

Deeper Learning and Civic Engagement and Workforce Outcomes



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Acknowledgments

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REPORT 6 | FINDINGS FROM THE STUDY OF DEEPER LEARNING
Opportunities and Outcomes

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Abstract

For the *Study of Deeper Learning: Opportunities and Outcomes*, funded by the William and Flora Hewlett Foundation, researchers at the American Institutes for Research (AIR) followed four cohorts of high school students into young adulthood. The study aimed to determine whether students attending high schools with a mature and at least moderately well-implemented approach to promoting *deeper learning* actually experienced greater deeper learning opportunities and achieved better short-term and long-term outcomes than they would have had they not attended these schools. In this report, we examine longer-term impacts on students' workforce and civic engagement outcomes.

Analyses included a subset of participants who (1) attended 11 matched pairs of deeper learning network schools and comparison schools located in California and New York City, (2) consented to participate in the original study when they were in Grade 11 or Grade 12 in 2013, and (3) responded to a follow-up survey administered in 2019. In general, we found that attending a deeper learning network school did not affect students' civic engagement or workforce outcomes in young adulthood.

1. *Civic engagement*: We did not observe a positive impact of attending a deeper learning network school on perceptions of the importance of community service or political participation; the likelihood of donating or raising money for charity; or the likelihood of engaging in several political activities (e.g., voting, signing a petition, attending a protest or demonstration). Network school students were significantly *more* likely to have volunteered in the past year, however, and they were *less* likely to report boycotting a product or company or expressing negative opinions about a specific business or company online than students who attended matched non-network schools.
2. *Workforce*: We did not observe significant impacts of attending a deeper learning network school on earned income, unemployment, alignment of jobs with career goals, and job satisfaction. Students who attended network schools, however, were significantly less likely than were students who attended non-network schools to be employed when they took the survey. Follow-up interviews with a subset of survey respondents revealed that most interviewees were in a state of transition when they took the survey, still establishing their careers and completing postsecondary education. These interview responses suggest that the pool of respondents may be too young still to detect the longer-term impact of attending a deeper learning network high school on workforce outcomes.

Additional analyses explored relationships between self-reports of opportunities for deeper learning and deeper learning competencies in high school, civic engagement outcomes, and workforce outcomes. Results of these analyses revealed that, regardless of the type of school that students attended, opportunities for deeper learning in high school were significantly, positively related to several civic engagement outcomes. Opportunities for interdisciplinary learning and connecting course material to real-world problems had the most consistent positive relationships with civic engagement outcomes. We observed few significant relationships between opportunities for deeper learning in high school and workforce outcomes, though students who reported greater opportunities for complex problem solving, creative thinking, collaboration, and real-world connections were significantly more likely to report having a job that aligned with their career goals. We observed few consistent patterns of relationships between students' deeper learning competencies during high school and longer-term outcomes.

Our study findings do not provide strong evidence of the longer-term impact of attending a deeper learning network school on civic engagement and workforce outcomes. Other life experiences since high school (e.g., college experiences, local economies) may overshadow more distal high school experiences. Positive correlations between high school experiences of opportunities for deeper learning and civic engagement outcomes, however, suggest longer-term benefits of these experiences regardless of the type of school students attend.

Introduction

Students entering the workforce today face very different expectations than students faced in previous generations. New graduates are expected to enter the job market able to engage in diverse communities and a global economy, solve complex and changing problems, and navigate new technologies. In addition, with increasingly widespread use of social media and a divided political landscape, young adults are expected to become wise consumers of information, become active and engaged citizens and advocates for their beliefs, and participate in new forms of political discourse. The global pandemic and political and social justice issues of 2020 further brought to light the challenges the next generation must face: substantial economic disparities, job and food insecurity, and the fragility of democracy. More than ever, the skills and abilities commonly associated with “deeper learning” have been highlighted as critical for students’ success beyond high school.

What Is Deeper Learning?

The concept of “deeper learning” has been characterized as a combination of (1) a deeper understanding of core academic content, (2) the ability to apply that understanding to novel problems and situations, and (3) the development of a range of competencies, including interpersonal skills and academic mindsets such as self-management. The William and Flora Hewlett Foundation, which began supporting efforts to implement, expand, and study deeper learning in 2010, defined deeper learning as the development of six interconnected competencies that many argue are prerequisites for success in college, career, and civic life (Chow, 2010; Trilling, 2010; William and Flora Hewlett Foundation, 2013):

- Mastery of core academic content
- Critical thinking and complex problem-solving skills
- Effective communication skills
- Collaboration skills
- An understanding of how to learn
- Academic mindsets

Although many schools nationwide are increasing their focus on developing students’ critical thinking skills and academic mindsets, strategies, and structures to develop all six competencies at the school level continues to be a work in progress even for schools highly committed to this goal (Mehta & Fine, 2019). In 2011–12, the Hewlett Foundation selected 10 school networks to participate in what would become the Deeper Learning Community of Practice. These 10 networks had a well-established history of promoting deeper learning schoolwide, and all shared an emphasis on providing educational opportunities for minority students and students from low-income families to prepare them for college and careers. Although the Deeper Learning Community of Practice no longer convenes on an official basis, many networks continue to have informal ties: As of 2020, these networks support more than 550 high schools, either schoolwide or through programs offered within comprehensive high schools.

In 2012, the National Research Council (NRC) embarked on an effort to define the set of skills associated with deeper learning and identify the research foundation related to deeper learning. In the resulting report, *Education for Life and Work*, the NRC grouped deeper learning competencies into three domains: the cognitive domain, the interpersonal domain, and the intrapersonal domain. These domains neatly subsume the six dimensions identified by the Hewlett Foundation, providing a compatible framework for the purposes of both research and practice. In addition, although the report highlighted correlational evidence of the positive relationships between these deeper learning competencies and educational and workforce outcomes, one of the major take-aways from this report was the need for researchers to evaluate more rigorously the effects of deeper learning opportunities and competencies over time (NRC, 2012).

The Study of Deeper Learning

The *Study of Deeper Learning: Opportunities and Outcomes*, funded by the William and Flora Hewlett Foundation and initiated in 2011, set out to determine whether students who attended high schools with a mature and at least moderately well-implemented approach to promoting deeper learning experienced greater deeper learning opportunities and improved outcomes than would likely have been the case had they not attended these schools. The study aimed to provide evidence about whether the concept of deeper learning—applied across a variety of approaches and a diversity of students—had potential merit as a means for educational improvement. To do so, the study team compared the educational opportunities and outcomes of students attending high schools associated with the Deeper Learning Community of Practice networks (“network schools”) with those of students attending matched comparison schools (“non-network schools”).

Prior research reports from the *Study of Deeper Learning* (see Box 1) found positive impacts of attending a deeper learning network school on students’ opportunities for deeper learning, specific interpersonal and intrapersonal skills, high school graduation, and enrollment in 4-year colleges (Bitter et al., 2014; Rickles et al., 2019; Zeiser et al., 2014). These results provided evidence of the positive impact of attending a deeper learning network school on high school experiences and student outcomes during and immediately following high school. At the time these reports were released, however, insufficient time had elapsed to determine whether these positive, short-term effects translated into positive, longer-term impacts on students’ adult lives.

Box 1. Previous Findings From the Study of Deeper Learning

To date, the *Study of Deeper Learning* research team has released five reports summarizing findings about the learning experiences and school structures associated with deeper learning network schools and the outcomes (short-term test score, high school graduation, and college enrollment outcomes) associated with attending a network school. This box provides a brief summary of the main findings in each report.¹

Report 1. The Shape of Deeper Learning: Strategies, Structures, and Cultures in Deeper Learning Network High Schools (2014)

Researchers compared and contrasted the strategies, structures, and cultures between deeper learning network schools and matched nonnetwork schools. Overall, network schools took a range of approaches to developing the deeper learning competencies:

- Most network schools integrated project-based learning to develop mastery of core academic content knowledge and critical thinking skills, though the nature of projects differed across schools in nature, timeline, and scope.
- Interpersonal skill development was a goal at most network schools and was addressed through instruction, assessment, and internship opportunities.
- Network schools used a variety of structures and strategies to encourage the development of academic mindsets and learning-to-learn skills, including internships, projects, study groups, and student participation in decision making.
- Most network schools had established structures and cultures to support the implementation of instructional strategies aligned with deeper learning, including advisory classes, alternative scheduling, and personalized learning environments.

Report 2. Providing Opportunities for Deeper Learning (2014)

Researchers compared student reports of opportunities for deeper learning in core academic subjects between students who attended deeper learning network schools and similar students who attended matched non-network schools.

- On average, students who attended the network schools in the study reported greater opportunities to engage in deeper learning.
- The effects of attending a network school on deeper learning opportunities were similarly positive for subgroups of students including initially high and low achievers and students who did or did not qualify for free or reduced-price lunch.
- The opportunities for deeper learning experienced by individual students, regardless of whether they attended a network school, were associated with those students' interpersonal and intrapersonal competency outcomes.

Report 3. Evidence of Deeper Learning Outcomes (2014)

Researchers compared the high school and college outcomes of students who attended deeper learning network schools and similar students who attended matched non-network schools.

- On average, students who attended network schools achieved higher scores on the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA)-Based Test for Schools—a test that assesses core content knowledge and complex problem-solving skills.
- Students who attended participating network schools reported higher levels of collaboration skills, academic engagement, motivation to learn, and self-efficacy.
- Students who attended participating network schools were more likely to graduate from high school on time (within 4 years of entering Grade 9).

¹ See the Study of Deeper Learning project [website](#) for full reports and report summaries.

- Students who attended participating network schools and non-network schools had similar rates of enrollment in postsecondary institutions overall. Students who attended network schools, however, were more likely to enroll in 4-year institutions.

Report 4. Deeper Learning and Graduation: Is There a Relationship? (2016)

Researchers examined the relationship between student reports of opportunities for deeper learning in core academic courses; intrapersonal, intrapersonal, and cognitive competencies; and high school graduation for students attending deeper learning network schools and matched non-network schools.

- Relationships between competency measures and high school graduation differed between students in California and students in New York City, perhaps due to differences in state policies regarding high school graduation requirements. For example, cognitive competencies were significantly related to high school graduation for students in New York City (where students must pass a series of Regents exams to graduate) but not for students in California.
- In New York City, students with a reading or mathematics score 1 standard deviation above average had graduation rates approximately 13 percentage points higher than students with average scores. Assessment scores were not significantly related to high school graduation in California.
- Four of the nine individual deeper learning opportunity measures (opportunities for collaboration, learning how to learn, receiving feedback, and real-world connections) were positively associated with high school graduation in California, but none of the measures were significantly associated with graduation in New York City.
- Six of the eight competency measures (collaboration skills, academic engagement, motivation to learn, self-efficacy, locus of control, and perseverance) were significantly related to graduation in California, while only self-efficacy and perseverance were significantly related to graduation in New York City.

Report 5. School Features and Student Opportunities for Deeper Learning: What Makes a Difference? (2016)

Researchers examined relationships between school features (e.g., teachers' beliefs about teaching, teacher self-efficacy, instructional leadership) and students' opportunities for deeper learning within network schools.

- Network schools varied regarding teachers' beliefs about teaching, teachers' professional culture, and instructional leadership and coherence, as reported by teachers on surveys.
- Teachers' reports of their own student-centered beliefs about teaching (i.e., giving students agency in their own learning) and their self-efficacy for teaching (i.e., believing in their capabilities as teachers) were the features most strongly and consistently related to greater student opportunities to engage in deeper learning.
- Through interviews, school administrators, teachers, and network staff reported three school-level conditions that facilitated their ability to implement and sustain their approach to deeper learning: teacher collaboration and professional community, school leadership, and support from the network.
- The most commonly cited barriers to implementation and sustainability were staff burnout and turnover, lack of funding, and state and district policies related to teacher hiring practices and student assessments.
- In general, although teachers' own beliefs seemed to have the most consistent and strongest associations with the opportunities students reported experiencing in the classroom, the interview data suggested that other school features and external policies can influence teachers' beliefs about teaching and about their own teaching skills.

Five years after releasing initial study findings, the *Study of Deeper Learning* research team embarked on a follow-up study to examine the longer-term impacts of attending a deeper learning network school on postsecondary educational attainment, civic engagement, and workforce outcomes. A forthcoming report will examine the impact of attending a deeper learning network school on college enrollment and degree completion up to 6 years after study participants' expected high school graduation. In this report, we examine longer-term impacts of attending deeper learning network schools on *civic engagement* and *workforce* outcomes. We also explore relationships between students' opportunities for deeper learning in high school, interpersonal and intrapersonal skills (as measured by a survey administered when students were in high school), and civic engagement and workforce outcomes in young adulthood. We focused on three research questions:

1. What is the impact of attending a deeper learning network high school on students' civic engagement outcomes in young adulthood?
2. What is the impact of attending a deeper learning network high school on students' workforce outcomes in young adulthood?
3. How are students' opportunities for deeper learning and deeper learning competency outcomes in high school related to their civic engagement and workforce outcomes in young adulthood?

