



## Youth Participatory Action Research in the High School Curriculum: Education Outcomes for Student Participants in a District-Wide Initiative

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## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

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**Abstract**

This study employed a quasi-experimental design to examine the effects of a school-based youth participatory action research program on the education outcomes of participating high school students. The program was a year-long elective course in six high schools in the same California district whose student population is predominantly low-income youth of color. A propensity score matching approach compared the reading achievement, attendance rates, and discipline referral rates of 153 students who participated in the program to nonparticipating peers with similar demographics and baseline scores on the outcomes. Results showed that the program significantly improved students' attendance rates with less compelling evidence for its effect on reading achievement. These findings suggest that youth participatory action research may be an effective pedagogical practice for high school students, particularly low-income students of color.

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**Youth Participatory Action Research in the High School Curriculum: Education outcomes  
for Student Participants in a District-Wide Initiative**

Youth participatory action research (YPAR) has emerged in recent decades as a promising strategy for improving youths' social, emotional, and cognitive outcomes. Procedurally, YPAR engages groups of young people in a process of identifying a practical problem in their communities or schools that they wish to ameliorate, collecting data to better understand the problem, analyzing the data, and using the results as the basis for action (Cammarota & Fine, 2008; Foster-Fishman, Law, Lichty, & Aoun, 2010; McIntyre, 2000). This process is often recursive, with problem identification beginning anew upon completion of an action. YPAR is most commonly implemented in the context of out-of-school programs and activities for youth, but there are more and more instances of YPAR methodologies being infused into secondary school curricula and processes (e.g., Cabrera, Milem, Jaquette, & Marx, 2014; Ozer et al., 2008; Voight, 2015).

YPAR is conceptually rooted in the critical pedagogy of Paulo Freire, wherein groups of people who suffer from political, economic, social, and other forms of oppression work to better understand the causes and contexts of their oppression and subsequently take action to mitigate it. Its applications may have particular relevance for youth who experience marginalization based on race, ethnicity, social class, and other areas of difference, since the problems in these youths' communities and schools are often more systematic and obstructive of positive outcomes. Indeed, most examples of YPAR documented in the scholarly literature involve low-income youth of color (e.g., Duncan-Andrade & Morrell, 2008; Ginwright, Noguera, & Cammarota, 2006).

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3 While changing settings and social structures to make them less oppressive is a central  
4 goal of YPAR, a growing body of empirical evidence documents benefits to individual youth  
5 who participate in YPAR. Youth who engage in YPAR have been shown to enjoy higher levels  
6 of mental health, psychological empowerment, and civic behaviors as well as academic  
7 engagement (as documented in the literature review below). These findings regarding the  
8 individual-level outcomes of YPAR suggest that YPAR may be a promising approach to  
9 improving the academic and behavioral outcomes of youth, in general, and low-income youth of  
10 color, in particular. The evidence for these individual benefits of YPAR derives predominantly  
11 from qualitative case studies of YPAR programs in out-of-school settings. This study uses a  
12 quasi-experimental approach to examine the effect of a school-based YPAR initiative on the  
13 academic achievement, attendance, and discipline of participating students. In so doing, this  
14 study adds a quantitative dimension to the growing evidence base supporting the potential of  
15 YPAR as an educational intervention.

### 32 **Literature Review**

#### 35 **What is YPAR?**

36  
37 YPAR is a pedagogy that positions youth as equals to adults and is intended to produce or  
38 unearth local knowledge that can be immediately used to solve practical problems. In YPAR, the  
39 relationship of teacher and student is more horizontal than in traditional pedagogies, with youth  
40 participants largely guiding the process and teachers or other adults taking an auxiliary role of  
41 facilitator or ally (Cammarota & Fine, 2008). Participating youth learn a range of research skills  
42 to generate knowledge about an issue of their choosing. These research skills may include  
43 reviewing existing research, survey data collection, facilitating qualitative interviews and focus  
44 groups, and data analysis. Youth also learn skills to apply the results of their research to take  
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3 action on the focal issue. For example, youth involved with a community organization in  
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5 California identified community violence as a serious problem and thereafter created and  
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7 administered a survey to over 7,000 local youth that asked them about their experiences with  
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9 violence and how they believed it could best be addressed (Dolan, Christens, & Lin, 2015). The  
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11 youth used the results of their research (which showed that three-quarters of survey respondents  
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13 had experienced violence in their neighborhoods and schools) to advocate for the municipal  
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15 government to create programs to prevent violence and support positive youth development.  
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19 YPAR is distinguished from other forms of youth civic engagement like service-learning  
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21 and volunteering by its emphases on youth leadership and identity, the use of research, and  
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23 achieving lasting social change by addressing the root causes of problems (Diemer, Voight, &  
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25 Mark, 2011; Ginwright & James, 2002). Whereas in traditional forms of youth civic engagement,  
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27 adults often determine the curriculum and modes of participation, in YPAR youth have authentic  
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29 and central voice in decision-making, from identifying the issue to determining the course of  
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31 action. Compared to other forms of youth civic engagement, in YPAR youth use the tools of  
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33 research to create new knowledge about the issue on which they seek to make change. Finally, in  
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35 YPAR, participants move beyond surface-level (often individual-level) explanations for issues  
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37 like neighborhood violence or school dropout in an effort to comprehend and address the  
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39 complex and various environmental precipitants. For example, if youth in a YPAR project  
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41 initially identify school dropout as an issue, they would analyze a range of causes for the issue,  
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43 including exclusionary discipline policies, lack of student support resources, systemic  
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45 disengagement and choose one or more of these structural undercurrents as the focus of their  
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47 research. There is evidence of marginalized youth using YPAR processes to successfully secure  
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49 additional resources for school facilities improvement (Shah & Mediratta, 2008) and school-  
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3 based violence-prevention programming (Voight, 2015), disrupt the tracking of English-  
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5 language learners to non-college-preparatory courses (Speer, 2008), and institute policies to  
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7 address racial achievement gaps (Christens & Kirshner, 2011).  
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10 This critical nature of YPAR has its roots in, among other traditions, the anti-oppressive  
11 pedagogy employed by Freire (1974) with poor rural participants in Brazil. His goal was to help  
12 participants better understand the structural forces that perpetuated their poverty and oppression  
13 and take collective action to redress them. YPAR has continued to be employed primarily with  
14 youth marginalized by structural forces such as poverty and racism, predicated on the belief that  
15 these youth have important expertise and inherent commitments concerning issues that affect  
16 them and that they have a unique urgency to redress such structural forces that serve as barriers  
17 to their well-being and achievement (Fine, 2009; Watts, Griffith, & Abdul-Adil, 1999). A  
18 primary goal of YPAR, then, is to effect change in settings and systems. However, a multitude of  
19 research and theory suggests that it is also beneficial to individual youth participants.  
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### 33 **Links between YPAR and Improved Student Outcomes**

