral as race is a social construct that has shifting definitions to support the interests of those in power (Bonilla-Silva & Zuberi, 2008; Gillborn et al., 2018; James, 2008). How race is measured in quantitative studies and surveys has a direct impact on how institutions, including colleges, can understand and confront racial inequalities (Byrd, 2021). This perspective allows the proposed study to examine how systemic racism, not racial categories, are associated with differential access and benefits to participation in DE to promote system-level changes. Higher education research often fails to adequately discuss race and racism (Harper, 2012; Patton et al., 2015; Stewart & Nicolazzo, 2018), so this proposed study directly addresses this oversight in the field through my theoretical orientation and research questions.

QuantCrit also informs this study by using numbers to advance an equity agenda (Gillborn et al., 2018). Numbers and quantitative measures are not value neutral (Bonilla-Silva & Zuberi, 2008) and instead can, and should, be carefully used to understand systemic inequalities (Strunk & Hoover, 2019). As discussed below, access to DE is not equal, as low-income

students, Students of Color, and those living in urban areas are less likely to have access to and participate in DE (An & Taylor, 2019; Spencer & Maldonado, 2021). Therefore, this proposed study advances an equity-centered approach to better understand these inequalities.

One theoretical tool available to critical quantitative scholars is intersectionality (Covarrubias & Vélez, 2013; Jang, 2018; Landry, 2007; López et al., 2018). Intersectionality, a tenet of CRT as defined by Black feminist scholars, articulates how oppressions like race, class, gender, and sexuality are multiplicative and more than the sum of each oppression (Collins & Bilge, 2020; Crenshaw, 1989). Quantitative scholarship can utilize pre-existing categories to examine inequality among social groups along multiple dimensions (McCall, 2005; Schudde, 2018; Scott & Siltanen, 2017). This examination of heterogeneous effects of educational policies is necessary to examine how those who face multiple systemic oppressions may experience educational policies in unique ways. Intersectionality can and has exposed how oppressive systems' interlocking nature directly influences Black students' college-going and college choice (McLewiss, 2021). This proposal extends intersectional work on college-going and college choice by studying access to and benefits from DE with intersectionality.

Dual enrollment was historically provided in highly resourced schools but has more recently been offered in a broader array of schools (Venezia & Jaeger, 2013). However, dual enrollment access and participation remains inequitable. Racially minoritized and low-income students remain underrepresented in DE programs, even though there have been meaningful gains in recent years (An & Taylor, 2019; Xu et al., 2021). Urbanicity also matters in DE availability and participation as rural schools have higher rates of DE participation and availability (Rivera et al., 2019; Spencer & Maldonado, 2021; Thomas et al., 2013). While conceptualizations of urbanicity in existing literature provide insight, prior studies do not explicitly examine the role of rural or widely accessible colleges in DE availability.

Participation in DE has frequently been associated with positive educational outcomes for students. DE has been shown to help students develop skills and strategies that support them in college, as DE prematurely socializes students into collegiate expectations (Kanny, 2015; Karp, 2012; Lile et al., 2018). Alumni of DE programs have increased college-going and graduation rates and college GPAs (Allen & Dadgar, 2012; An, 2013; An & Taylor, 2019; Grub et al., 2017; Taylor, 2015). However, these effects are heterogeneous, as participation in DE often has smaller effects for low-income students and Students of Color than for their affluent and White peers (Taylor, 2015).

Scholars have frequently used propensity score matching methods to examine DE (e.g., An, 2013; Grub et al., 2017) to control for selection bias (Schneider et al., 2007). While these approaches can examine heterogeneous treatment effects based on one's propensity to receive treatment (Xie et al., 2012), these treatment effects include various intersections of identities, making it difficult to determine which intersectional identities are most/least likely to benefit (Schudde, 2018). The proposed study addresses this limitation by intentionally interrogating DE availability and benefits for those at the intersection of multiple oppressions using interaction terms.

While prior research has consistently found that geography plays an important role in DE access and participation, this conceptualization of rurality does not necessarily include proximity to a highly accessible college. Researchers of college access have examined how proximity to an accessible college relates to college-going (González Canché, 2018; Hillman, 2016; Klasik et al., 2018). I extend this research to dual enrollment by utilizing Klasik et al.'s (2018) conceptualization of *college access deserts*. Constructed from the U.S. Department of

Agriculture's commuting zones, college access deserts are areas of the country that do not have either at least one public, four-year college that admits at least 75% of applicants, or two public, two-year colleges (Klasik et al., 2018). Prior to investigating my substantive research questions, I will construct and publicly share this national database of college access deserts using the Integrated Postsecondary Education Data System and commuting zones based on the 2010 U.S. Census (Fowler & Jensen, 2020).