To address these questions, we followed up with the original participants from the *Study of Deeper Learning* to administer a survey asking about their workforce experiences and civic engagement. At the time of survey administration (July 2019–January 2020), study participants were between 23 and 25 years old. To obtain a more complete picture of study participants' experiences since high school, we also conducted interviews with a subset of 20 survey respondents approximately a year after survey administration.

This report is presented in five sections. First, we summarize the theory and research base regarding how deeper learning may influence civic engagement and workforce outcomes. Second, we describe the study design, data sources, and measures that are used in this study. We then provide a description of the young adults included in our analyses for this report, including their employment and education status and living situation. We present in the fourth section the results of analyses that address this report's three research questions. Finally, we synthesize our study findings and provide insights on implications for research, practice, and education policy.

Deeper Learning and Longer-Term Outcomes

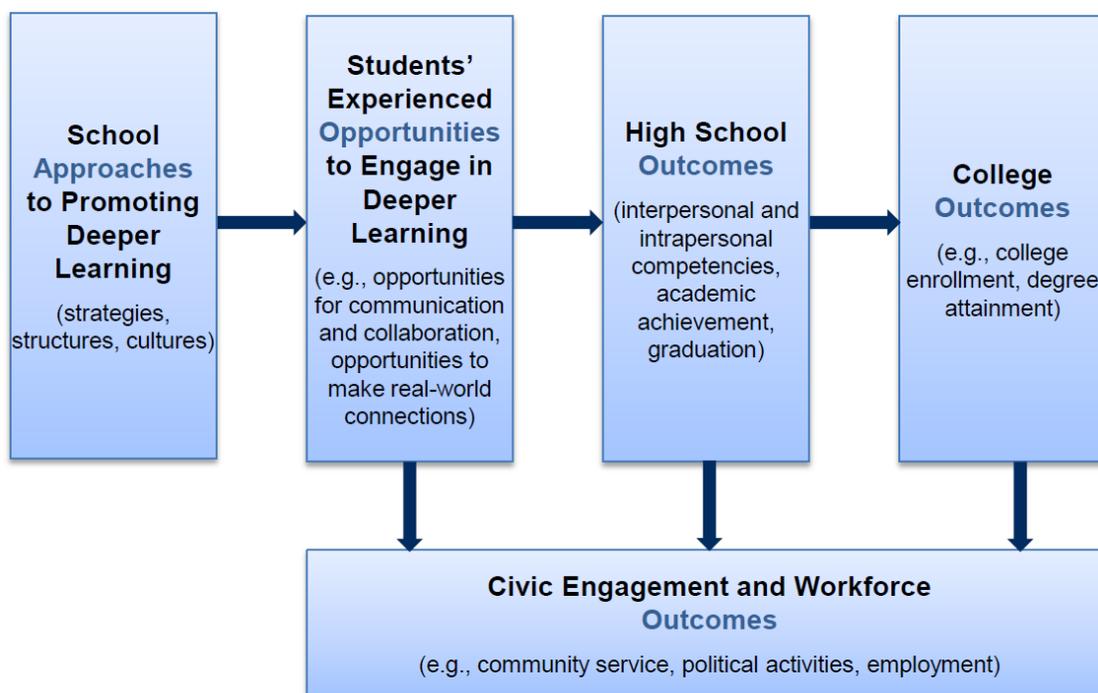
What Does Theory Suggest?

The abbreviated theory of action for the *Study of Deeper Learning* presented in Exhibit 1 illustrates the key hypothesized relationships among school approaches to promoting deeper learning, students' experienced opportunities to engage in deeper learning, and short-term and longer-term outcomes. This theory of action, derived from the literature on deeper learning approaches and factors that may influence employment and civic participation (see below), hypothesizes that schools with an explicit, schoolwide focus on deeper learning will institute structures, cultures, and instructional strategies that differ from those typically found in traditional comprehensive high schools. These school approaches to deeper learning would lead to increases in students' experienced opportunities to engage in deeper learning (e.g., opportunities for collaboration, to connect learning to real-world problems, to communicate their learning and receive feedback from teachers, peers, or other adults in the community) during the school day. These opportunities in theory will result in improved high school outcomes, including the development of interpersonal and intrapersonal skills, academic achievement,

and high school graduation, which in turn are likely to positively influence college enrollment and degree attainment outcomes.

Theory also suggests that opportunities for deeper learning in high school may directly and indirectly influence students' workforce and civic engagement outcomes in adulthood. For example, internship opportunities in high school may support the development of career goals and job-finding skills, while opportunities to connect course material to real-world issues may introduce students to community service opportunities and civic responsibilities during high school. Interpersonal, intrapersonal, and cognitive competencies are hypothesized to be positively related to workforce and civic engagement outcomes. For example, collaboration and communication skills, complex problem-solving skills, and self-management are likely beneficial to workplace success and community involvement. Finally, opportunities for deeper learning in high school may *indirectly* influence workforce and civic engagement outcomes through their positive influence on high school graduation and college success. In other words, if opportunities for deeper learning better prepare students to enroll and succeed in college, these positive impacts likely will translate to higher rates of employment, higher wages over time, and greater participation in civic life. Box 2 provides several examples of approaches used by deeper learning network schools to positively influence workforce and civic engagement outcomes.

Exhibit 1. Abbreviated Theory of Action



Box 2. How Do Network Schools Prepare Students for Work and Civic Engagement?

Preparing students to be engaged citizens and successful in future careers are core goals across all of the deeper learning networks. However, the networks' approaches to fostering these outcomes vary. Some networks emphasize preparing students for the workforce through internships and connections to local businesses. Others provide opportunities for students to engage in authentic projects to support their local community or social causes. And some networks focus on developing students' academic mindsets, work habits, or character overall (e.g., perseverance, collaboration, empathy), so they can be successful as adults, employees, and citizens. When the *Study of Deeper Learning* research team visited network schools in 2013, teachers and students provided rich and detailed examples of curricular and instructional strategies and practices that demonstrate the wide range of approaches network schools use to prepare students for civic engagement and workplace success (Huberman et al., 2014). Examples include the following:

- At one school, students completed a project focused on water safety after the state budget reduced funding for water testing. Students worked with outside organizations to learn how to do basic water testing, identify relevant locations in their community to do water testing, and conduct testing for bacteria. Students generated a variety of “nonfiction products,” such as newspaper articles published in local newspapers, articles published on the collaborators' websites, and documentary videos.
- At another network school, students completed a semester-long project focused on sustainability. Students visited local companies that had taken steps to become more environmentally conscious or sustainable and then chose a sustainability issue that affected their school or city. They gathered data (e.g., on electrical use at the school) and examined the topics through multiple lenses, including an ecological perspective, an economic perspective, and an equity perspective. They made a final presentation to students, parents, and community members.
- A school focused on health sciences required all students in Grades 11 and 12 to participate in internships and then incorporate their internship work into a senior exhibition, which was required for graduation. Examples included internships with local hospitals and an internship with a local radio/television station that focused on how to construct public health announcements and report health-related stories.
- The principal of one network school shared that their learning goals included a focus on developing leadership skills, including communication skills. Students prepared exhibitions and completed portfolio tasks to learn how to communicate effectively and “powerfully.” The principal described that the school's students “have unbelievable courage and presentation skills as a result of just having the opportunity so often to present in front of people.”
- A core goal at another school with a substantial population of English learners was for students to develop self-advocacy skills. The school focused on helping students learn to ask for help when needed, develop language skills to communicate effectively, and build confidence to assert themselves appropriately. A key strategy for building these advocacy skills was to include students in decision making, at both the classroom and school levels.

What Does Research Show?

In the NRC report *Education for Life and Work*, leading researchers nationwide addressed the growing interest in developing “21st century skills” or deeper learning competencies to positively influence a range of student outcomes, including school success, workplace success, health outcomes, healthy relationships in adulthood, and civic participation (NRC, 2012). The report drew on primarily correlational research to highlight the trend in demand within the workforce for skills aligned with deeper learning, as well as the alignment of civic literacy with the goals of deeper learning (NRC, 2012).

Although theory predicts that longer-term civic engagement and workforce outcomes may be related to deeper learning opportunities, skills, and competencies, research demonstrating these relationships is scarce. In this section, we summarize the existing literature regarding factors that may influence civic engagement and workforce outcomes.

Civic Engagement

Drawing on Zukin and colleagues (2006), the NRC (2012) report describes civic engagement as incorporating “activities focused on improving one’s community, involvement in electoral activities (e.g., voting, working on campaigns), and efforts to exercise voice and opinion (e.g., protests, writing to elected officials)” (p. 59). Following this definition, this study considered a range of beliefs and behaviors when measuring civic engagement, including those related to community service, political activities, participation in protests and boycotts, and speaking out about political and social justice issues.

Limited research has explored the process through which citizens become engaged in political action and civic activities over time and the role of schools in that process. As a result, an understanding of the role schools play in shaping our democratic citizenry is limited. Most of the research literature on civic engagement outcomes focuses on the influence of civics education. A close examination of these practices (e.g., service-learning opportunities, opportunities to discuss current events and issues, mock trials, and mock legislation), however, reveals great overlap between “best practices” for civic education and deeper learning approaches (Levine & Kawashima-Ginsberg, 2017). Correlational research has demonstrated positive relationships between civic education practices and students’ knowledge and civic engagement (Levine, 2007). In addition, a large-scale study in Chicago found that a range of civic learning opportunities, and particularly service-learning opportunities and opportunities for students to get involved in their school or community through extracurricular activities, had a positive effect on student’s commitment to civic participation (Kahne & Spote, 2009).

Despite the connections that the literature makes among the goals of deeper learning, civic education, and civic engagement outcomes, questions arise regarding the extent to which we may detect an impact of high school instruction on civic engagement in early adulthood. First, evidence suggests that stable patterns of civic engagement fully take hold once individuals have settled into adult roles, such as a steady job, marriage, and parenting, which build up one’s stake in their community’s affairs (Flanagan & Levine, 2010). Because civic engagement outcomes in this study were measured only up to 6 years after study participants left high school, it is likely too early to capture these stable, longer-term civic engagement outcomes. Second, prior research has highlighted the extent to which college experiences and college attainment predict civic engagement in adulthood (Flanagan & Levine, 2010). Because a large proportion of study participants from both network and non-network high schools attended and completed college, similar college experiences may “water down” the possible influence that different high school experiences may have on civic engagement outcomes.

Workforce Outcomes

This study considers a range of outcomes related to participants’ employment and workforce experiences. According to the theory of action (see Exhibit 1), opportunities for deeper learning in high school may lead to improved rates of high school and college graduation, as well as the development of deeper learning competencies such as self-management, self-efficacy, collaboration skills, and complex problem solving. These achievements and skills may provide a competitive advantage for students entering the workforce. Therefore, in addition to comparing employment rates between students who attended network and non-network high schools, we examine differences in annual income, the alignment of participants’ jobs with their career goals, job satisfaction, and experiences with unemployment.

Despite the theorized relationship between deeper learning competencies and students' employability and job satisfaction later in life, few prior research studies have confirmed this relationship (NRC, 2012). The research literature instead often infers the positive relationship between deeper learning competencies and workforce outcomes by examining the overlap with skills that employers value. For example, a recent review of approximately 142,000 job advertisements (collected from Careerbuilder.com and Collegerecruiter.com) found that oral and written communication, collaboration, and problem-solving skills are in high demand (Rios et al., 2020). In addition, about 70% of the job advertisements requested at least one of the 21st century skills examined, suggesting that education focused on these skills may lead to improved success in the job market. Increased automation of routine tasks is likely to continue this demand for more highly skilled workers (Kennedy & Poland, 2018).

Evidence also suggests that deeper learning may have an indirect effect on employment by improving college enrollment and outcomes. Among young adults in their twenties, those without a college degree fare worse than their college graduate counterparts (Abel et al., 2014; Kroeger & Gould, 2017; Ross et al., 2018). From 1990 to 2014, young adults in the range of 20–27 years old without a college degree were unemployed at rates that consistently exceeded those of the overall population. Conversely, those with a college degree have been unemployed at a lower rate than the total population of workers (Abel et al., 2014). NRC (2012) cited evidence of additional benefits a college degree has on workforce outcomes, including higher earnings and nonmonetary benefits such as “sense of achievement, work in more prestigious occupations, and greater job satisfaction” (p. 48). Therefore, to the extent that attending a deeper learning network school is positively related with enrollment in and graduation from a 4-year college, improved employment outcomes for network school students are likely.