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35 Disciplinary, YPAR and other youth voice interventions have long been under the  
36 purview of youth development, not education (Cervone & Cushman, 2002). Only in the past  
37 decade or so have calls been made for YPAR to be included in formal school curricula and  
38 processes, including school counseling (Smith, Beck, Bernstein, & Dashtguard, 2014), social  
39 work (Johnston-Goodstar, 2013), school-based service-learning (Schensul & Berg, 2004),  
40 multicultural education (Irizarry, 2009), and schools' efforts to meet Common Core State  
41 Standards and standards established by subject-area professional associations (Duncan-Andrade  
42 & Morrell, 2008; Kornbluh, Ozer, Allen, & Kirshner, 2015). These calls raise the question as to  
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3 whether YPAR affects the education outcomes with which educators are most preoccupied—  
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5 student academic achievement, engagement, and behavior.  
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8         Theoretically, when students are given a voice in influencing the process and content of  
9  
10 their learning, the implicit expectations for students as thinkers and learners are elevated, which  
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12 results in higher levels of school engagement (Carbonaro & Gamoran, 2002). Martin and  
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14 Dowson (2009) further argue that when students make personal connections to their learning  
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16 (i.e., to content, to teachers, to instruction), they are more engaged and motivated, which leads to  
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18 greater achievement. These connections may be particularly important to adolescents, who are  
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20 exploring, cultivating, and looking for applications for their unique identities (Cooper, 2013).  
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22 Personal connections to learning may also be of particular importance to youth marginalized by  
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24 systemic inequalities based on race and socioeconomic status, as low-income youth and youth of  
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26 color may not identify with White, middle-class norms, language, and cultural practices often  
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28 expressed in schools (Duncan-Andrade & Morrell, 2008; Paris, 2012). YPAR empowers students  
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30 to name problems and choose practices, which creates spaces for the application of students'  
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32 indigenous knowledge and experience. Several scholars have recently argued for YPAR as a  
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34 strategy for increasing student academic achievement, particularly for students who experience  
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36 some form of marginalization. Kornbluh and colleagues (2015) specifically showed how YPAR  
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38 activities (e.g., problem identification, data collection, data analysis) align with the Common  
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40 Core State Standards. Duncan-Andrade and Morrell (2008) demonstrated connections between  
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42 YPAR and the disciplinary standards of the National Council of Teachers of English.  
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49         Despite these theoretical connections, there is little empirical evidence that speaks to the  
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51 education outcomes for participating students. Other types of outcomes of YPAR have been  
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53 identified in previous research, however, and some of these may be suggestive of YPAR's  
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3 potential to improve student achievement and engagement. Qualitative studies of YPAR  
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5 initiatives in urban high schools showed that YPAR programs improved teacher-student  
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7 relationships and gave students more agency and power in school decision-making (Giraldo-  
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9 Garcia & Galletta, 2015; Ozer & Wright, 2012). A mixed-methods case study of a YPAR  
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11 initiative at one urban middle school found that participating students developed a greater sense  
12  
13 of ownership over their school and experienced improved relationships with adults in their  
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15 school (Voight, 2015). Another qualitative study found that participating in YPAR increased  
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17 students' connectedness to school and confidence as scholars (Taines, 2012). However, Taines  
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19 notes that selection bias may be a concern in such investigations of YPAR, wherein student who  
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21 already feel connected to school are more likely to elect to participate.  
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26 Experimental and quasi-experimental research methods are rarely applied to examining  
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28 the effectiveness of YPAR initiatives on student outcomes, but there are several exceptions. A  
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30 study of a series of Mexican American studies elective courses in four high schools in the  
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32 Tucson Unified School District employed a nonequivalent control group design with controls  
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34 and found that the courses increased the likelihood that participating students passed the Arizona  
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36 state standardized test and graduated from high school (Cabrera et al., 2014). The intervention  
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38 examined in this study included many components, some of which aligned with the elements  
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40 YPAR. Qualitative research of the same program has corroborated these findings (Romero, Arce,  
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42 & Cammarota, 2009). A cluster-randomized experimental study of a similar elective course in  
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44 five urban California high schools had a significant effect on participating students'  
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46 psychological empowerment, including social and political skills, motivation to influence their  
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48 schools and communities, and participatory behavior (Ozer & Douglas, 2013). Another study  
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50 using a regression approach that did not account for selection bias (Holden, Crankshaw, Nimsch,  
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Hinnant, & Hund, 2004) and another using qualitative methods (Morsillo & Prilleltensky, 2007) corroborated this latter finding. In sum, few studies have explored the effect of YPAR on student achievement and engagement, and those that have struggled to account for selection bias to the YPAR condition. Cabrera and colleagues (2014) study of the Tucson Mexican American studies program may be the nearest approximation of study of YPAR effects on participant education outcomes, but YPAR was a relatively ancillary component of that broader program, so it is impossible to isolate YPAR's unique effect.

### **Rationale and Research Questions**

As described above, its theoretical underpinnings suggest that participation in YPAR may be beneficial to students' education outcomes, particularly for low-income youth of color.

Related research supports this theoretical supposition, but no research has directly tested it using a quantitative approach. This study addresses this gap in the empirical literature on YPAR by posing the question: What is the effect of participating in a year-long YPAR high school course on the reading achievement and school engagement of high school students in a district that is composed largely of low-income youth of color?

### **Methods**

#### **Site and Program**

The participating school district Hemet Unified School District (HUSD), is located in Southern California and covers one of the largest geographic areas of any district in the state, encompassing urban, suburban, and rural geographies. HUSD serves approximately 24,000 students in grades kindergarten through 12<sup>th</sup>, the majority of whom are Latino/a and low-income, as indicated by eligibility for free and reduced-priced meals (FRM). The HUSD system includes

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3 11 elementary schools, three K-8 schools, four middle schools, four comprehensive high schools,  
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5 one alternative high school, and one independent-study high school.  
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8 The district implemented YPAR as a high school elective course in the 2014-15 school  
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10 year in six district high schools. Teams (referred to as student leadership teams) of  
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12 approximately 30 students from each participating high school voluntarily enrolled in this  
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14 course. The course initially involved training in facilitation, and the teams' first activities  
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16 included facilitating whole-school student forums to identify and discuss issues that affected the  
17  
18 well-being of local youth. The teams also administered surveys to their peers to generate  
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20 quantitative data to aid in issue identification. Based on the outcomes of forums and surveys,  
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22 student leadership teams from each school collaborated to identify substance use as a common  
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24 cross-district issue to serve as the basis for subsequent research and action.  
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28 The YPAR course also incorporated fall and spring policy advocacy trainings for student  
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30 teams that focused on environmental prevention policies designed to reduce and eliminate  
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32 tobacco use. Students researched effective advocacy practices for preventing tobacco use and  
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34 devised an action plan. Thereafter, students began attending city council meetings and ultimately  
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36 organized and delivered presentations to the city council on the detrimental health effects of first-  
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38 and second-hand tobacco and electronic cigarette use, the impact of tobacco waste on local  
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40 communities, and the positive impact of non-tobacco-use social norms on children, teens and  
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42 young adults. Following these presentations (and due, in part, to them), the city council voted to  
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44 enact a landmark ordinance for the City of Hemet that banned tobacco use in city parks, outdoor  
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46 dining facilities, and multi-family housing units with the city boundaries.  
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**Sample**

The study sample consisted of 6,340 district high school students, which included all district high school students who were also enrolled in the district the previous school year and attended a district school at least 50% of school days in the program year (the latter filter eliminated only 1% of cases). The sample was split approximately equally across grade levels 9 to 12 (21.8%, 24.8%, 26.7%, 26.7%, respectively). Just over half (52.6%) of the sample was male. The most common racial/ethnic group was Latino/a (52.7%), followed by White (31.4%), Black (8.6%), and Asian (3.3%). Approximately three-quarters (73.5%) of the sample was low-income, determined by eligibility for FRM.

### Measures

All data, including information on student ethnicity, race, gender, FRM eligibility, grade in school, and school of record derived from district administrative records. The use of administrative data resulted in almost no missing data. Descriptive statistics for all study variables are shown in Table 1 for all sample students, YPAR participants, and non-participants, respectively.