The first research question in this study examines how access to DE varies based on a school's location in a college access desert. Utilizing the U.S. Department of Education's Civil Rights Data Collection (CRDC) and the Common Core of Data for 2017–18, I examine how school characteristics are associated with the availability of a dual enrollment program. This dataset provides a census of approximately 25,000 public high schools in the United States, which allows for a national snapshot through which I examine DE. As with prior research on DE using earlier iterations of the CRDC, I will control for enrollment characteristics (total enrollment, racial demographics), school status (charter, magnet, traditional public), and instructional characteristics (e.g., expenditures per student and percentage of certified teachers) (An & Taylor, 2019). I will utilize multilevel logistic regression to account for this nesting of schools within states (Hox et al., 2018; Keith, 2015; Snijders & Bosker, 2012), as state policies can lead to different DE participation rates (Spencer & Maldonado, 2021; Xu et al., 2021). The dependent variable for this analysis is whether a high school offers dual enrollment to its students.

To determine if DE access varies for schools that serve marginalized youth, I will utilize interactions between a school's proportion of male students, if the school serves predominantly Students of Color, and if the school is in a college access desert. Recognizing that organizations are gendered (Acker, 1990; 2012) and racialized (Ray, 2019) and that these gendered/racialized structures directly impact the experiences of people in those organizations, my approach considers how these characteristics of a school may interact. For example, a school that predominantly serves Students of Color *and* is in an education desert may have different access to DE compared to a school in only one of those categories. Interaction terms, including three-way interactions, have been previously used in quantitative studies that center intersectionality (e.g., Landry, 2007; López et al., 2018). This approach explicitly examines how structural domains of power through contemporary social institutions, a component of intersectionality, continue to subordinate People of Color (McLewis, 2021; Nuñez, 2014). Examining the educational systems that continue to oppress minoritized students uses quantitative methods for social justice (Strunk & Hoover, 2019), an explicit purpose of this study.

The second phase of the proposed study examines how the effect of DE participation on college going may vary based on a student's intersectional identities and location in a college access desert. Using the High School Longitudinal Study: 2009 (HSLs:09) and multilevel logistic regression (Hox et al., 2018; Keith, 2015; Snijders & Bosker, 2012), I compare student outcomes for DE participants to those who did not participate. I control for educational aspirations, demographic variables and school characteristics, as these variables have been shown to be important predictors in studies of DE (An & Taylor, 2019; Xu et al., 2021). The HSLs:09 provides the most recent longitudinal data following students from early high school through college, which is essential for this research question to examine the effect of DE on college enrollment. In this analysis, I limit my sample to schools where students could have participated in DE. As 88.8% of respondents' schools offered dual enrollment in 2009 (U.S. Department of Education, 2019), the resulting analytic sample is approximately 21,000 cases.

With multilevel logistic models that nest students in schools, I will consider how one's participation is associated with college-going. For this research question, I will utilize weighted effect coding (Sweeney & Ulveling, 1972; te Grotenhuis et al., 2017b) for race/ethnicity variables. Effect coding does not require a reference group and therefore does not imply one racial group as a norm to compare groups to, aligning with the QuantCrit framework grounding this study (Duran et al. 2020; Mayhew & Simonoff, 2015b). Effect coding also creates more accurate estimates of parameters for racial groups by including the experiences of bi-racial and multi-racial people into multiple racial groups (Mayhew & Simonoff, 2015a). These analyses will also include interaction effects between a student's race/ethnicity, gender identity, and location in a college access desert, as interactions explicitly examine differential effects for those at the intersection of multiple oppressive systems (McCall, 2005; Schudde, 2018) and three-way interactions can better account for the complexities required to approach research with an intersectional framework (Scott & Siltanen, 2017). Cross-level interactions, here between a student's individual identities and their location in a college access desert, explicitly examine how individual characteristics vary based on the larger context, and understanding context is crucial to intersectionality (Scott & Siltanen, 2017). Interactions are also compatible with weighted effect coding methods (te Grotenhuis et al., 2017a). I will also utilize state-level fixed effects (Cunningham, 2021; Huntington-Klein, 2021) to control for state level policies that influence DE participation and unobserved characteristics like unemployment levels or free college initiatives that influence college enrollment decisions (e.g., Barr & Turner, 2015; Nguyen, 2020).