Evidence indicates, however, that young workers, regardless of college enrollment, need time to transition into the workforce and their careers (Abel & Deitz, 2019; Abel et al., 2014; Kroeger & Gould, 2017; Ross et al., 2018). Unemployment among young adults overall has historically been higher than the national unemployment rate; between 1969 and 2017, the unemployment rate for workers younger than 25 years old hovered around double that of the national unemployment rate (Kroeger & Gould, 2017; Abel et al., 2014). Although education remains a strong predictor of employment outcomes for young adults, recent college graduates still have higher rates of unemployment than college graduates nationally (Abel et al., 2014). In addition, Abel and Deitz (2019) found that about 9% of recent college graduates begin their careers *underemployed* in low-paying, low-skill jobs. Carnevale et al. (2013) found that today's young adults in the range of 18 to 25 years old change jobs on average 6.3 times. Furthermore, the rates of unemployment and underemployment for young Black and Latinx graduates are even higher, reflecting discriminatory biases and practices in the labor market and interrelated systems (Fernandes-Alcantara, 2018; Gould, Mokhiber, & Wolfe, 2019; Gould, Wolfe, & Mokhiber, 2019; Kroeger & Gould, 2017; Ross et al., 2018). Authors have cited multiple reasons about why young adults struggle to secure employment early in their career, including a lack of knowledge about the job search process, an unclear understanding of how to present their skillset in interviews, limited experience in the workforce compared with older workers, aspirations inconsistent with employment realities, and a mismatch in their skillset and the market's labor demand (Gould, Mokhiber, & Wolfe, 2019; Hirsch, 2017; Ross et al., 2018; UNICEF, 2019).

Because this study focuses on young adults, we may expect above-average rates of unemployment across the board, with a greater rate of unemployment for those who have not yet completed a college degree. Additionally, as multiple authors have cited the inequitable employment outcomes arising from a discriminatory labor market for young graduates of color (Fernandes-Alcantara, 2018; Gould, Mokhiber, & Wolfe, 2019; Gould, Wolfe, & Mokhiber, 2019; Kroeger & Gould, 2017; Ross et al., 2018), we may expect to see higher rates of unemployment for Black and Latinx respondents, the latter group making up a sizable portion of our respondent pool. Although our study did not measure underemployment directly, we also may expect a large number of respondents to report that their current employment is not well-aligned with their career goals.

Given the numerous factors that may affect an individual's success in securing employment during the beginning stages of their career, assessing the impact on long-term employment outcomes at this stage in participants' career trajectories is challenging.

In summary, although theory suggests that deeper learning in high school should enhance skills considered critical for both civic participation and successful workforce outcomes (e.g., critical thinking skills, collaboration and communication skills), existing research linking opportunities for deeper learning in high school and these outcomes is limited. In addition, the literature indicates that young adults may need several years to transition solidly into the workforce, and that economic stability is a predictor of civic participation. Therefore, although the current study aims to fill the gap in rigorous research on the long-term effects of deeper learning on students' young adult lives, the results should be interpreted with caution given the short time frame participants have had to establish employment, careers, and their roles within their communities.

Study Design

As noted earlier, this study serves as a follow-up to the original *Study of Deeper Learning: Opportunities and Outcomes* by examining the longer-term outcomes of the original sample of students. The network schools chosen for the original study were identified by leaders of the 10 participating networks as implementing the network model at least moderately well. All schools were nonselective and served substantially disadvantaged populations. In addition, all schools included in the analyses in this report were in California or New York City.

For each network school, we selected a matched non-network school that was in the same geographic area and served a similar incoming student population (based on student demographics and achievement). The non-network schools provided a basis for comparison, enabling us to infer whether attending a network school resulted in better outcomes for students.

Data Sources

The data for this study come from a variety of sources, some of which were collected for the original *Study of Deeper Learning*:

- *Student background characteristics*: For the original study, the AIR research team obtained student background characteristics from participating schools and districts for participating students from network and non-network schools, including demographic information and Grade 8 test scores.
- *High school survey*: As part of the original study, the research team administered a 1-hour survey in spring 2013 to 2,329 students in Grades 11 and 12 across network and non-network schools.² The survey was designed to measure (1) the opportunities students experienced in their core classes that were related to developing deeper learning competencies and (2) the interpersonal and intrapersonal (deeper learning) competencies that are hypothesized to be important for college, careers, and civic life.
- *Follow-up survey*: Beginning in July 2019, the AIR research team administered a follow-up survey to the same sample of 2,329 study participants to measure students' civic engagement and workforce outcomes.³ In total, we obtained completed surveys for 633 students in 11 pairs of network and non-network schools, with an average response rate of 27.2% among sampled students (29.0% of network

² The survey was administered to consented students who entered Grade 9 in selected schools in 2009–10 and 2010–11. Most study participants were in Grade 11 and Grade 12 at the time of survey administration, with some exceptions.

³ Participants who did not complete the online survey by November 2019 were sent a hard-copy survey to complete.

school students and 26.1% of non-network school students).⁴ The survey included previously validated item sets from national surveys, including the *Beginning Postsecondary Students Longitudinal Study* and the *High School Longitudinal Study*, as well as measures of civic engagement used in prior research. (See the Technical Appendix, Section III.A for a full list of items and sources.) We supplemented these existing items with original items designed to address specific constructs important to this study.

- *Respondent interviews:* Finally, approximately a year after survey administration (fall 2020), members of the research team reached out to a subset of 20 survey respondents to conduct phone interviews. Interviewees included former students of both network and non-network schools (11 and nine respondents, respectively); former students from schools in New York City and California (eight and 12 respondents, respectively); and respondents with different employment experiences. Respondents who participated in the interviews are *not* considered representative of the full survey sample. The focus of the interviews was to gain a richer, more in-depth understanding of how high school experiences influence young adults' education, work experiences, and civic engagement later, as well as what other factors may affect these outcomes.

Measures

For this study, we examined multiple measures of civic engagement and workforce outcomes and included a range of student background characteristics in the statistical models. We also relied on high school survey measures from the original study (described in our previous reports, for example, see Zeiser and colleagues, 2014, and summarized along with the findings of Research Question 3 in the Key Findings section).

Outcome Measures

Civic engagement outcomes. The literature on civic engagement provides several different definitions of civic engagement, ranging from political involvement to community service. To be inclusive of the various definitions of civic engagement, our follow-up survey included items related to volunteering and donating money to charitable causes, voting, participation in political and economic protests, and beliefs about the importance of community service and political participation. Most of the civic engagement outcomes are measured using single items from the follow-up survey that indicate whether participants engaged in an activity within the past year (or within the specified period). Two outcomes, participant beliefs about the value and importance of community service and political participation, are measured by combining multiple survey items; average values across survey items range from 1 (strongly disagree) to 5 (strongly agree). Measures of civic engagement are described in more detail in Box 3.

⁴ The low response rate for the follow-up survey was due to a variety of factors, including the inability to locate accurate contact information for study participants who had not been involved in the study for more than 5 years. For some participants with common names, we did not have enough unique information about participants to verify a mailing address. For other study participants, hard-copy surveys were returned to the research team as undeliverable mail, indicating that we found invalid mailing addresses. In addition, 50 survey respondents did not report attending one of our sampled schools during high school, indicating to us that we had identified the wrong address for these respondents. Overall, we were unable to locate updated contact information for 10.3% of network school students and 12.9% of non-network school students. Overall, we received completed surveys from 32.5% of network school students and 29.9% of non-network school students for whom we believe we have accurate contact information. We do not know, however, whether there are additional participants who did not respond because we had inaccurate contact information.

Box 3. Civic Engagement Outcome Measures

We created two measures of participants' beliefs about civic engagement by averaging responses to several survey items (see Section III.A in the Technical Appendix for more details). Both measures range from 1 (strongly disagree) to 5 (strongly agree).

1. Beliefs about the value and importance of community service (4 survey items)
2. Beliefs about the value and importance of political participation (7 survey items)

In addition, survey items asked participants whether, within the past year, they:

3. Attended a meeting or volunteered time for a charitable or nonprofit cause
4. Donated money toward or helped raise money for a charity
5. Participated in an in-person or online political protest, march, or demonstration
6. Signed a political petition
7. Intentionally did not buy a product or service because they disliked the values or conduct of the company
8. Used social media to express their opinion in protest of a company

Finally, we asked participants if they:

9. Voted in the 2016 (presidential) or 2018 (midterm) election
10. Sometimes or almost always express their opinions when social-political issues come up in conversations with their friends

Workforce outcomes. The follow-up survey also included items measuring study participants' workforce outcomes. Participants who were employed when they took the survey (about 80% of respondents) were asked about their current jobs, while participants who had been employed in the past but were not employed when they took the survey (about 17% of respondents) were asked about the most recent job they had. For analyses examining impacts on job satisfaction or the extent to which their job aligns with their career goals, participants who reported that they had never been employed (about 3% of the respondents) were excluded from analyses.⁵ Details about the workforce outcomes are provided in Box 4. Unless otherwise noted, workforce outcomes are binary (i.e., yes/no) in nature.

⁵ About 97% of respondents from both the network school and non-network school groups reported that they have been employed, and the difference between groups was not statistically significant. Therefore, although workforce outcomes do not include all the survey respondents, given the large percentage of respondents in both groups who reported workforce experience, we do not expect that differential rates of employment introduce bias in our sample.

Box 4. Workforce Outcome Measures

The primary workforce outcome in this study is:

1. Employment at the time participants took the follow-up survey

Because many of the young adults in our study reported that they were attending college in 2019, we also created a categorical outcome measure capturing participants' employment and college enrollment status. Differences in the percentage of network and non-network school students in each of the following four categories were examined separately:

2. Employed and not attending college
3. Employed and attending college
4. Attending college and not employed
5. Not employed and not attending college

The follow-up survey also included the following measures of participants' jobs and workforce experiences, either about their current job or the job they held most recently:

6. Whether they have ever been unemployed for a period of at least 3 months when they were actively looking for work (not counting when they were enrolled in college)
7. Whether they were somewhat or very satisfied with their job
8. Whether the job was aligned with (or a step on the path toward) their career goals
9. Whether their earned income was at least \$30,000 in the previous year

Student Background Characteristics

Finally, we collected the following demographic characteristics and achievement test scores from participating schools and districts in the original study: gender, race/ethnicity, English learner status, low-income status,⁶ students' Grade 8 achievement test scores in mathematics and English language arts (ELA), and whether students had an individualized education program in Grade 8. Students' Grade 8 achievement test scores were standardized by state and incoming Grade 9 cohort within our sample.

Analysis Methods

In Box 5, we describe how we calculated weights, estimated the impact of attending a deeper learning network school, and estimated relationships between high school opportunities for deeper learning and deeper learning competencies and longer-term workforce and civic engagement outcomes. A more detailed description of these methods is provided in Section IV of the Technical Appendix.

Box 5. Analysis Methods

Calculation of Weights. Statistical analyses apply two different study weights: propensity score weights and survey weights. To compare the outcomes of students who attended deeper learning network schools and similar students who attended matched non-network schools, this applies *propensity score weights*, which is calculated based on the probability that students within a matched pair of schools would enroll in the deeper learning network schools in Grade 9 based on their observed characteristics in Grade 8. This study uses the same propensity score weights that were calculated for the original *Study of Deeper Learning*. *Survey weights* were calculated to reflect the probability that original study participants would respond to

⁶ We received information on students' eligibility for free or reduced-price lunch from two districts. The remaining districts provided data on the education level of students' parents. For this study, students coming from low-income families are defined as students (1) who were eligible for free or reduced-price lunch or (2) whose parents' highest level of education was a high school diploma or less.

the follow-up survey. Survey weights take into account the various steps necessary to respond to the follow-up survey, including (1) persisting in the same high school until fall 2012, (2) consenting to participate in the study, (3) being sampled for data collection in spring 2013 (only for students in non-network schools), and (4) responding to the follow-up survey administered in 2019. For analyses addressing research question 3, survey weights also account for (5) participants responding to the high school survey in spring 2013.

Estimating the Impact of Attending a Network High School. Analyses included 633 respondents to the follow-up survey. We estimated statistical models, which accounted for the clustering of study participants within matched school pairs. These analyses controlled for student background characteristics and applied the analysis weight described above to further account for differences in background characteristics between (1) students who attended network and non-network schools and (2) study participants who did and did not respond to the follow-up survey.

Estimating Relationships Between High School Opportunities and Deeper Learning Competencies and Outcomes. These analyses were limited to the 517 study participants who responded to both the high school and follow-up surveys. We estimated statistical models that accounted for the nesting of students within the high schools they attended, and that controlled for student background characteristics. To examine relationships between students' high school experiences, interpersonal and intrapersonal skills, and later-life outcomes, each high school measure was examined in a separate statistical model. To facilitate the interpretation of these findings, we highlight patterns we observed across measures.