**YPAR participation.** Students who were enrolled in the year-long YPAR elective course were considered to be in the YPAR treatment group. These students numbered 153 in the study sample. Other students were considered to be in the control group, numbering 6,187. Contingency table chi-squared tests found no significant differences between YPAR participants and nonparticipants in terms of FRM eligibility and race/ethnicity. However, YPAR participants were 72.2% female ( $p < .001$ ) and were more likely to be upperclassmen ( $p < .01$ ).

**Academic achievement.** Four of 6 sample schools administered the Measures of Academic Progress (MAP) reading assessment of the Northwest Evaluation Association (NWEA) to students in grades 9 and 10. In total, 1,305 students in grades 9 and 10 completed the

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3 test in the program year and the prior school year. According to the test publisher, the 2015  
4 national means and standard deviations for grade 9 students on the reading test were 221.9 and  
5 16.21 and for grade 10 students 221.2 and 17.48 (NWEA, 2015). The mean and standard  
6 deviation for the present sample in the program year were 218.69 and 15.08, respectively.  
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12 **School engagement.** School engagement was operationalized using students' attendance  
13 rates and the frequency with which they received discipline referrals. Sample students'  
14 individual attendance rates were calculated as the percentage of days enrolled in the district that  
15 they attended school. Students' attendance rates from the year prior to the YPAR program  
16 implementation (2013-14) were treated as "pretest" measures of attendance. The mean  
17 attendance rate in the district in the program and the prior year was approximately 95%. For each  
18 student in the sample, a discipline referral rate was calculated that indicated the number of office  
19 discipline referrals received per 100 days of school attended. Students' discipline rates from the  
20 year prior to the YPAR program implementation (2013-14) were treated as "pretest" measures of  
21 discipline referrals. The mean discipline referral rate in the program year was 0.39.  
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### 35 **Research design**

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38 A quasi-experimental research design was employed to determine whether participating  
39 in YPAR improved students' education outcomes. Due to the nonrandom process through which  
40 students enrolled in the YPAR course, students who self-selected to enroll in the course may be  
41 qualitatively different from other students. To account for this potential selection bias, a  
42 propensity score matching approach was employed to estimate the effect of YPAR by comparing  
43 outcomes of participating and nonparticipating students who were similar on certain observed  
44 characteristics. Propensity score matching was recommended by Schneider and colleagues  
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(Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007) as a model practice for estimating causal effects with observational data.

The present study estimated the average treatment effects of YPAR, which involves imputing the missing potential value for each subject had they been in the opposite treatment condition based on information from similar subjects in the opposite treatment condition (Guo & Fraser, 2015; Rosenbaum & Rubin, 1983). The average treatment effect is the average effect, at the population level, of moving an entire population from untreated to treated (Austin, 2011) or, in the present case, the effect if all district students would have participated in YPAR.

Propensity score matching adjusts only for observed student characteristics; therefore while the probability that a relevant variable has been omitted from analysis is reduced, it is not eliminated, as unobserved variables (e.g., motivation or parent involvement) may correlate both with program participation and target outcomes. In fact, as Steiner and Kim demonstrate, correcting for observed covariates, as with propensity score matching, may actually increase bias in estimates of effect. Chen and Kaplan (2015) found propensity score matching to produce the least biased treatment effects compared other estimation procedures for treatment effects using propensity scores, including stratification and weighting methods. An important observed characteristic to include in propensity score matching models is a pretest measure of the outcome, which Steiner and colleagues (Steiner, Cook, Shadish, & Clark, 2010) argue typically provide the best grounds for ignoring selection bias. This study included pretest measures of the outcome in all models, as explained in more detail in the analytic plan section below.

### **Analytic Plan**

**Matching cases across conditions.** For each sample student a propensity score was estimated that reflects her or his likelihood of participating in YPAR as a function of a series of

observed variables. Specifically, propensity scores were estimated using separate logistic regression models for each of the six schools represented by the following generic equation

$$\ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \sum_{k=1}^4 \beta_k \text{Baseline}_i + \sum_{l=5}^{13} \beta_l \text{Demographics}_i$$

where  $P$  is the probability of a student  $i$  participating in YPAR and is a linear function of the student's baseline (i.e., 2013-14) attendance rates, discipline referral rates, suspension rates, and days enrolled in the district (and readings test scores in tests of the effect of YPAR on reading achievement), and students' demographics (i.e., three binary variables for race/ethnicity, a binary variable for gender, FRM, three binary variables for grade level, days enrolled in the district in the program year). Inclusion of baseline measures of the outcome in propensity score estimation is generally the best justification for strong ignorability of selection bias (Steiner et al., 2010). The choice of model covariates was also motivated by extant research and theory, which suggests that young people who are more engaged in school are more likely to participate in YPAR-related activities (Taines, 2012), justifying the inclusion of pretest attendance, discipline, achievement, and enrollment in the model. Furthermore, low-income youth are less likely to be involved in civic activities like YPAR, and there are differences in youth civic engagement based on race/ethnicity (Hart & Atkins, 2002; Voight & Torney-Purta, 2013), justifying the inclusion of demographic variables in the model.

Individual case matching with replacement was employed using the *psmatch2* command in Stata 14, wherein each individual student—treatment and control—was matched with one same-school student (i.e., matching was conducted separately within each sample school) from the opposite condition with the nearest propensity score, with the requirement that the distance between matched propensity scores (i.e., caliper) be no greater than 0.25 standard deviations of

the sample propensity scores (the caliper recommended by Cochran & Rubin, 1973). Matching with replacement allows each unit to be used as a match more than once, which Abadie and Imbens (2006) showed to produce matches of higher quality and with less bias. Students who were not matched within the requisite caliper were not included in the estimation of average treatment effects. A common support condition was applied wherein treatment observations whose propensity scores were higher than the maximum or less than the minimum of the controls were dropped not included in the estimation of average treatment effects.

**Assessment of covariate balance between matched pairs.** Statistical tests of post-match balance assessed the degree to which the matched groups was similar, on average, on observed characteristics. These tests included *t* tests for equality of covariate means in the two groups; the standardized percentage bias, which is the percent difference of the sample means in the intervention and control groups as a percentage of the square root of the average of the sample variances in the two groups (comparable to the standardized mean difference; Rosenbaum & Rubin, 1985); and, for continuous covariates, the variance ratio of intervention over control groups, which should equal 1 if there is perfect balance. Further, visual comparisons of kernel density distributions of covariates and propensity scores of the YPAR and control groups provided descriptive evidence for balance in covariate distributions between groups.

**Estimation of the effects of YPAR.** Average treatment effects of YPAR on students' attendance rates, discipline referral rates, and reading achievement,  $\beta$ , were estimated using separate linear regressions (for each outcome) of each individual *i*'s outcome *Y* on the binary YPAR treatment variable with analytic weights to indicate the number of times a particular student was matched, expressed by the equation:

$$Y_i = \alpha + \beta \times YPAR_i + e_i$$

The analytic weight for each case was computed using the equation:

$$\text{Weight} = \frac{n_{YPAR}}{n} \times (1 + \#times\_matched) \times YPAR + \frac{n_{control}}{n} \times (1 + \#times\_matched) \times (1 - YPAR)$$

where  $n_{YPAR}$  is the number of students in the *YPAR* group and  $n_{control}$  is the number in the control group.