It is important to note that the proposed studies utilize correlational methods and are not causal designs; however, they can still provide insight into how intersectionality manifests in DE access and outcomes (Schneider et al., 2007). In both studies, I control for variables that have been previously associated with DE access and college-going, as this is a common practice in correlational research to address limitations of observational data (Schneider et al., 2007). The second study using the HSLS:09 requires additional consideration. As selection bias is the difference between a treatment and control group (Cunningham, 2021), I limit the study to participants who attended schools that offer DE. I also utilize state-level fixed effects to control for between state differences including policies and unobserved characteristics (Huntington-Klein, 2021), as these policies have been found to be important in DE access (Spencer & Maldonado, 2021; Xu et al., 2021). By carefully crafting analytical samples and controlling for variables associated with the outcomes of interest, I aim to ensure that any relationships in my analyses are reliable to inform policy makers.

My proposed study seeks to bridge K–12 and higher education research and practice, and my dissemination plan seeks to do the same. I aim to present my findings at the Association for the Study of Higher Education's November 2022 annual meeting and the AERA 2023 annual meeting. These venues allow me to share research findings more germane to higher education and K–12 education with audiences that can enact changes in research and practice in multiple domains. As an open science advocate, I would use a portion of this grant to publish open access research articles stemming from this project in widely read education journals like *American Educational Research Journal*, *AERA Open*, and the *Review of Higher Education*. Doing so can help increase the access of research and more broadly inform policy discussions (Furlough, 2010; Gershenson et al., 2020; van der Zee & Reich, 2018). This dissemination plan will facilitate sharing these important findings on DE availability and benefits to participation with P–20 education scholars and policy makers.

Variables

Variable Name	Variable Code ¹	Source ²	Research Question	Variable Role
Grades with Students Enrolled	SCH_GRADE_*	CRDC 17-18	1	Case selection
Dual Enrollment Program Indicator	SCH_DUAL_IND	CRDC 17-18	1	Dependent Variable
College Acceptance Rate	Applicants total Admissions total	IPEDS	1 2	Independent Variable
College Location	ZIP Code	IPEDS	1 2	Independent Variable
Commuting Zones	N/A	Fowler & Jensen, 2020	1 2	Independent Variable
Math & ELA Achievement Results	ALL_[SUBJECT] HSptprof_1718	EDFacts, 17-18	1	Control
Offer AB/IB	SCH_IBENR_IND SCH_AP_IND	CRDC 17-18	1	Control
Overall Student Enrollment	SCH_ENR_*	CRDC 17-18	1	Control
Percentage of Certified Teachers	SCH_FTETEACH_*	CRDC 17-18		Control
School Characteristics	SCH_STATUS_*	CRDC 17-18	1	Control
School expenditures per student	SCH_SAL_TOTPERS_WOFED	CRDC 17-18	1	Control
School Geographic Data	EDGE Data	CCD Geographic Data	1 2	Control
State DE Policies	N/A	Spencer & Maldonado, 2021	1	Control
Title I Status	TITLEI_STATUS	CCD	1	Control
Student & School ID	STU_ID & SCH_ID	HSLs	2	Data Management
Weight	W4W1W2W3STU	HSLs	2	Data Management
School dual enrollment availability	C1DUALENROLL	HSLs	2	Case Selection
Attended college by the end of Feb. 2016	X4EVRATNDCLG	HSLs	2	Dependent Variable

¹ Variables ending with an asterisk (*) represent families of variables used in the analysis

² Acronyms: CRDC (Civil Rights Data Collection), CCD (Common Core of Data), HSLs (High School Longitudinal Study of 2009), IPEDS (Integrated Postsecondary Education Data System)