Qualitative Analysis. The research team systematically analyzed data collected through phone interviews with 20 study participants to identify themes related to respondents' post-high school experiences. We examined responses across specific topic areas (e.g., factors influencing students' career choices, contributors and barriers to civic engagement). When sufficient numbers of responses were available, we compared responses from participants who attended network schools and participants who attended non-network schools to identify possible differences.

Who Is Included in This Report?

In this section, we describe the sample of study participants who responded to the follow-up survey. The majority of these participants (81%) attended high schools in California, while about 19% of these participants attended high schools in New York City. Because of the limited response rate to the follow-up survey, we compared the background characteristics of the respondents to those from the original study sample to check for comparability. We then examine data from the follow-up survey to describe follow-up survey respondents' experiences after high school.

Background Characteristics of Follow-up Survey Respondents

Background characteristics of respondents to the follow-up survey, as well as the background characteristics of the original student sample (i.e., all students who entered Grade 9 in 2009–10 and 2010–11 in participating schools, referred to here as the cohort sample), are presented in Exhibit 2. Background characteristics of the follow-up survey respondents are presented both before and after applying the survey weight to demonstrate the extent to which applying weights minimizes differences between the original cohort sample and survey respondents. Overall, relative to the original cohort sample, survey respondents were more likely to have higher Grade 8 ELA and math test scores (by 0.4 and 0.3 standard deviations, respectively), and they were more likely to be female (62% of survey respondents versus 51% of students in the original cohort sample). When examining the distribution of study participants across racial/ethnic groups, we found survey respondents

disproportionately were more likely to be White, and less likely to be Black or Hispanic, relative to the original cohort sample. In general, applying the survey weight reduced, but did not eliminate, differences between the sample of participants who responded to the follow-up survey and the original cohort sample from which the analytic sample was drawn.

Exhibit 2. Student Characteristics in Original Cohort Sample and Follow-Up Survey Sample, Before and After Applying the Generalizability Weight

	Incoming Grade 9 Cohort Sample Mean	Unweighted Mean: Respondents to the Follow-up Survey	Weighted Mean: Respondents to the Follow-up Survey
Percent member of the younger cohort	50.0%	52.4%	49.2%
Percent female	50.6%	62.4%	53.3%
Percent Black	13.2%	10.0%	10.5%
Percent Hispanic	52.0%	49.6%	53.7%
Percent White	22.6%	30.8%	25.3%
Percent Asian/other race	12.0%	9.5%	10.3%
Percent students with an individualized education program	7.7%	4.4%	5.8%
Percent English learner students	25.5%	21.3%	24.5%
Percent low socioeconomic status ^a	52.1%	48.3%	54.7%
Average standardized Grade 8 ELA test score ^b	0.00	0.44	0.12
Average standardized Grade 8 mathematics test score ^b	0.00	0.28	0.06

Note. Background characteristics of respondents to the follow-up survey are provided before and after applying the survey weight. Test scores were standardized within the original cohort sample by state and Grade 9 cohort.

^a Includes students who qualified for free or reduced-price lunch or whose parents had a high school education. Excludes one pair because the comparison school does not have either measure of socioeconomic status.

^b Excludes two school pairs without prior achievement data.

Exhibit 3 provides a summary of the background characteristics of the students who attended network and non-network schools who are included in analyses for this study. Because the purpose of Exhibit 3 is to demonstrate the similarities and differences the two groups of participants (i.e., those who attended network schools and those who attended non-network schools) within analyses presented in this report, we calculated descriptive statistics using the analysis weight and accounting for the nesting of students within matched school pairs. In general, network school students and non-network school students in the analysis sample had similar background characteristics: More than half of the study participants were female, more than half were identified as Hispanic, more than one quarter were English learners before they entered high school, and about 60% came from low-income families. Network school students were somewhat more likely to belong to the younger (2010–11) incoming Grade 9 cohort and were more likely to identify as Black, while non-network school students were more likely to identify as Hispanic.

Exhibit 3. Characteristics of Participants Who Attended Network and Non-Network Schools Who Responded to the Follow-up Survey

	Students Who Attended Network Schools: Weighted Means	Students Who Attended Non-Network Schools: Adjusted Means
Number of follow-up survey respondents	250	383
Percent member of the younger cohort	56.7%	44.2%
Percent female	55.7%	60.8%
Percent Black	14.8%	10.3%
Percent Hispanic	57.5%	67.2%
Percent White	22.3%	17.6%
Percent Asian/other race	5.3%	4.8%
Percent students with an individualized education program	6.8%	7.7%
Percent English learner students	32.5%	27.0%
Percent low socioeconomic status ^a	60.4%	60.0%
Average standardized Grade 8 ELA test score ^b	-0.120	0.016
Average standardized Grade 8 mathematics test score ^b	-0.179	-0.016

Note. Adjusted group averages for students who attended non-network schools were calculated using a single-level ordinary least-squares regression model with school pair fixed effects. Test scores were standardized within the original cohort sample by state and Grade 9 cohort.

^a Includes students who qualified for free or reduced-price lunch or whose parents had a high school education. Excludes one pair because the comparison school does not have either measure of socioeconomic status.

^b Excludes two school pairs without prior achievement data.

Characteristics of Follow-up Survey Respondents After High School

To provide additional context for the findings presented in this report, we also used data from the follow-up survey to provide information about participants' experiences since high school. Based on responses to the follow-up survey, approximately 72% of follow-up survey respondents reported that they enrolled in college immediately after high school, and 18% of students reported that they immediately entered the workforce.⁷ Just under 10% reported neither working nor attending college immediately after high school (e.g., traveling, volunteering).

As survey respondents entered Grade 9 in either 2009–10 or 2010–11, participants who responded to the follow-up survey should have graduated in 2012–13 or 2013–14.⁸ Therefore, at the time they responded to the survey, study participants had been out of high school for between 5 and 6 years (with an approximate age in the range of 23–25 years old). More than half (61%) of respondents reported that they lived with their parents or an “other relative” such as a guardian, a grandparent, or an aunt. About one quarter reported living with a spouse or partner, while 9% reported living with a roommate or in another living situation (e.g., in the

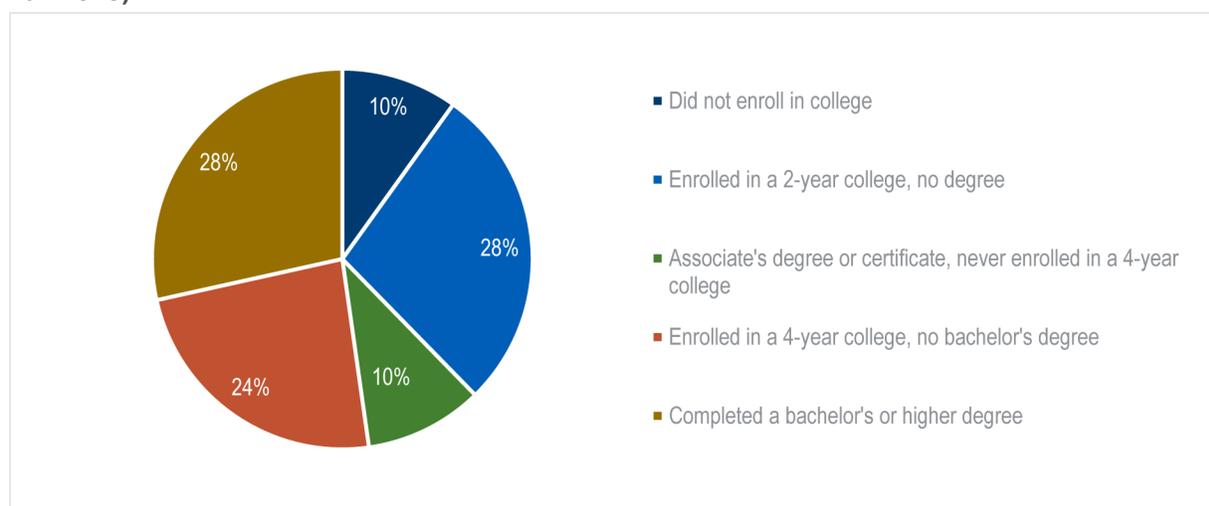
⁷ A small number of respondents specified that they both started college and started working—they are classified as starting in college.

⁸ District data confirm that 84.5% of follow-up survey respondents graduated from high school within 4 years of high school entry, while another 6.6% did not graduate within 4 years. Almost 9% of survey respondents attended a school district that did not provide the research team with graduation data.

military), and 6% reported living alone. Eighty-five percent of survey respondents reported that they did not have children.

Although our forthcoming report will provide an in-depth analysis of the original study participants' college enrollment and degree completion outcomes using National Student Clearinghouse data, here we describe the educational status self-reported by those study participants who responded to the follow-up survey. More than one quarter (28%) of survey respondents reported that they had already completed a bachelor's degree or a higher degree, while an additional 24% had enrolled in a 4-year college but had not completed a bachelor's degree (see Exhibit 4). Twenty-eight percent had enrolled in a 2-year college but had not completed a degree, and another 10% completed an associate's degree or certificate but had not transferred to a 4-year college.⁹ Only 10% of follow-up survey respondents reported that they never enrolled in college, suggesting that college-educated study participants may have been more likely to respond to the follow-up survey.

Exhibit 4. Self-Reported Educational Attainment at the Time of Follow-Up Survey Administration (Summer–Fall 2019)



⁹ Overall, 16.6% of survey respondents reported obtaining an associate's degree or certificate; 40% of respondents who obtained an associate's degree or a certificate later enrolled in a 4-year college.

Key Findings

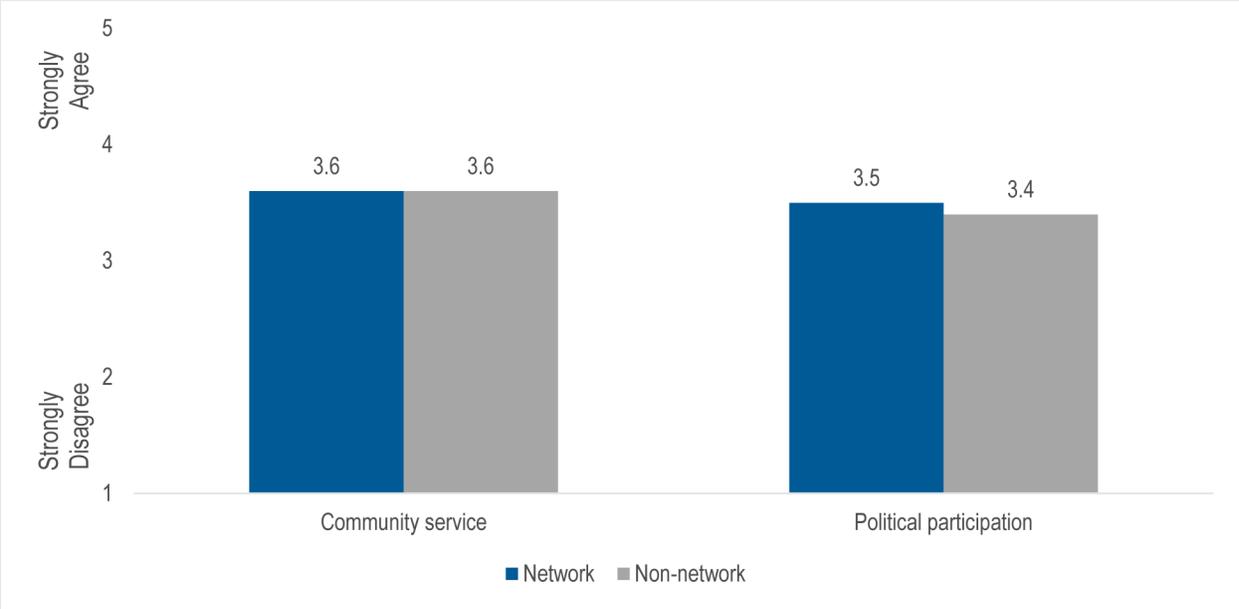
In this section, we summarize findings of analyses that address the study’s three research questions. We begin by examining results related to the impact of attending a deeper learning network school on participants’ civic engagement outcomes and continue by presenting results related to impacts on participants’ workforce outcomes. We conclude by examining relationships between participants’ deeper learning opportunities and competencies in high school and their civic engagement and workforce outcomes.

Longer-Term Impacts of Attending Deeper Learning Network Schools

What is the impact of attending a deeper learning network high school on students’ civic engagement outcomes?

Civic engagement outcomes did not significantly differ between students who attended network and non-network high schools for most of the outcome measures we examined. For example, the two groups did not significantly differ in their *beliefs* about the importance and value of community service or political participation (see Exhibit 5). For both outcomes, average responses to questions about civic engagement beliefs fell nearly halfway between “neither agree nor disagree” and “agree,” indicating that survey respondents reported relatively weak, positive beliefs about the importance and value of civic engagement.