**Sensitivity analyses.** A number of sensitivity analyses were performed to establish the robustness of results. First, for each outcome variable, *YPAR* treatment effects were also estimated using matching with no caliper and matching with narrower calipers (.10 propensity-score standard deviation units). Second, average treatment effects on the treated were estimated to determine whether the effect of *YPAR* may be different for a student who enrolled in *YPAR* versus for a student in the district, in general. To estimate the average treatment effects on the treated, separate linear regression models were estimated for each of three outcomes on the binary *YPAR* variable with analytic weights for each control case that was matched to a treatment case indicating the number of times it was matched. Third, a doubly robust procedure recommended by Schafer and Kang (2008) was employed to further reduce bias in the estimation of average treatment effects by modeling covariates (those from the logistic regressions used to estimate propensity scores) in the regression models described above to estimate average treatment effects. Finally, a difference-in-differences analysis was conducted where study outcomes were modeled as change scores (the outcome in the present year minus the baseline outcome) in multilevel regression models (students nested within schools) with the same covariates as those employed in the logistic regression for predicting propensity scores (except for baseline outcomes, which were used in the calculation of the change scores). This difference-in-difference approach does not employ-employ matching or impose a common support condition



but rather compares all YPAR students to all control students, and thus the sample sizes for these analyses were larger ( $n = 6,339$  for the attendance and discipline referral samples;  $n = 1305$  for the reading test sample). This approach also assumes that YPAR students and control students would follow a common trend in outcomes from baseline to post-intervention in the absence of the intervention. The results from these sensitivity analyses are included in the presentation of results that follows.

## Results

### Covariate Balance between Matched Pairs

Initial matching procedures resulted in 3,986 students (149 YPAR and 3,837 control) being matched for the tests of average treatment effects for attendance and discipline referrals and 840 students (26 YPAR and 359 control) for tests of reading achievement, and results of tests of covariate balance generally indicated good balance between groups in both samples. *T*-tests yielded no statistically significant differences between the two matched groups on any covariate in either sample except for the treatment group having a higher proportion of males in the attendance and discipline sample.<sup>1</sup> Regarding the standardized percent bias diagnostic, all covariates in all models were below the 25% rule of thumb that Harder and colleagues (Harder, Stuart, & Anthony, 2010) recommend for asserting balance, with the exception of a higher proportion of male students in the control group in the attendance and discipline sample and a higher proportion of low-income students in the control group in the reading test score sample (see Tables 2 and 3). Variance ratio tests corroborated standardized percentage bias tests—ratios

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<sup>1</sup> Because baseline reading scores were not included as a covariate in the logistic regression predicting propensity scores in the tests of average treatment effects for attendance and discipline referrals, a sensitivity analysis was conducted to assess balance in baseline reading test scores between the two matched groups among the subset of 2,096 students for whom baseline readings scores were available. The *t*-test showed a significant difference between the two groups and the standardized percent bias was above the 25% cutoff recommended by Harder and colleagues (2010), with YPAR students having baseline reading test scores approximately 5 points higher than control students; and the variance ratio for baseline reading tests was within the parameters for good balance.

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3 for all variables between 0.5 and 2.0 except for days enrolled in the district in the prior year. In  
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5 sum, tests of covariate balance between matched pairs suggested good balance in terms of  
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7 baseline scores on the outcomes, race/ethnicity, poverty, grade level, and prior year enrollment  
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9 days. This balance was confirmed in visual comparisons of histograms and kernel density  
10  
11 distributions of covariates of the YPAR and control groups.  
12  
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### 14 **Analysis of Excluded Cases**

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16  
17 Due to failure to match with an opposite condition case within the specified parameter,  
18  
19 2,350 control cases and 4 YPAR cases were discarded from tests of YPAR effect on attendance  
20  
21 and discipline referral rates. These excluded students had significantly lower attendance rates,  
22  
23 reading test scores, and days of enrollment in the district and higher discipline referral and  
24  
25 suspension rates ( $p < .05$ , based on independent samples  $t$  tests) and were significantly more  
26  
27 likely to be male, Black, and in lower grades but less likely to be Latino/a or eligible for FRM ( $p$   
28  
29  $< .05$ , based on chi-squared tests). Further, 912 control cases and 8 YPAR cases were discarded  
30  
31 from the analysis of reading test scores. These excluded students were significantly different  
32  
33 from matched students in the same ways as the first analytic sample, with the exception of  
34  
35 attendance rate, and eligibility for FRM, where there were no significant differences.  
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### 40 **Average Treatment Effects**

41  
42 Average treatment effect results are presented both in terms of unadjusted measurement  
43  
44 units and in terms of effects sizes (ES; see Table 4 for detailed results). The What Works  
45  
46 Clearinghouse (2014) of the U.S. Department of Education has recommends Hedges'  $g$ , the  
47  
48 difference between the mean outcome for the intervention group and the mean outcome for the  
49  
50 comparison group divided by the pooled within-group standard deviation of the outcome  
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measure, as an effect size for multiple group effectiveness studies. Hedges  $g$  is the ES employed herein.

**Attendance.** Results suggested that YPAR improved students' attendance rates by 1.18 ( $p < .01$ ,  $ES = 0.18$ ). In a 180-day school year, this effect is the equivalent of 2.12 additional days of school. According to the most recent version of the Digest of Education Statistics of the National Center for Education Statistics (Snyder, Brey, & Dillow, 2016), the national mean attendance rate for secondary schools was 91.7 in 2011-12 with a standard deviation of 0.34. If a school could raise its attendance rate by 1.18, the estimated effect of YPAR in this study, that would represent several multiples of the national school-level standard deviation.

**School behavior.** The estimated treatment effect of YPAR on student discipline referral rate was -0.06 (n.s.), indicating that YPAR had no effect on discipline referrals.

**Reading achievement.** The largest effect of YPAR was on reading achievement, with a marginally significant difference of 3.29 points between groups ( $p < .10$ ,  $ES = 0.22$ ). The test publisher, NWEA (2015), reported national student standard deviations between 16 and 18 for grades 9 and 10 in reading, which if used as the denominator in effect size calculations would yield similar effect sizes to those calculated using sample statistics.

### Sensitivity Analyses

**Caliper adjustments.** Findings were robust to the use of wider and narrower calipers in matching. Estimates of YPAR effects on attendance and discipline rates using no caliper or a caliper of .10 propensity score standard deviation units were nearly identical (within one tenth of a point) to the abovementioned findings. The estimated effect of YPAR on reading scores with no caliper was nearly identical to the abovementioned finding and slightly lower (by approximately 0.2 points) with a narrower caliper.