First post-high school postsecondary institution & characteristics	X4PS1*	HSLs	2	Dependent Variable (Secondary Analysis)
Student taken any dual enrollment	S3DUAL	HSLs	2	Independent Variable
Achievement Scores	X1TXMTSCOR	HSLs	2	Control
ACT/SAT Score	X4TXSATCOMP X4TXACTCOMP	HSLs	2	Control
Educational Expectations	X1STUEDEXPCT X1PAREDEXPCT	HSLs	2	Control
Importance of academics among friends	S1FRNDTALKCLG S1FRNDGRADES S1FRNDSCHOOL S1FRNDCLASS S1FRNDCLG	HSLs	2	Control
Parent education & occupation	X1PAR1EDU X1PAR2EDU X1PAR1OCC2 X1PAR2OCC2	HSLs	2	Control
School college-going culture	C1CLGFAIR C1VISITCLG C1UPBOUND C1INFOSESSN C1FINANCEAID C1ASSISTOTH C1APCOURSE	HSLs	2	Control
School control	X1CONTROL	HSLs	2	Control
School demographics	A1HISPSTU A1WHTIESTU A1BLACKSTU A1ASIANPISTU A1AMINDINST	HSLs	2	
School FRL rate	A1FREELUNCH	HSLs	2	Control
SES composite	X1SES	HSLs	2	Control
Student gender identity	X4GENDERID	HSLs	2	Control
Student race/ethnicity	X1Race X1HISPANIC X1WHITE X1BLACK X1ASIAN X1PACISLE X1AMINDIND	HSLs	2	Control

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Hiding in Plain Sight: A QuantCrit, Intersectional Analysis of Dual Enrollment

Jake D. Winfield

American Educational Research Association (AERA)

Budget Justification

The following is a brief discussion of the costs associated with major items in the proposed budget.

Project Period: January 1, 2022 – June 30, 2023

TRAVEL, DOMESTIC **\$3,800.00**

The recipient is expected to travel to visit sites and attend conferences. Funding for staff travel is requested to support the following categories of travel: Site visits to secure data enclaves, conference registration, and travel to the ASHE and AERA annual meetings in the 2022-23 academic year.

The costs for travel consist of air fare, rail fare, ground transportation, hotel, and conference registration. The project will follow the procedures for reimbursement of reasonable travel expenses as outlined in Temple University guidelines.

- **Site Visits:** \$750
- **Conference Travel** (ASHE 2022: Las Vegas, NV): \$1,250
- **Conference Travel** (AERA 2023: Chicago, IL): \$1,800

EDUCATIONAL SUPPLIES **\$2,500.00**

- **Project Supplies:** Funding requested to cover expenses, including books \$500
- **Computer Hardware:** Funding for materials to support the purchase of a laptop computer \$2,000

STIPENDS **\$15,200.00**

The recipient will use stipends to cover living expenses including rent, food, and utilities including internet for \$950 per month for sixteen (16) months.

OTHER SERVICES **\$6,000.00**

- **Article Processing Charges:** Funding request to support open access publication in academic journals for two articles. The American Education Research Journal (AERJ) currently charges \$3,000 for one open access article.

TOTAL PROGRAM COST **\$27,500**

Budget for: Hiding in plain sight: A QuantCrit, Intersectional Analysis of Dual Enrollment

Temple University Proposal Number: 269519
 Sponsor: AMERICAN EDUCATIONAL RESEARCH ASSOCIATION
 Investigator: JAKE DOUGLAS WINFIELD
 Project Period: 1/1/2022-6/30/2023

<u>Category</u>	<u>Item</u>	<u>Period 1</u>	<u>Total</u>
Labor	JAKE DOUGLAS WINFIELD	0	0
	Subtotal Personnel:	0	0
Other Costs	Stipends	15,200	15,200
Publication Costs	Publication Costs	6,000	6,000
Supplies	Supplies	2,500	2,500
Travel-Domestic	Travel-Domestic	3,800	3,800
	Subtotal Non-Personnel:	27,500	27,500
	Total Project Costs:	27,500	27,500

Jake D. Winfield

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Education

Ph.D. Student | Policy & Organizational Studies – Higher Education | Temple University

Graduate Certificate: Geographic Information Systems

Advisor: James Earl Davis, Ph.D.