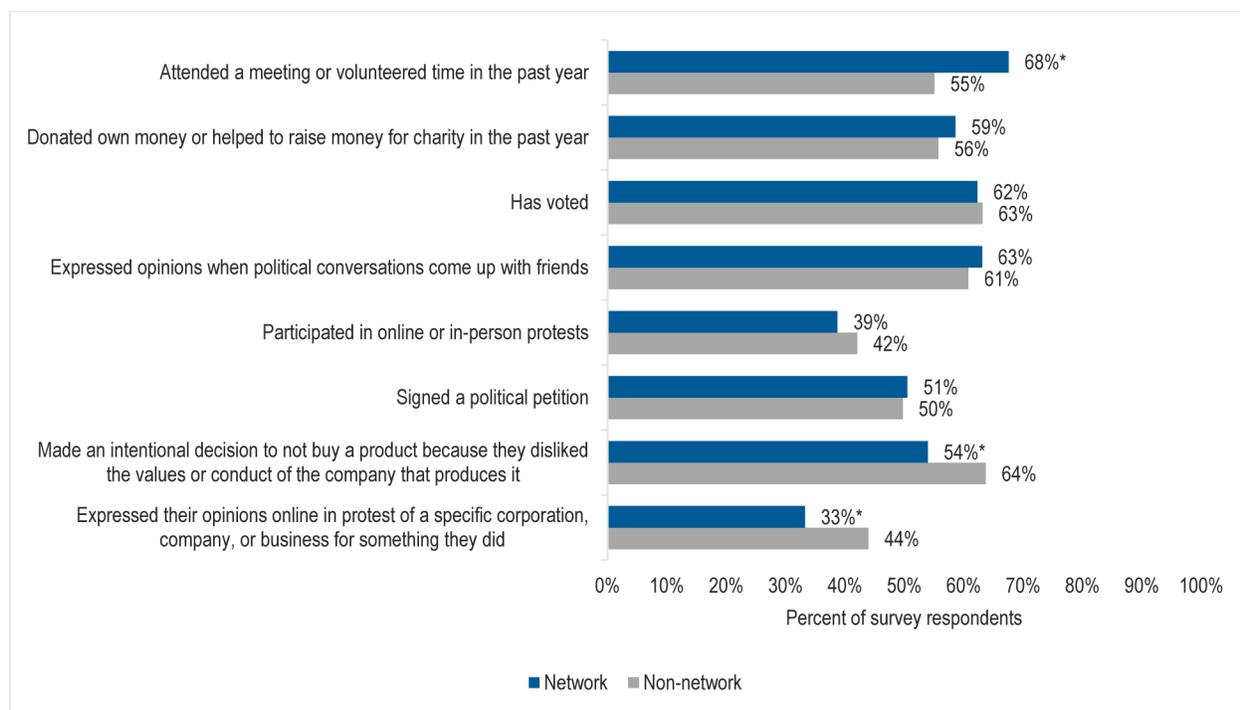
Exhibit 5. Average Level of Agreement About the Importance and Value of Community Service and Political Participation, for Survey Respondents Who Attended Network and Non-Network Schools



Note. Multiple survey items were averaged to create measures of beliefs about the value and importance of community service and beliefs about the value and importance of political participation. Average values across survey items range from 1 (strongly disagree) to 5 (strongly agree) for both outcomes. All results account for the nesting of students in school pairs and are weighted to account for survey sampling and survey nonresponse. Reported averages for non-network students are based on statistical adjustments that account for differences in background characteristics between groups.

Regarding civic engagement behaviors, network school students were significantly more likely than students who went to non-network schools to report volunteering in the past year (68% compared with 53%), but differences in self-reports of donating or raising money for charity were not statistically significant (see Exhibit 6). In terms of political behaviors, we did not observe differences between students who attended network and non-network schools in their likelihood of voting, expressing their opinions when political conversations come up with friends, participating in online or in-person protests, or signing petitions in the past year (see Exhibit 6).

Exhibit 6. Percentage of Survey Respondents Who Reported Participating in Civic Engagement Activities, for Respondents who Attended Network and Non-Network Schools



Note. All results account for the nesting of students in school pairs and are weighted to account for survey sampling and survey nonresponse. Reported averages for non-network students are based on statistical adjustments that account for differences in background characteristics between groups.

* Difference between network and non-network students is significant at the .05 level.

Students who attended network schools, however, were *less* likely than students who attended non-network schools to have participated in economic protests in the past year. Specifically, network school students were significantly less likely to report making an intentional decision not to buy (i.e., boycotting) a product because they disagreed with the company’s values or conduct by about 10 percentage points relative to non-network school students. Additionally, network school students were less likely than non-network school students to report expressing their opinions online in protest of a specific corporation, company, or business for something they did by 11 percentage points (see Exhibit 6).

Interviewees' Civic Engagement Experiences

To provide context for these survey findings and to better understand possible explanations for the small number of differences between groups, we asked follow-up interview participants about their civic participation since high school. As one may expect based on the literature on civic engagement (see “What Does Research Show” above), the interviews revealed that the young adults in the study were focused on starting their

careers, completing postsecondary education, and in some cases, starting families. Some interviewees had moved several times and were not yet established in their communities, and many described changes in their civic engagement during the past year because of current events. Together, these responses suggest that it may be too early in the respondents' lives to detect the longer-term effect of deeper learning experiences in high school on civic participation.

Specifically, we asked interviewees to describe any civic engagement activities in which they have participated since high school and whether their participation aligns with their desired level of civic engagement. We also asked about ways in which their high school experiences may have influenced their engagement. As expected, interview respondents reported participating in a range of civic engagement activities aligned with those reported in the survey, including volunteering in their community, being actively involved in political and social justice efforts, voting or helping others to vote, and sharing views and signing petitions on social media. Seventeen out of the 20 respondents reported engaging in some type of civic engagement activity since high school, often while in college. In addition, a few respondents noted that they are involved in community and social service through the nature of their job—as a teacher, social worker, or medical assistant.

About half of the interview respondents noted, however, that they have not participated civically at the level or in the way they had hoped. The most frequently cited barrier to civic participation was time (eight respondents), including schedule constraints and overall availability or bandwidth to participate. For example, one respondent described:

“It's been a little while since I've done volunteering or really truly been involved in some way in my community, especially because of the baby and because it's me not spending time with my family, and working full time. I honestly don't have a whole lot of time to do that.”

Two respondents noted that they are not yet fully established in their communities. For example, one interview participant reported having moved a lot, “. . . So I never really felt a connection to the community to do anything, so I didn't really do anything.” These reports suggest that, at this phase of respondents' lives, other demands may take priority over civic engagement, including new jobs, continued education, and starting a family. These barriers and limitations may make it difficult to detect an effect of attending a network school on civic engagement in early adulthood.

Despite the reported challenges to civic engagement, several participants described experiences in high school that may have influenced their civic engagement today. Three participants from network schools suggested that a strong focus on civic engagement in high school may have put them on track to continue participating into adulthood. For example, one respondent described that their school had a “Dream Act team” and a club focused on women's issues. A respondent from another school highlighted the school's emphasis on issues related to voting rights:

“[school] did help us a lot in that sense of having our right to vote, and then urging other people, listen you have the right to vote. Your voice really counts and your voice matters . . . so yes, they did prepare us [for] voting and politic[al] life.”

In addition, a few respondents across both network and non-network schools noted that their schools required community service hours that introduced them to the idea of helping in their community.

Because the survey was administered before the many significant changes and challenges of 2020 (e.g., the pandemic, increased focus on social justice issues, the presidential election), we also asked interview respondents to reflect on whether their civic engagement has changed since completing the survey. About half

of the interviewees described that their community engagement has in fact evolved since completing the survey. Five respondents (four from network schools, one from a non-network school) reported that the recent events of 2020 have led them to increase their civic participation. For example, one respondent noted:

“I didn’t care about politics before, I just could care less. But because of everything that’s happening . . . right now, I just had a duty.”

This respondent described focusing more on immigration issues, specifically for Dreamers, and signing petitions and calling representatives after George Floyd’s death. Another respondent reported, *“I think right now I am more involved in politics than ever before”* and described an increased obligation to learn about politics and participate civically having recently become a U.S. citizen. And yet another noted:

“I feel like with everything going on in the world and in this country . . . I just really put [civic engagement] at the forefront.”

This respondent also reported having more time to volunteer and do research as a result of working from home through the pandemic: *“I was home so much, and I suddenly did have a lot of free time compared to pre-pandemic,”* and so she volunteered in a local election, researched organizations to donate to, and started buying from small businesses rather than large corporations.

Five interview participants, however, noted that restrictions because of the pandemic and concerns about privacy have hindered their ability to participate civically this past year. For example, one respondent reported that her volunteer efforts to help students in her community with homework have been limited by safety issues, and that she participates less in her religious establishment now. Nine of the 20 respondents reported that they would like to increase their civic engagement in the future when they are more established in their communities and jobs, and when restrictions from the COVID-19 pandemic ease up. For example, one respondent said, *“Once I have a stable job, I’ll probably engage more.”* These interview findings highlight the fact that the follow-up survey captured just a snapshot of participants’ civic engagement in young adulthood, but their civic engagement is likely to continue evolving in the coming years because of both changes in their external environments and increased stability in their jobs and living situations.

What is the impact of attending a deeper learning network high school on students’ workforce outcomes?

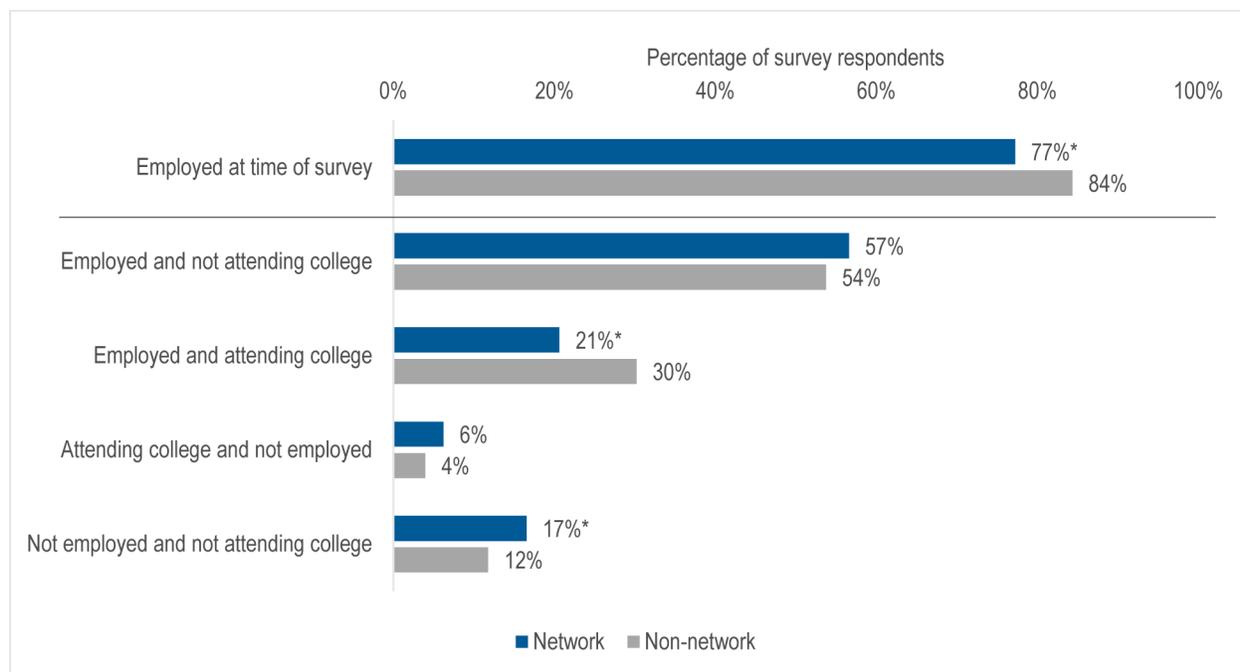
As we described earlier, the deeper learning theory of action suggests both direct and indirect influences of deeper learning opportunities on students’ workforce outcomes. Deeper learning experiences in high school may affect workforce outcomes directly by developing skills that employers regularly look for in employees (e.g., collaboration and communication skills, self-management). Deeper learning opportunities also may influence workforce outcomes *indirectly* through improved college enrollment and degree completion. Study participants took the follow-up survey (summer 2019) between 5 and 6 years since their senior year of high school. Although many study participants may have enrolled in college immediately after high school and completed their college education before the survey, we expected that many may have waited to enter or taken longer to complete college degrees. Therefore, we categorized respondents based on whether they were employed and/or attending college in fall 2019.¹⁰ All study participants were classified in one of four groups defined by their employment and college enrollment status when they took the survey: working and not

¹⁰ The follow-up survey asked about attending college in fall 2019 because survey administration began in summer (2019), when many college students do not take college courses. In our analyses, participants might have been classified as “employed and attending college” because they worked during the summer but only enrolled in college in the fall.

attending college, working and attending college in fall 2019, attending college in fall 2019 and not working, or neither attending college nor working.