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3           **Average treatment effects on the treated.** Estimates of average treatment effects on the  
4 treated indicated no significant effects of YPAR on the attendance, discipline referrals, and  
5 reading test scores of students who participated in the YPAR course (see Table 4). These  
6 discrepancies with the estimate of average treatment effects suggest that YPAR may be effective  
7 for the types of students who did not voluntarily enroll in the YPAR course but not effective for  
8 the types of students who did voluntarily enroll.  
9

10           **Doubly robust procedure.** The inclusion of covariates in the estimation of average  
11 treatment effects suggest that the direction and significance level of the average treatment effect  
12 estimated by the matching procedure was robust for the attendance discipline outcomes (see  
13 Table 4). The effect of YPAR on attendance rates was significant but attenuated ( $\beta = 0.79, p <$   
14  $.05, ES = 0.12$ ) compared to that estimated by matching only, equating to about 1.5 additional  
15 days attended per 180-day school year. The effect of YPAR on reading test score using the  
16 doubly robust procedure was substantially smaller in magnitude than that estimated by matching  
17 only and not statistically significant. These discrepancies in the estimation of the effect of YPAR  
18 on attendance rates and reading test scores suggests that the matching only estimator may be  
19 biased due to the residual imbalance on covariates between the matched samples. We therefore  
20 foreground the results of the doubly robust estimator in our discussion below.  
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23           **Difference-in-differences.** Multilevel regression models treating change in education  
24 outcomes from one year to the next as the outcome variables suggested the matching-only  
25 estimates of the effect of YPAR were robust. Using this procedure, the estimated effect of YPAR  
26 on all three outcomes were comparable to those estimated via matching only (Table 4).  
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## 29           **Discussion**

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3 The present study partly corroborates existing evidence for the positive effect of YPAR  
4 on the education outcomes of participating high school students, the majority of whom were low-  
5 income students of color. These findings are unique in that the evidence is quantitative and that  
6 the YPAR program of focus is a district-wide program embedded in the formal curriculum as an  
7 elective course. The findings suggests that participating in an academic-year course wherein  
8 students identify a problem in their communities that they wish to ameliorate, collect data to  
9 better understand the problem, analyze the data, and use the results as the basis for action has the  
10 effect of improving those students' school engagement, while there is less compelling evidence  
11 for its effect on reading achievement. These findings suggest that YPAR may be a promising  
12 intervention for improving the academic engagement of low-income high school students of  
13 color, who traditionally suffer worse outcomes relative to their peers. The conceptual framework  
14 of this study implies that, compared to traditional pedagogies, low-income youth of color may  
15 connect more to their learning through YPAR, which empowers them to use their own language,  
16 experience, and cultural practices as the basis for identifying problems and testing solutions. The  
17 limited evidence for YPAR's effect on academic achievement may suggest that YPAR has no  
18 direct effect on academic achievement, but given the empirical connections between engagement  
19 and achievement (e.g., Wang & Holcombe, 2010), achievement may be a more distal outcome of  
20 YPAR. Interestingly, the results suggest that these effects do not extend to discipline referrals,  
21 which are largely a function of school staff's interpretation of and reaction to students' behavior  
22 and therefore perhaps more distal to students' classroom engagement.

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49 The study findings regarding the attendance and discipline outcomes stood up to a series  
50 of robustness checks, which supports their internal validity. The doubly robust procedure  
51 estimated comparable effects to the matching-only procedure, as did the difference-in-  
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3 differences procedure, with the exception, in both cases, of slightly attenuated effects of YPAR  
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5 on attendance rates. Notably, the estimates of average treatment effects on the treated diverged  
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7 from those of average treatment effects, implying that YPAR may not be as effective for the  
8  
9 types of students who self-select into the program as it is for the types of students who do not  
10  
11 voluntarily enroll.  
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### 14 **Limitations and Implications for Future Research**

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17 The present study does not employ a true randomized experimental design, and while the  
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19 results show that the YPAR and control groups were comparable based on observed  
20  
21 characteristics, causal interpretations should be treated with some caution. In particular, there  
22  
23 may be important differences on unobserved characteristics between YPAR and control-group  
24  
25 students that influenced both selection into the YPAR course and education outcomes like  
26  
27 attendance. This is an inherent weakness of propensity score methods that was addressed in part  
28  
29 by including a broad range of observed characteristics, particularly baseline outcome scores, the  
30  
31 inclusion of which make a strong case for ignoring selection bias (Steiner et al., 2010) and by  
32  
33 strengthening the robustness of the results through a series of sensitivity analyses. Randomized  
34  
35 experiments of the effect of YPAR programs on student outcomes could help overcome issues  
36  
37 related to causation.  
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43 The present study focuses on the outcomes of YPAR for participating students, but  
44  
45 YPAR, and its critical pedagogy predecessors, has always been equally (if not more) interested  
46  
47 in effecting structural change. Students in the YPAR program described in this study contributed  
48  
49 to the revision of a local government policy related to their problem of focus, but policy and  
50  
51 other structural outcomes were not the focus of this study. Future experimental or quasi-  
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53 experimental studies of YPAR could examine its effects on these higher-level outcomes; such  
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3 studies may be expensive as they often require assignment at the classroom or school level, and  
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5 therefore the inclusion of many such units in the study.  
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7  
8 Discarding cases due to failure to match within a caliper or due to lack of common  
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10 support, as was done in the present study, may restrict the generalizability of results. The  
11  
12 students not included in the tests of average treatment effects had lower attendance rates and  
13  
14 reading test scores, higher discipline referral and suspension rates, and were more likely to be  
15  
16 male, Black, and underclassmen. This calls into question the applicability of the study findings to  
17  
18 these types of students, who may be considered the most at-risk for academic failure or dropout.  
19  
20 Future quantitative studies of the effect of YPAR may choose to target these types of students, in  
21  
22 particular, to determine if YPAR is an effective intervention for the most at-risk students.  
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26 Future research could also consider a deeper investigation of the implementation of a  
27  
28 YPAR program. Ozer and colleagues (Ozer, Ritterman, & Wanis, 2010) have documented the  
29  
30 challenges of implementing an inherently critical pedagogy like YPAR into the often  
31  
32 conservative infrastructure of K-12 schools. How critical of their school and teachers are  
33  
34 students allowed to be, for example, when they will ultimately receive a course grade associated  
35  
36 with their YPAR project? These tensions should continue to be explored.  
37  
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39  
40 Even when spaces are created for students to make critiques and take action, there is  
41  
42 some question as to how developed their capacities are for critique and action. There is variation  
43  
44 in youths' understanding of social issues and inclination to act (Diemer, Rapa, Voight, &  
45  
46 McWhirter, 2016; Watts, Diemer, & Voight, 2011). Future research could examine the critical  
47  
48 consciousness of students who participate in YPAR, as this competency necessarily has bearing  
49  
50 on problem identification and the course of action that students pursue. For example, students in  
51  
52 a YPAR program who tend to explain problems like school dropout or poor mental health to  
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3 individual deficiencies—as might be characteristic of low levels of critical consciousness—  
4  
5 would identify very different root causes and action steps compared to students who give  
6  
7 political and social explanations—characteristic of high levels of critical consciousness. Of note,  
8  
9 Hope and Jagers (2014) found that Black adolescents and young adults who view their  
10  
11 institutions as more discriminatory were more likely to be engaged in civic activities like YPAR,  
12  
13 suggesting that students with more nuanced social critiques may be more inclined to participate,  
14  
15 given the choice.  
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### 19 **Practical Implications and Conclusions**