Expected Graduation: Spring 2023

Master of Arts | Educational Policy | Arizona State University | May 2019

Applied Project: Exploring the impact of dual enrollment on underrepresented students' college knowledge through vignettes

Bachelor of Arts | Political Science & Humanities | John Carroll University | May 2012

Minors: Art History & Catholic Studies

Professional Experience

Teaching Assistant | Temple University | 01/20 to Present

- Plan and teach recitation section of asynchronous undergraduate research methods (three semesters)
- Plan and teach asynchronous and hybrid general education courses (three semesters)

Research Assistant | Norris Community Resident Council, Inc. | 03/21 to Present

- Design, conduct, and support implementation of research and evaluation of afterschool program
- Lead and author peer-reviewed publications stemming from program evaluation

Research Assistant | Temple University | 05/21 to 08/21

- Support qualitative, quantitative, and mixed methods research for two assistant professors
- Conduct literature reviews
- Write studies and results for peer reviewed publications

Graduate Coursework in Statistics & Methodology

- Data Analysis for the Education Decision Maker | Arizona State University
- Multiple Regression & Correlation Methods | Arizona State University
- Introduction to Research Design & Methods | Temple University
- Quantitative Analysis, Part II | Temple University
- Hierarchical Linear Modeling | Temple University
- Advanced Data Analysis: Mixed Methods | Temple University
- Fundamentals of GIS | Temple University
- GIS Programming | Temple University

Peer-Reviewed Articles

Johnson, J. M. & **Winfield, J. D.** (in press). Institutionalizing success: Practices and policies at HBCUs that promote student development and degree attainment. *The Journal of Higher Education*.

Pressimone Beckowski, C. M. & **Winfield, J. D.** (2021). Towards a culture of student success: An analysis of mission statements from first-generation serving institutions. *Journal of First-generation Student Success*, 1(2), 73-91 . <https://doi.org/10.1080/26906015.2021.1930291>

Winfield, J. D. & Davis, J. E. (2020). The role of race in urban community-university relationships: Moving from interest convergence to critical literacy. *Journal of Critical Scholarship on Higher Education and Student Affairs*, 5(3), 16-32. <https://ecommons.luc.edu/jcshesa/vol5/iss3/5>

Peer-Reviewed Conference Presentations (Selected)

Winfield, J. D. & Davis, J. E. (2021, April 8-12). *Anti-Black settler colonialism and university-community relations: A case study of Temple University* [Paper presentation]. American Educational Research Association Annual Meeting, Online. [PDF]

McGill, D. & **Winfield, J. D.** (2019, April 5-9). *Not just academics: Effects of perceived classroom environment on math achievement* [Paper presentation]. American Educational Research Association Annual Meeting, Toronto, Canada.

Academic Work in Progress (Selected)

Papers Under Review

Johnson, J. M., **Winfield, J. D.**, Rush, A., & Fiorot, S. (in review). Mattering in college: Perceptions of belonging among Black alumnae of historically Black colleges and universities.

Winfield, J. D., Fiorot, S., Pressimone Beckowski, C., & Davis, J. E. (in review). Valuing the aspirations of the community: The origins of a community-university partnership

Winfield, J. D. & Paris, J. (in review). Burnout and turnover intentions among higher education professionals during COVID-19: A mixed methods analysis.

Winfield, J. D., & Pressimone Beckowski, C. M. (in review). Predation and promise: Tensions in mission statements of for-profit colleges and universities.

In Progress

Daniels, D., **Winfield, J. D.**, & Davis, J. E. (in progress). A golden opportunity: The Black professoriate and graduation rates at predominantly White institutions.

Winfield, J. D. & Cordes, S. A. (in progress). Where did you come from? Where did you go?: The effects of charter high schools on college attendance patterns in Pennsylvania.

Winfield, J. D., Fiorot, S., Pressimone Beckowski, C., Daniels, D., & Davis, J.E. (in progress). “They call me the other parent”: Othermothering in a community-led after-school program for Black youth.

Winfield, J. D., Pivovarova, M., & Powers, J. M. (in progress). Arizona’s chronic teacher turnover: An analysis of school level factors.

Winfield, J. D. (in progress). Exploring the impact of dual enrollment on underrepresented students’ college knowledge through vignettes.

Winfield, J. D. (in progress). Racial harassment and the Black-White AP enrollment gap: A multilevel analysis.

Professional Affiliations

- American Educational Research Association (AERA)
- Association for Study of Higher Education (ASHE)
- College Success Research Collaborative – Research Affiliate
- Teach for America Alumnus (2012 – Arkansas)
- Temple University Graduate Student Association (TUGSA)