At the time of survey administration, participants who attended network schools were significantly less likely to be employed than participants who attended non-network schools (77% versus 84%; see Exhibit 7). To ensure that the lower rate of employment was not because of differences in college attendance, we examined the data more closely to look at the combination of employment and college attendance when participants took the survey. We found that network school students and students who attended non-network schools were similarly likely to be working and not attending college, with more than half of survey respondents in both groups belonging to this category (see Exhibit 7). Similarly, only a small percentage of participants in both groups (6% of students who attended network schools and 4% of students who attended non-network schools) were attending college but not working, a nonsignificant difference between groups. Network school students, however, were significantly more likely to be both unemployed and not attending college in fall 2019 (17% compared with 12%). In addition, students who attended non-network schools were more likely to be both attending college and working than network school students by 10 percentage points (see Exhibit 7). More information about the nature of study participants' employment when they took the follow-up survey can be found in Box 6.

Exhibit 7. Distribution of Survey Respondents Across Employment and College Attendance Statuses, for Respondents Who Attended Network and Non-Network Schools



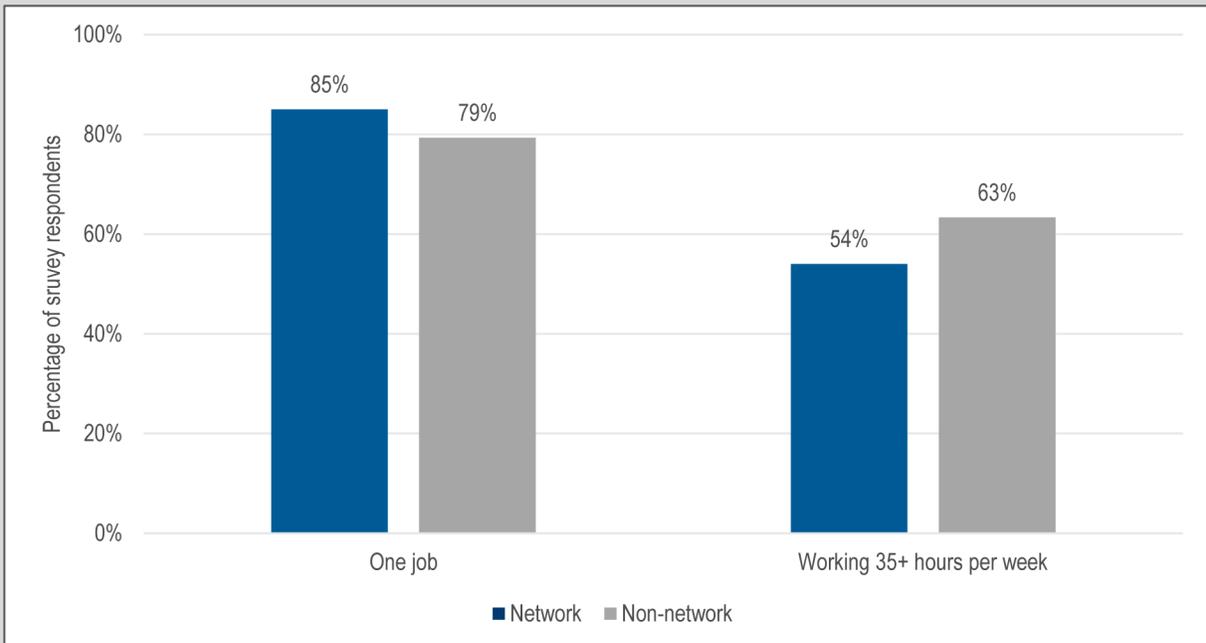
Note. All results account for the nesting of students in school pairs and are weighted to account for survey sampling and survey nonresponse. Reported averages for non-network students are based on statistical adjustments that account for differences in background characteristics between groups.

* Difference between network and non-network students is significant at the .05 level.

Box 6. What Does Employment Look Like Among Survey Respondents?

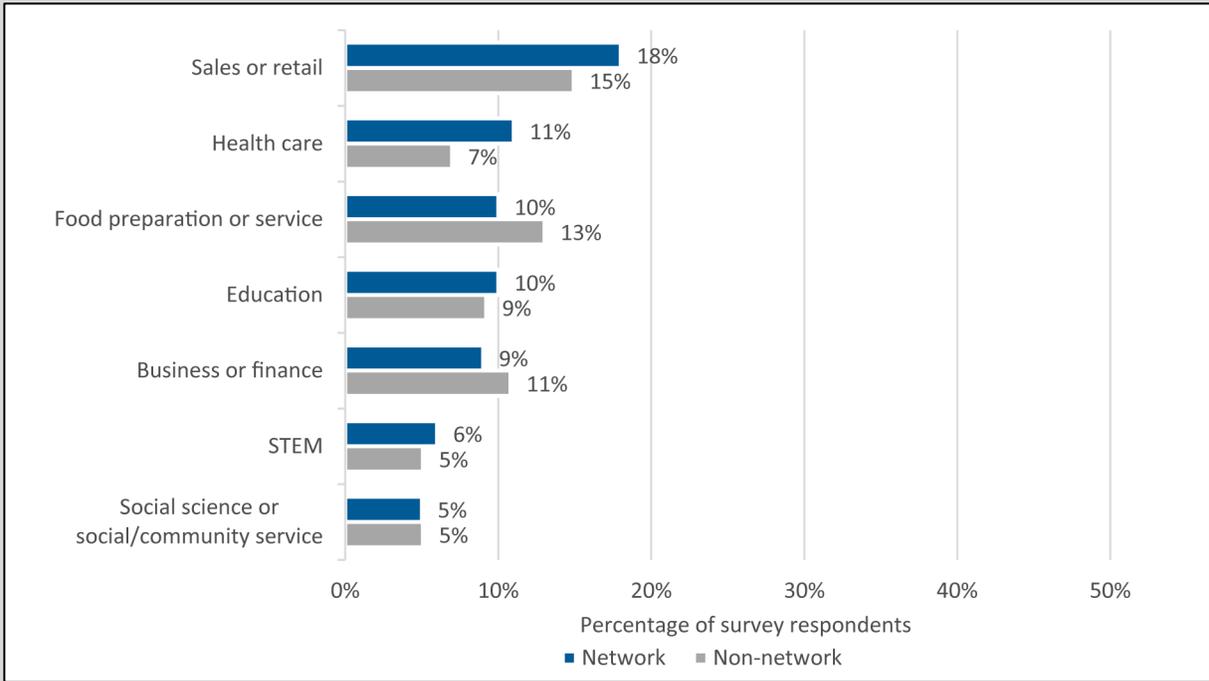
When they took the survey, respondents were between 23 and 25 years old, so the workforce outcomes presented in this report reflect the jobs that these participants held early in their careers. In this box, we describe the types of jobs that employed survey respondents reported having separately for participants who attended network schools and participants who attended non-network schools. Because respondents who attended network schools were significantly less likely to be employed, and therefore were more likely to have missing information on the characteristics reported here, we did not test for significant differences between groups. Rather, the information below is presented descriptively to provide a better picture of the types of jobs that young adults in our study had at the time they took the follow-up survey.

Percentage of Employed Survey Respondents Having One Job and Working 35 or More hours per Week on Average, for Respondents Who Attended Network and Non-Network Schools



- Among both groups of workers, more than three quarters of respondents were working only one job.
- Among respondents who were employed, more than half of participants who attended network schools and almost two thirds of respondents who attended non-network schools reported working 35 or more hours per week.

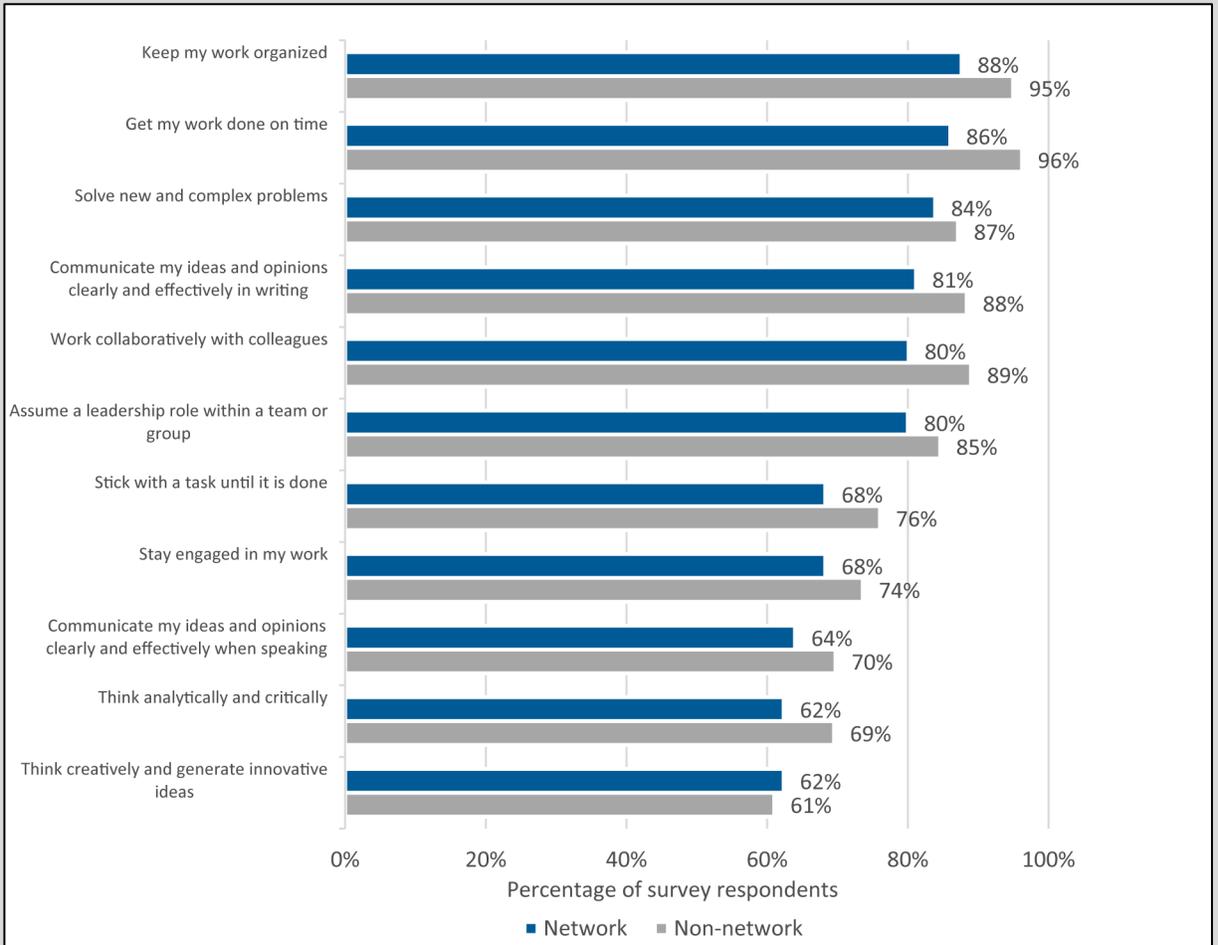
Distribution of Employed Survey Respondents' Fields of Occupation, for Respondents Who Attended Network and Non-Network Schools



Note. Science, technology, engineering, and mathematics (STEM) fields include mathematics, computer science, information technology, architecture, engineering, and life or physical science.

- Because survey respondents reported working in a variety of occupations, here, we list only fields that were mentioned by at least 5% of employed survey respondents. For both groups, about two thirds of participants who were employed at the time of the follow-up survey fell into one of the seven occupation categories illustrated in the figure above.
- Other occupational fields that captured fewer than 5% of employed survey respondents included arts, entertainment, sports, or media; office or administrative support; construction or mineral extraction; and installation, maintenance, or repair.
- For both groups, the most commonly-reported occupational field was sales or retail, with 18% of participants who attended network schools and 15% of participants who attended non-network schools reporting having jobs in this field.
- Among employed participants who attended network schools, a similar percentage of participants reported occupations in four fields: health care (11%), education (10%), food preparation (10%), and business and finance (9%).
- Employed participants who attended non-network schools were more likely to report having a job in food preparation (13%) than in business and finance (11%), education (9%), or health care (7%).
- For both groups, a smaller percentage of employed network school students reported working in a STEM field (5–6%) or in social science or social/community service (5%).