20  
21 The study findings indicate that extending YPAR pedagogies to the general student  
22  
23 population in a school or district would result in higher rates of attendance with weaker evidence  
24  
25 for its effect on academic achievement. In the current accountability era of education policy,  
26  
27 these are important outcomes for educators. YPAR could be implemented in schools as an  
28  
29 elective course, as was the case in the study district, or it could be infused into core content area  
30  
31 courses (see Duncan-Andrade & Morrell, 2008 for an explanation of how YPAR tenets overlap  
32  
33 with standards of the National Council of Teachers of English, the National Council of Teachers  
34  
35 of Mathematics, and the National Council for Teachers of Social Studies; see Kornbluh et al.,  
36  
37 2015 for an explanation of how YPAR tenets overlap with the Common Core State Standards  
38  
39 and Next Generation Science Standards). YPAR aligns closely with two current movements in  
40  
41 K-12 education—problem-based learning (PBL) and culturally relevant pedagogy (CRP). PBL  
42  
43 involves presenting students with a problem and tasking them with extending existing knowledge  
44  
45 and understanding and applying their learning to generating solutions, and there is increasing  
46  
47 evidence that it is more effective than traditional lecture-discussion pedagogies in increasing  
48  
49 student achievement (Parker et al., 2013; Wirkala & Kuhn, 2011). YPAR could be considered a  
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3 special case of PBL, wherein the problem is defined by student themselves and has immediate  
4  
5 relevance to their lives. CRP supports students—students of color, in particular—in maintaining  
6  
7 their language and cultural practices , which are often marginalized in schools in favor of  
8  
9 dominant culture norms (Ladson-Billings, 1995). By privileging students’ voices and leadership  
10  
11 in directing the process, YPAR affords students ample opportunity to validate their experiences  
12  
13 by using their language and cultural practices to conduct research and apply its results. CRP also  
14  
15 emphasizes cultivating students’ understanding and critique of the existing social order (Ladson-  
16  
17 Billings, 1995), which reflects YPAR’s emphasis on discussing, identifying, researching, and  
18  
19 taking action on a social problem. Educators who already subscribe to these movements, PBL  
20  
21 and CRP, could consider incorporating YPAR elements into their work, as did the Tucson  
22  
23 Mexican American Studies program, which is considered a model CRP approach (Paris, 2012).  
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29 Outside of the formal curriculum, schools can consider infusing YPAR into existing  
30  
31 student leadership initiatives. Some schools and district, for example, include student advisory  
32  
33 councils, and these groups might be augmented through the use of YPAR. Finally, as mentioned  
34  
35 above, YPAR has traditionally been implemented in out-of-school programs, and educators can  
36  
37 identify and build relationships with those local organization that employ YPAR pedagogies. By  
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39 partnering with these groups, educators can connect students to their programming.  
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**References**

- Abadie, A., & Imbens, G. W. (2006). Large Sample Properties of Matching Estimators for Average Treatment Effects. *Econometrica*, *74*(1), 235-267.
- Austin, P. C. (2011). An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate Behavioral Research*, *46*, 399-424. doi:10.1080/00273171.2011.568786
- Cabrera, N. L., Milem, J. F., Jaquette, O., & Marx, R. W. (2014). Missing the (Student Achievement) Forest for All the (Political) Trees: Empiricism and the Mexican American Studies Controversy in Tucson. *American Educational Research Journal*, *51*(6), 1084-1118. doi:10.3102/0002831214553705
- Cammarota, J., & Fine, M. (2008). *Revolutionizing education: Youth participatory action research in motion*. New York: Routledge.
- Carbonaro, W. J., & Gamoran, A. (2002). The Production of Achievement Inequality in High School English. *American Educational Research Journal*, *39*(4), 801-827. doi:10.3102/00028312039004801
- Cervone, B., & Cushman, K. (2002). Moving Youth Participation into the Classroom: Students as Allies. *New Directions for Youth Development*, *96*, 83-99.
- Chen, J., & Kaplan, D. (2015). Covariate Balance in Bayesian Propensity Score Approaches for Observational Studies. *Journal of Research on Educational Effectiveness*, *8*, 280-302. doi:10.1080/19345747.2014.911396
- Christens, B. D., & Kirshner, B. (2011). Taking Stock of Youth Organizing: An Interdisciplinary Perspective. *New Directions for Child & Adolescent Development*, *134*(27-41). doi:10.1002/cd.309

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

26

1  
2  
3 Cochran, W. G., & Rubin, D. B. (1973). Controlling Bias in Observational Studies: A Review.

4  
5  
6  
7  
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10  
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52  
53  
54  
55  
56  
57  
58  
59  
60  
*Sankhya: The Indian Journal of Statistics*, 35(4), 417-446.

Cooper, K. S. (2013). Eliciting Engagement in the High School Classroom: A Mixed-Methods Examination of Teaching Practices. *American Educational Research Journal*, 51(2), 363-402. doi:10.3102/0002831213507973

Diemer, M. A., Rapa, L., Voight, A., & McWhirter, E. (2016). Critical Consciousness: A Developmental Approach to Addressing Marginalization and Oppression. *Child Development Perspectives*, 10(4), 216-221.

Diemer, M. A., Voight, A., & Mark, C. (2011). Youth development in traditional and transformational service learning programs. In T. Stewart & N. Webster (Eds.), *Problematizing service-learning: Critical reflections for development and action* (pp. 155-174). Charlotte, NC: Information Age.

Dolan, T., Christens, B. D., & Lin, C. (2015). Combining Youth Organizing and Youth Participatory Action Research to Strengthen Student Voice in Education Reform. *National Society for the Study of Education*, 114(1), 153-170.

Duncan-Andrade, J. M., & Morrell, E. (2008). *The Art of Critical Pedagogy: Possibilities for Moving from Theory to Practice in Urban Schools*. New York: Peter Lang Publishing.

Fine, M. (2009). Postcards from metro American: Reflections on youth participatory action research for urban justice. *Urban Review*, 41, 1-6. doi:0.1007/s11256-008-0099-5

Foster-Fishman, P. G., Law, K. M., Lichty, L. F., & Aoun, C. (2010). Youth ReACT for Social Change: A Method for Youth Participatory Action Research. *American Journal of Community Psychology*, 46, 67-83. doi:10.1007/s10464-010-9316-y

Freire, P. (1974). *Education for Critical Consciousness*. New York: Continuum.

1  
2  
3 Ginwright, S., & James, T. (2002). From assets to agents of change: Social justice, organizing,  
4 and youth development. *New Directions for Youth Development*, 96, 27-46.

7 Ginwright, S., Noguera, P., & Cammarota, J. (2006). *Beyond Resistance! Youth Activism and*  
8 *Community Change: New Democratic Possibilities for Practice and Policy for America's*  
9 *Youth*. New York: Routledge.

14 Giraldo-Garcia, R., & Galletta, A. (2015). "What Happened to our Sense of Justice?" Tracing  
15 Agency and Critical Engagement in a Youth Participatory Action Research Project.  
16 *Journal of Urban Learning, Teaching and Research*, 11, 91-98.

21 Guo, S., & Fraser, M. W. (2015). *Propensity Score Analysis: Statistical Methods and*  
22 *Applications* (2nd ed.). Thousand Oaks, CA: Sage.

26 Harder, V., Stuart, E., & Anthony, J. (2010). Propensity Score Techniques and the Assessment of  
27 Measured Covariate Balance to Test Causal Associations in Psychological Research.  
28 *Psychological Methods*, 15(3), 234-249. doi:10.1037/a0019623

33 Hart, D., & Atkins, R. (2002). Civic Competence in Urban Youth. *Applied Developmental*  
34 *Science*, 6(4), 227-236.