Percentage of Employed Survey Respondents Who Agreed That Their Employers Valued Specified Skills, for Respondents Who Attended Network and Non-Network Schools



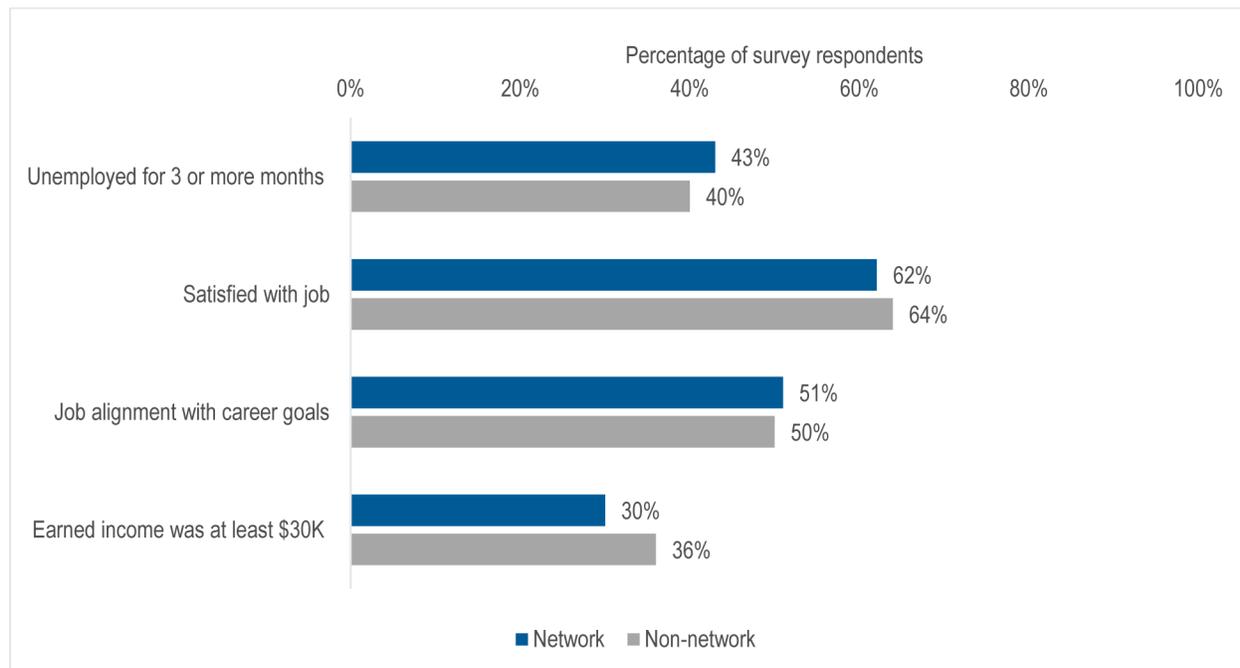
- Overall, the skills that participants were most likely to agree with were getting work done on time and keeping work organized.
- Other skills that participants viewed that their employers valued (with between 80% and 90% of participants in both groups agreeing) were solving new and complex problems, verbal communication skills, working collaboratively, and assuming leadership roles.
- Skills that participants were least likely to agree that their employers found as valuable were creative thinking skills, thinking analytically and critically, and written communication skills.

Qualitative data collected through follow-up interviews may provide insights into these findings. To better understand the observed differences, we oversampled from the pool of survey respondents who reported being unemployed *and* not attending college at the time of survey administration (nine out of the 20 selected interview respondents). The interview responses revealed that the study participants were undergoing many transitions in their education and careers at the time of the survey. Half (10) of the interviewees reported changes to their work or education status since they had completed the survey. Of the nine interview respondents who were *neither* employed nor enrolled in school when they filled out the survey, only one reported being in this situation at the time of the interview: Eight reported either working (four) or going to school (four). These findings suggest that the higher percentage of survey respondents from network schools

who were not employed or in school may indicate that a higher percentage of network school respondents were in a phase of transition back to school, between jobs, or moving from school to work.

Network and non-network school students did not significantly differ with respect to their unemployment experiences, job satisfaction, and their perceptions that their job relates well with their long-term career goals (see Exhibit 8). Network school students did not differ from their non-network counterparts in their likelihood of having been unemployed for 3 or more months, with about 40% of respondents in both groups reporting this experience (see Exhibit 8). In addition, nearly two thirds of respondents (62% of students who attended network schools and 64% of students who attended non-network schools) reported that they were somewhat or very satisfied with their jobs, and about half of our sample (51% of students who attended network schools and 50% of students who attended non-network schools) reported that their jobs were aligned with (or a step toward) their career goals. This finding concurs with prior research indicating that young adults are more likely to be underemployed and may face challenges securing their desired jobs shortly after completing their education.

Exhibit 8. Percentage of Survey Respondents Experiencing Workforce Outcomes, for Respondents Who Attended Network and Non-Network Schools



Note. All results account for the nesting of students in school pairs and are weighted to account for survey sampling and survey nonresponse. Reported percentages for non-network students are based on statistical adjustments that account for differences in background characteristics between groups.

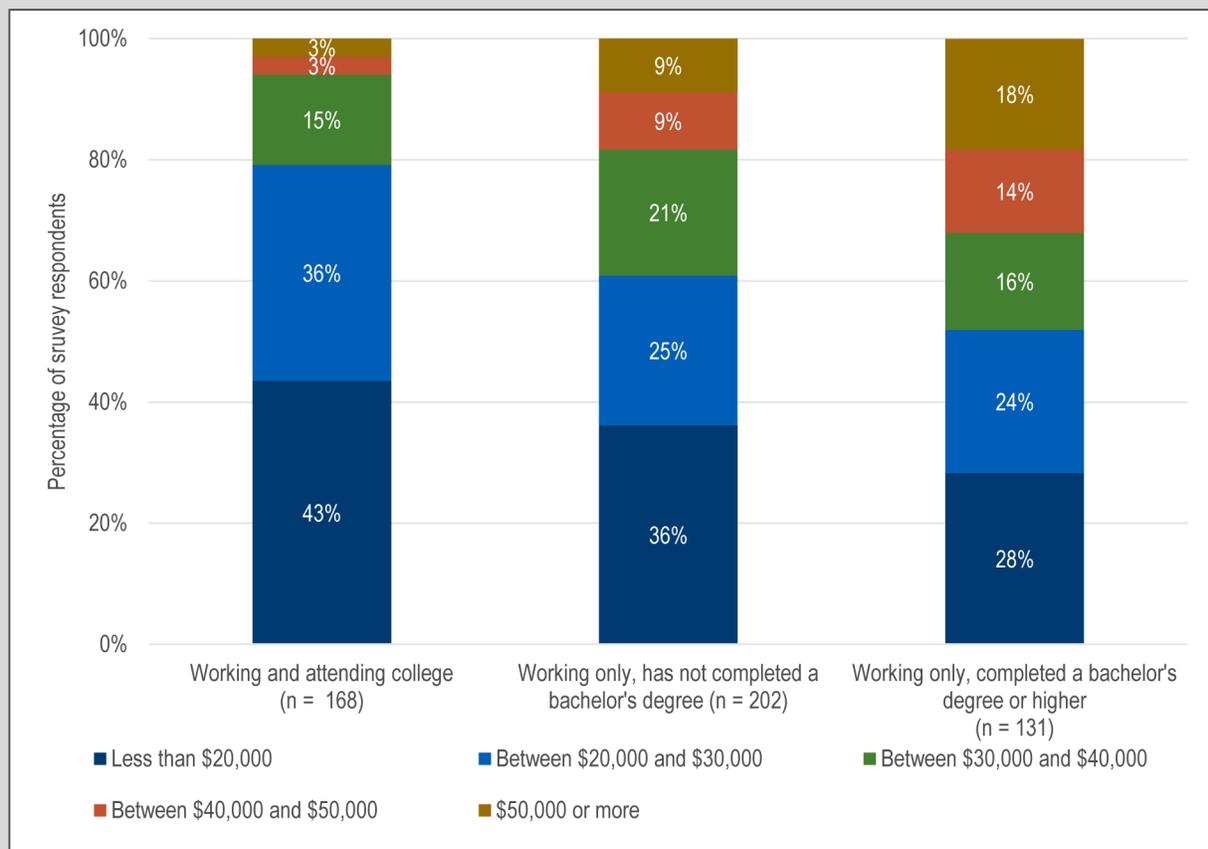
Results in Exhibit 8 also show that network and non-network school students reported similar earned income. About one third of survey respondents in both groups (30% of network school students and 36% of non-network school students) reported earning at least \$30,000, before taxes and deduction, in the past year (see Exhibit 8). We acknowledge, however, that this simple comparison of self-reported earned income does not take into account differences between groups in college enrollment status (i.e., non-network school students were significantly more likely to be both employed and attending college in fall 2019), which is likely related to whether they can work full time. In Box 7, we illustrate the distribution of survey respondents across categories

of earned income based on (1) whether they were still attending college and (2) whether they had already completed a bachelor's degree.

Box 7. A Detailed Look at Earned Income

To examine the impact of attending deeper learning network schools, we focused on the percentage of participants whose earned income fell below \$30,000, which approximates the expected income of individuals with a high school diploma. Our analyses revealed that the majority of survey respondents reported an annual income below \$30,000, and that the percentage of participants at this income level did not significantly differ between participants who attended deeper learning network schools and those who attended non-network schools. Because income levels are strongly related to educational attainment, we descriptively examined participants' self-reported earned income for three different groups of participants: those who reported that they were both working and enrolled in college, those who were only working and had not completed a bachelor's degree, and those who were only working and had completed a bachelor's degree.

Distribution of Survey Respondents Across Earned Income Categories, by College Enrollment Status and Bachelor's Degree Attainment



- The percentage of participants that earned less than \$20,000 in the past year is smaller among those who are working only and had a bachelor's degree (28%) and largest among those who were both working and enrolled in college (44%).
- Eighteen percent of participants who were working only and had a bachelor's degree earned \$50,000 or more in the past year, and another 14% reported earning between \$40,000 and \$50,000. In contrast, only 3% of participants who were both working and enrolled in college fell into each of these higher income categories.

Interviewees' Work Experiences

As with civic participation, reports from interview respondents provide additional context for why we may not detect an impact of attending a network high school on many of the workforce outcomes. Interview respondents were asked to describe their experiences since graduating high school, including work experiences and education. In line with prior research indicating that young adults need time to settle into consistent employment and careers (see “What Does Research Say” above), interviewees’ responses indicated that their current stage of life is a time of transition, and that they have not yet settled into careers or long-term life situations. As mentioned above, in the year between taking surveys and participating in interviews, half (10) of the respondents reported a different work and/or education status. Interview respondents’ descriptions of their current situations demonstrated this time of transition. For example, one respondent had just finished submitting applications for a PhD program, one had recently started a new job, one had recently enrolled in a bachelor’s degree program, and another left a bachelor’s degree program to pursue a new career path.

More than half of the interview respondents highlighted challenges they have faced in establishing careers and finding jobs in the current economy. Five respondents described the difficulty of finding a job without having experience, advanced degrees, or licenses. For example, one respondent, who had just finished a master’s degree in social work, reported that many jobs supporting children require a license or practical experience, and therefore she had to shift her search to jobs supporting older adults. Two respondents discussed a high level of competition for entry-level jobs. For example, one respondent who looked for a job as a lab research assistant after college reported that because so many college graduates apply for similar jobs before medical school, there is “*always someone who is better suited than you are.*” She reported applying to more than 60 jobs before getting a job in an academic genetics research lab.

Despite the unsettled nature of most respondents’ work lives, many interviewees provided insights into ways in which their high schools prepared them for the workforce. These insights suggest that the instructional approaches associated with network schools may benefit students later as they look for jobs and start their careers. All interviewees who attended network schools identified aspects of their high school experiences that influenced their career goals or work lives in general. Specifically, four network school respondents and one non-network school respondent reported that *work-based experiences* in high school such as internships influenced their career goals or prepared them well for work. For example, one respondent reported that her internship helped with goal setting and figuring out what steps to take to reach a longer-term goal. Another interview participant reported that their internship helped to build skills for getting along with others in the workplace. Respondents from network schools also reported other aspects of their high school education that were beneficial to their preparation for work, including adults (e.g., a teacher, counselor, mentor) who spent time to foster students’ interests (four respondents); project-based learning experiences (two respondents) that provided opportunities to learn how to work in a team and lead a project; and direct preparation for job-finding (two respondents) (e.g., mock interviews, preparation for writing resumes). Alternatively, five of the respondents who attended non-network schools reported that their high school experiences did *not* influence their longer-term career goals. Other respondents from non-network schools cited different examples of how their high school prepared them well for the workforce, including participation in a career and technical education pathway (one respondent); preparation to take tests (e.g., for licensing exams) (one respondent); and rigorous writing and content instruction (four respondents).