37 Holden, D. J., Crankshaw, E., Nimsch, C., Hinnant, L. W., & Hund, L. (2004). Quantifying the  
38 Impact of Participation in Local Tobacco Control Groups on the Psychological  
39 Empowerment of Involved Youth. *Health Education and Behavior*, 31(5), 615-628.  
40 doi:10.1177/1090198104268678

46 Hope, E. C., & Jagers, R. J. (2014). The Role of Sociopolitical Attitudes and Civic Education in  
47 the Civic Engagement of Black Youth. *Journal of Research on Adolescence*, 24(3), 460-  
48 470. doi:10.1111/jora.12117

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

28

- 1  
2  
3 Irizarry, J. G. (2009). Reinvigorating Multicultural Education through Youth Participatory  
4  
5 Action Research. *Multicultural Perspectives*, 11(4), 194-199.  
6  
7 doi:10.1080/15210960903445905  
8  
9  
10 Johnston-Goodstar, K. (2013). Indigenous Youth Participatory Action Research: Re-Visioning  
11  
12 Social Justice for Social Work with Indigenous Youths. *Social Work*, 58(4), 314-320.  
13  
14 doi:10.1093/sw/swt036  
15  
16  
17 Kornbluh, M., Ozer, E. J., Allen, C. D., & Kirshner, B. (2015). Youth Participatory Action  
18  
19 Research as an Approach to Sociopolitical Development and the New Academic  
20  
21 Standards: Considerations for Educators. *Urban Review*, 47(5), 868-892.  
22  
23 doi:10.1007/s11256-015-0337-6  
24  
25  
26 Ladson-Billings, G. (1995). Toward a Theory of Culturally Relevant Pedagogy. *American*  
27  
28 *Educational Research Journal*, 32(3), 465-491.  
29  
30  
31 Martin, A. J., & Dowson, M. (2009). Interpersonal Relationships, Motivation, Engagement, and  
32  
33 Achievement: Yields for Theory, Current Issues, and Educational Practice. *Review of*  
34  
35 *Educational Research*, 79(1), 327-365. doi:10.3102/0034654308325583  
36  
37  
38 McIntyre, A. (2000). Constructing Meaning about Violence, School, and Community:  
39  
40 Participatory Action Research with Urban Youth. *Urban Review*, 32(2), 123-154.  
41  
42  
43 Morsillo, J., & Prilleltensky, I. (2007). Social Action with Youth: Interventions, Evaluation, and  
44  
45 Psychopolitical validity. *Journal of Community Psychology*, 35(6), 1-16.  
46  
47  
48 Northwest Evaluation Association. (2015). *2015 NWEA Measures of Academic Progress*  
49  
50 *Normative Data*. Portland, OR: Author.  
51  
52 Ozer, E. J., Cantor, J. P., Cruz, G. W., Fox, B., Hubbard, E., & Moret, L. (2008). The Diffusion  
53  
54 of Youth-Led Participatory Research in Urban Schools: The Role of the Prevention  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Support System in Implementation and Sustainability. *American Journal of Community*  
4  
5 *Psychology*, 41(3-4), 278-289. doi:10.1007/s10464-008-9173-0  
6  
7  
8 Ozer, E. J., & Douglas, L. (2013). The Impact of Participatory Research on Urban Teens: An  
9  
10 Experimental Evaluation. *American Journal of Community Psychology*, 51(1-2), 66-75.  
11  
12 doi:10.1007/s10464-012-9546-2  
13  
14  
15 Ozer, E. J., Ritterman, M. L., & Wanis, M. G. (2010). Pariticipatory Action Research (PAR) in  
16  
17 Middle School: Opportunities, Constraints, and Key Processes. *American Journal of*  
18  
19 *Community Psychology*, 46, 152-166. doi:10.1007/s10464-010-9335-8  
20  
21  
22 Ozer, E. J., & Wright, D. (2012). Beyond School Spirit: The Effects of Youth-Led Participatory  
23  
24 Action Research in Two Urban High Schools. *Journal of Research on Adolescence*,  
25  
26 22(2), 267-283. doi:10.1111/j.1532-7795.2012.00780.x  
27  
28  
29 Paris, D. (2012). Culturally Sustaining Pedagogy: A Needed Change in Stance, Terminology,  
30  
31 and Practice. *Educational Researcher*, 41(3), 93-97. doi:10.3102/0013189X12441244  
32  
33  
34 Parker, W. C., Lo, J., Yeo, A. J., Valencia, S. W., Nguyen, D., Abbott, R. D., . . . Vye, N. J.  
35  
36 (2013). Beyond Breadth-Speed-Test: Toward Deeper Knowing and Engagement in an  
37  
38 Advanced Placement Course. *American Educational Research Journal*, 50(6), 1424-  
39  
40 1459. doi:10.3102/0002831213504237  
41  
42  
43 Romero, A., Arce, S., & Cammarota, J. (2009). A Barrio Pedagogy: Identity, Intellectualism,  
44  
45 Activism, and Academic Achievement through the Evolution of Critically Compassionate  
46  
47 Intellectualism. *Race Ethnicity and Education*, 12(2), 217-233.  
48  
49 doi:10.1080/13613320902995483  
50  
51  
52 Rosenbaum, P. R., & Rubin, D. B. (1983). The Central Role of the Propensity Score in  
53  
54 Observational Studies for Causal Effects. *Biometrika*, 70, 41-55.  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Rosenbaum, P. R., & Rubin, D. B. (1985). Constructing a Control Group Using Multivariate  
4  
5 Matched Sampling Methods that Incorporate the Propensity Score. *American Statistician*,  
6  
7 39(1), 33-38.  
8  
9
- 10 Schafer, J. L., & Kang, J. (2008). Average Causal Effects from Nonrandomized Studies: A  
11  
12 Practical Guide and Simulated Example. *Psychological Methods*, 13(4), 279-313.  
13  
14
- 15 Schensul, J. J., & Berg, M. (2004). Youth Participatory Action Research: A Transformative  
16  
17 Approach to Service-Learning. *Michigan Journal of Community Service Learning*, 10(3),  
18  
19 76-88.  
20
- 21 Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W. H., & Shavelson, R. J. (2007). *Estimating*  
22  
23 *Causal Effects Using Experimental and Observational Designs*. Washington, DC:  
24  
25 American Educational Research Association.  
26  
27
- 28 Shah, S., & Mediratta, K. (2008). Negotiating Reform: Young People's Leadership in the  
29  
30 Educational Arena. *New Directions for Youth Development*, 2008(43-59).  
31  
32 doi:10.1002/yd.246  
33  
34
- 35 Smith, L., Beck, K., Bernstein, E., & Dashtguard, P. (2014). Youth Participatory Action  
36  
37 Research and School Counseling Practice: A School-Wide Framework for Student Well-  
38  
39 Being. *Journal of School Counseling*, 12(21), 1-31.  
40  
41
- 42 Snyder, T. D., Brey, C., & Dillow, S. A. (2016). *Digest of Education Statistics 2014*.  
43  
44 Washington, DC: National Center for Education Statistics, Institute of Education  
45  
46 Sciences, U.S. Department of Education.  
47  
48
- 49 Speer, P. W. (2008). Social Power and Forms of Change: Implications for Psychopolitical  
50  
51 Validity. *Journal of Community Psychology*, 36, 199-213.  
52  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Steiner, P. M., Cook, T. D., Shadish, W. R., & Clark, M. H. (2010). The Importance of Covariate  
4 Selection in Controlling for Selection Bias in Observational Studies. *Psychological*  
5 *Methods, 15*(3), 250-267.  
6  
7  
8 Steiner, P. M., & Kim, Y. (In press). The Mechanics of Omitted Variable Bias: Bias  
9 Amplification and Cancellation of Offsetting Biases. *Journal of Causal Inference*.  
10  
11  
12 Taines, C. (2012). Intervening in Alienation: The Outcomes for Urban Youth of Participating in  
13 School Activism. *American Educational Research Journal, 49*(1), 53-86.  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
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46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60
- Voight, A. (2015). Student Voice for School-Climate Improvement: A Case Study of an Urban Middle School. *Journal of Community & Applied Social Psychology, 25*, 310-326.  
doi:10.1002/casp.2216
- Voight, A., & Torney-Purta, J. (2013). A Typology of Youth Civic Engagement in Urban Middle Schools. *Applied Developmental Science, 17*(4), 198-212.  
doi:10.1080/10888691.2013.836041
- 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. doi: doi:10.3102/0002831209361209
- Watts, R. J., Diemer, M. A., & Voight, A. (2011). Critical consciousness: current status and future directions. *New Directions for Child & Adolescent Development, 2011*(134), 43-57. doi:10.1002/cd.310
- Watts, R. J., Griffith, D. M., & Abdul-Adil, J. (1999). Sociopolitical Development as an Antidote for Oppression--Theory and Action. *American Journal of Community Psychology, 27*(2), 255-271.



1  
2  
3 What Works Clearinghouse. (2014). *Procedures and Standards Handbook* (3.0 ed.).

4  
5 Washington, DC: U.S. Department of Education, Institute for Education Sciences,

6  
7 National Center for Education Evaluation and Regional Assistance.

8  
9  
10 Wirkala, C., & Kuhn, D. (2011). Problem-Based Learning in K-12 Education: Is it Effective and

11  
12 How Does it Achieve its Effects? *American Educational Research Journal*, 48(5), 1157-

13  
14  
15 1186. doi:10.3102/0002831211419491

16  
17  
18  
19  
20  
21  
22  
23  
24  
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For Peer Review Only

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

**Table 1.** Descriptive statistics, by YPAR course participation, pre-matching

	YPAR (n = 153)		Control (n = 6,187)		Combined (n = 6,340)	
	M	SD	M	SD	M	SD
Attendance rate	95.75	4.26	94.91	6.80	94.93	6.75
Discipline referral rate	0.14	0.44	0.40	1.43	0.39	1.41
Reading test score <sup>a</sup>	229.24	9.25	217.34	15.25	218.69	15.08
Attendance rate, prior year	95.92	4.72	94.91	7.41	94.94	7.36
Discipline referral rate, prior year	0.10	0.32	0.58	1.94	0.57	1.91
Reading test score, prior year <sup>a</sup>	226.09	10.19	216.67	15.95	217.11	14.72
Days enrolled in district	175.15	19.69	170.08	31.43	170.20	31.21
Days enrolled in district, prior year	177.95	12.86	171.97	27.84	172.11	27.59
Suspension rate, prior year	0.02	0.11	0.10	0.40	0.10	0.40
	%		%		%	
Free or reduced-price lunch	76.47		73.44		73.52	
Male	26.47		53.22		52.59	
Asian or pacific islander	4.71		3.30		3.33	
Black	5.29		8.73		8.61	
Latino/a	54.71		52.63		52.69	
White	32.94		31.39		31.44	
Grade 9	20.26		21.84		21.80	
Grade 10	14.38		25.05		24.79	
Grade 11	32.03		26.56		26.69	
Grade 12	33.33		26.56		26.72	

<sup>a</sup>The sample size for reading test scores was 1,305 (34 YPAR, 1,271 control)

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

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**Table 2.** Covariate balance between YPAR and control groups for analyses of attendance and discipline referral rates, pre-matching and post-matching

Covariate	Pre-Matching		Post-Matching		%bias	V(T)/ V(C)
	YPAR (n = 153)	Control (n = 6,187)	YPAR (n = 149)	Control (n = 3,837)		
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>		
Attendance rate, prior year	95.92	94.91	96.04	96.23	-4.01	0.84
Discipline referral rate, prior year	0.10	0.58	0.10	0.13	-9.09	0.67
Days enrolled in district	175.15	170.08	175.02	175.01	0.03	0.79
Days enrolled in district, prior year	177.95	171.97	177.90	176.26	10.01	0.47
Suspension rate, prior year	0.02	0.10	0.02	0.02	-3.58	0.51
	%	%	%	%		
Free or reduced-price lunch	76.47	73.44	77.85	75.16	6.34	
Male	26.80	53.22	25.50	47.67	-47.21	
Asian or pacific islander	4.58	3.30	4.03	3.78	1.28	
Black	3.92	8.73	3.36	4.53	-6.05	
Latino/a	55.56	5.26	57.05	58.20	-2.32	
Grade 9	20.26	21.84	20.81	23.48	-6.44	
Grade 10	14.38	25.05	14.77	16.99	-6.09	
Grade 11	32.07	26.56	31.54	29.16	5.17	

Notes: “%bias” is the standardized percent bias between the post-matching samples; “V(T)/V(C)” is the variance ratio between the post-matching samples

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

**Table 3.** Covariate balance between YPAR and control groups for analysis of reading test scores, pre-matching and post-matching

Covariate	Pre-Matching		Post-Matching		%bias	V(T)/ V(C)
	YPAR ( <i>n</i> = 34)	Control ( <i>n</i> = 1,271)	YPAR ( <i>n</i> = 34)	Control ( <i>n</i> = 359)		
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>		
Reading test score, prior year	226.09	216.87	224.96	223.12	15.65	0.74
Attendance rate, prior year	96.11	95.85	96.41	96.90	-11.57	1.91
Discipline referral rate, prior year	0.16	0.90	0.09	0.15	-13.79	0.52
Days enrolled in district	180.00	178.56	180.00	180.00	0.00	1.00
Days enrolled in district, prior year	179.94	176.55	179.92	179.74	12.28	0.04
Suspension rate, prior year	0.03	0.09	0.04	0.02	15.32	1.51
	%	%	%	%		
Free or reduced-price lunch	70.59	80.25	69.23	80.50	-25.89	
Male	14.71	51.61	11.54	20.33	-24.00	
Asian or pacific islander	2.94	2.83	3.85	3.34	2.68	
Black	2.94	6.61	0.00	0.84	-12.96	
Latino/a	58.82	57.91	69.23	67.69	3.29	
Grade 9	67.65	67.19	57.69	54.60	6.18	
Grade 10	32.35	32.81	42.31	45.40	-6.18	

Notes: “%bias” is the standardized percent bias between the post-matching samples; “V(T)/V(C)” is the variance ratio between the post-matching samples

## YOUTH PARTICIPATORY ACTION RESEARCH IN THE CURRICULUM

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**Table 4.** Estimated effects of YPAR course participation on student education outcomes, by estimation procedure

	Average treatment effect				Average treatment effect on the treated			
	<i>n</i>	Coef.	<i>SE</i>	Effect size ( <i>g</i> )	<i>n</i>	Coef.	<i>SE</i>	Effect size ( <i>g</i> )
Attendance rate	3,986	1.18**	0.44	0.18	276	0.40	0.60	0.06
Discipline referral rate	3,986	-0.06	0.06	-0.04	276	0.01	0.02	0.01
Reading test scores	385	3.29 <sup>+</sup>	1.69	0.22	52	2.12	3.09	0.14
	Doubly robust average treatment effect				Difference-in-difference			
	<i>N</i>	Coef.	<i>SE</i>	Effect size ( <i>g</i> )	<i>n</i>	Coef.	<i>SE</i>	Effect size ( <i>g</i> )
Attendance rate	3,986	0.79*	0.35	0.12	6,339	1.02*	0.47	0.15
Discipline referral rate	3,986	-0.06	0.05	-0.04	6,339	-0.05	0.11	-0.04
Reading test scores	385	0.22	1.08	0.01	1,305	4.09*	1.65	0.27

<sup>+</sup>p < .10    \*p < .05    \*\*p < .01.

Note: In the estimation of average treatment effects on attendance and discipline referral rates, 2,350 control group and 4 treatment group cases were dropped due to failure to match within the specified caliper; in the estimation of average treatment effects on reading test scores, 912 control group cases and 8 treatment group cases were dropped.