When asked about ways in which respondents’ high schools could have better prepared them for the workforce, few respondents from either network or non-network schools reported specific areas for improvement. Four interview respondents noted that workforce preparation was not a main goal of their high school. Rather, their high schools were focused on preparing students for college. For example, one interviewee said, when asked how their high school prepared them for working, “*I felt like high school always had more of that push towards going to college.*” Among those who did note suggestions for improvement,

several reported a need for more practical “life skill” preparation, including preparation for managing finances or navigating workplace benefits such as retirement plans (three respondents), and preparation to apply for jobs (e.g., resume-writing, networking, career days) (two respondents).

Given the significant shifts in employment and increased unemployment nationwide resulting from the COVID-19 pandemic, we asked interviewees about any changes they have experienced since filling out the survey in late 2019. More than half of respondents reported some type of impact on their work from COVID-19. In several cases (four respondents), the primary effect was a shift to virtual or remote work. Seven respondents related stories of how the COVID-19 experience has led them to change their education or career path in some way. For example, one respondent reported that even though she kept her job (and worked virtually), she realized that she needed to have more education to ensure better job security in the future:

“ . . . even though I kept my job and I knew I wasn't going to lose it, it was a time of discernment, and it still is. So I know I have to prepare myself better if I don't want to be the first on the list to get cut.”

Another respondent spent the extra time she had at home to think more deeply about what makes her happy, and then decided to enroll in a certificate program and move ahead to create her own business in a new field. Finally, three respondents reported enrolling in a postsecondary education program after losing a job or having their work hours cut. For example, one respondent who had been working as a substitute teacher lost her position when in-person schooling closed decided to enroll in a master’s degree program. These examples demonstrate how, in addition to the normative instability of employment in young adulthood, changes in local and global economies may complicate researchers’ ability to fully understand workforce outcomes with a measurement taken at a single point in time.

Relationships Between Deeper Learning Experiences in High School and Longer-Term Outcomes

For the final research question, we examined relationships between students’ self-reported opportunities for deeper learning during high school, self-reported deeper learning competencies measured during high school, and civic engagement and workforce outcomes. The high school survey administered in spring 2013 included items that, when combined to form survey scales, measured six opportunities for deeper learning and eight deeper learning competencies. As shown in Box 8, between four and 22 survey items comprise each measure. For these analyses, we standardized Rasch scores so that scale scores have a mean of 0 and a standard deviation of 1. Because these analyses examined relationships between 14 high school measures and 15 outcomes, we performed a total of 210 analyses. To simplify the presentation of the results, we describe findings in which we observed patterns across high school measures, which are displayed in Exhibit 9 and Exhibit 10. Because analyses of deeper learning competency measures revealed few consistent patterns of significant relationships, detailed findings are presented in Section V of the technical appendix.

Box 8. High School Survey Measures

Opportunities for Deeper Learning

1. *Opportunities to collaborate* (9 items, $\alpha = 0.93$): The degree to which students collaborate on assignments, provide feedback on each other's work, and collaborate in other ways
2. *Opportunities to communicate* (12 items, $\alpha = 0.90$): The extent to which students have opportunities to practice written and oral communication skills
3. *Opportunities for complex problem solving* (22 items, $\alpha = 0.93$): The degree to which students engage in complex problem solving by analyzing ideas, judging the value and reliability of an idea or source, constructing new ideas, and applying knowledge to solve new problems
4. *Opportunities for creative thinking* (5 items, $\alpha = 0.88$): The extent to which students have opportunities to engage in creative thinking in their core academic classes, such as thinking of original solutions to problems and new ways to do things, creating new ideas, and using their imagination
5. *Opportunities for interdisciplinary learning* (4 items, $\alpha = 0.82$): The degree to which students engage in interdisciplinary learning, in which two or more disciplines are combined to enhance inquiry and knowledge generation
6. *Opportunities for real-world connections* (9 items, $\alpha = 0.89$): The degree to which students engage in instructional activities that emphasize real-world connections

Deeper Learning Competencies

1. *Academic engagement* (10 items, $\alpha = 0.77$): The degree to which a student agrees that he or she is interested and engaged in learning and participates actively in classroom learning activities
2. *Collaboration skills* (10 items, $\alpha = 0.91$): The extent to which a student perceives that he or she works well in a group (e.g., positive personal interactions and the ability to pay attention, share ideas, be prepared, and do his or her part) and cooperates to identify or create solutions
3. *Creative thinking skills* (5 items, $\alpha = 0.84$): The extent to which a student perceives that he or she can think of original ideas and solutions
4. *Locus of control* (5 items, $\alpha = 0.83$): The extent to which a student feels that he or she has control over what happens to him or her rather than the student's circumstances being controlled by chance or fate
5. *Motivation to learn* (5 items, $\alpha = 0.81$): The degree to which a student is motivated to do well academically and to become more knowledgeable, as measured by the student's perceived importance of coursework as well as preference for challenge and mastery goals
6. *Perseverance* (5 items, $\alpha = 0.88$): The degree to which a student agrees that he or she maintains effort and interest despite failure, adversity, and plateaus in progress
7. *Self-efficacy* (7 items, $\alpha = 0.91$): The degree to which a student tends to view him- or herself as capable of meeting task demands in a broad array of contexts
8. *Self-management* (10 items, $\alpha = 0.85$): The extent to which a student feels that he or she can independently manage his or her work and schedules to meet goals

For the opportunity measures, students were asked to respond to a set of items asking about the number of core content classes (including English, mathematics, science, and social studies) in which they engaged in activities relevant to the measure. Response options included: 0 = none of my classes; 1 = one of my classes; 2 = two of my classes; 3 = three or more of my classes. For the interpersonal and intrapersonal competency measures, students were asked to respond to a set of items that asked about the extent to which they agreed with different statements. Response options ranged from 0 (never or almost never true) to 3 (always or almost always true).

How are students' opportunities for deeper learning in high school related to their civic engagement and workforce outcomes?

Analyses revealed consistent patterns of relationships between opportunities for deeper learning in high school and several civic engagement outcomes. For example, five of the six measures of opportunities for deeper learning (all except for opportunities for complex problem solving) were significantly and positively related to both donating or raising money for charity and expressing opinions during political conversations with friends (see Exhibit 9). For these outcomes, the coefficients in Exhibit 9 represent the percentage point change in the outcome resulting from an increase of one standard deviation in the opportunity measure. For example, for opportunities for collaboration, someone with an opportunity measure one standard deviation above average was 6 percentage points more likely to report donating or raising money for charity in the past year.

Exhibit 9. Summary of Relationships Between Opportunities for Deeper Learning and Civic Engagement Outcomes

Civic engagement outcomes	Self-reported opportunities for deeper learning in high school					
	Collaboration	Communication	Complex Problem Solving	Creative Thinking	Interdisciplinary Learning	Real-World Connections
Beliefs about community service	0.10	0.06	0.08	0.14	0.12	0.15
Beliefs about political participation	0.16	0.13	0.18	0.16	0.17	0.18
Volunteering	0.05	0.04	0.04	0.03	0.07	0.07
Donating or raising money for charity	0.06	0.08	0.05	0.07	0.09	0.08
Voting in a national election	0.09	0.06	0.07	0.06	0.04	0.04
Expressing opinions during political conversations with friends	0.07	0.08	0.06	0.07	0.06	0.06
Participating in a protest	0.02	0.02	0.04	0.01	0.03	0.02
Signing a petition	-0.03	-0.02	0.04	-0.04	-0.02	-0.04
Boycotting a product	0.04	0.04	0.11	0.05	0.08	0.06
Expressing opinion about a product or company	0.08	0.07	0.05	0.08	0.07	0.08

Note. Values that are highlighted and in bold are significant at the .05 confidence level. Values that are not highlighted did not achieve statistical significance at the .05 confidence level. Coefficients for the outcomes “beliefs about community service” and “beliefs about political participation” represent the change on a scale of 1 (strongly disagree) to 5 (strongly agree) resulting from an increase of one standard deviation in the opportunity measure. Coefficients for the remaining outcomes represent the percentage point change in the outcome resulting from an increase of one standard deviation in the opportunity measure.

In addition, all of the opportunity measures were significantly, positively related to beliefs about the value and importance of political participation, and more than half of the opportunity measures were significantly related

to several civic activities: volunteering, voting in a national election, and using social media to express an opinion about a product or company. Fewer opportunity measures were significantly related to the remaining civic engagement outcomes, though most of the nonsignificant relationships were still positive in nature. Signing a petition was the only civic engagement outcome for which we observed negative relationships with opportunities for deeper learning in high school, but these relationships did not achieve statistical significance.

Findings in Exhibit 9 also demonstrate that some opportunity measures were more likely to be related to civic engagement outcomes than others. For example, opportunities for interdisciplinary learning and connecting course material to real-world issues were significantly related to seven of the 10 civic engagement outcomes, while opportunities for communication were related to four outcomes.

The findings in Exhibit 10 indicate few significant relationships between opportunities for deeper learning and workforce outcomes. The outcome with the largest number of significant relationships (participants' reports that their jobs align with their career goals) is significantly related to four opportunity measures: opportunities for complex problem solving, creative thinking, collaboration, and real-world connections. The remaining workforce outcomes were related to fewer (or none) of the opportunity measures.

Exhibit 10. Summary of Relationships Between Opportunities for Deeper Learning and Workforce Outcomes

Workforce outcomes	Self-reported opportunities for deeper learning in high school					
	Collaboration	Communication	Complex Problem Solving	Creative Thinking	Interdisciplinary Learning	Real-World Connections
Employed at the time of the follow-up survey	0.01	0.02	0.04	0.01	0.03	0.03
Never unemployed	0.00	0.02	0.03	0.01	-0.01	0.02
Job satisfaction	0.01	0.04	0.02	0.03	0.02	0.06
Job aligns with career goals	0.05	0.03	0.06	0.10	0.07	0.08
Earned income at least \$30,000	0.03	0.07	0.08	0.04	0.01	0.02

Note. Values that are highlighted and in bold are significant at the .05 confidence level. Values that are not highlighted did not achieve statistical significance at the .05 confidence level. Coefficients represent the percentage point change in the outcome resulting from an increase of one standard deviation in the opportunity measure.

Results of analyses using participants' self-reported deeper learning competencies in high school revealed few relationships between deeper learning competencies and civic engagement and workforce outcomes. With the exception of two civic engagement outcomes (beliefs about the importance and value of political participation and reports of expressing opinions during political conversations with friends), no more than three of the competency measures were significantly related to participants' longer-term outcomes (see Section V of the technical appendix). Although prior research has highlighted the value that employers place on deeper learning competencies, such as creative thinking skills and perseverance, these findings do not show consistent evidence of positive relationships between self-reported survey measures of these skills in high school and positive workforce outcomes.

Study Limitations

Although this study used a rigorous, quasi-experimental design to uncover the impact of attending a deeper learning network school, we note several limitations to the study design and data. First, because we selected the sample to include only schools that were identified as implementing the network model at least “moderately well,” and for which we could identify and obtain data for a matched non-network school, results of this study do not generalize to all high schools supported by the deeper learning networks included in this study.

Second, although the propensity score weights applied to analyses in this study account for observed differences between students who attended network and matched non-network schools, study participants in these groups may have differed in unobserved ways before entering high school. To the extent to which these unobserved factors (e.g., motivation, support from family and other adults, peer relationships) are unrelated to background characteristics included in propensity score models (e.g., Grade 8 achievement test scores), our analyses may not adequately account for pre-existing differences between students who attended deeper learning network schools and students who attended matched non-network schools.

Third, all the civic engagement, workforce, high school experience, and deeper learning competency measures included in this study relied on self-reported survey data. Although some workforce outcomes are captured in administrative Unemployment Insurance databases, difficulties in accessing these data (and the fact that these databases are governed at the state level rather than the national level) prevented us from using these data for this study. In addition, a similar database for civic participation outcomes currently does not exist. Therefore, we relied on surveys to measure key participant outcomes, and the self-report nature of surveys introduce the possibility of bias in participant responses. For example, different respondents may have interpreted survey questions or response options in different ways, and participants may have exaggerated their behaviors and attitudes in their survey responses (i.e., social desirability bias). Our study did not find evidence, however, that bias in survey responses differed between students who attended network schools and students who attended matched non-network schools.

Finally, a second implication of relying on survey data to measure longer-term outcomes is the relatively low response rate for the follow-up survey. Even though we could locate contact information for the majority of study participants, fewer than one third of study participants (about 27%) completed the follow-up survey. Rather than impute missing data for nonrespondents, we estimated a survey weight to account for differences in background characteristics between participants who completed the follow-up survey and participants who did not. These weights likely did not account for all differences between groups, however, particularly because weights did not account for factors that may have been influenced by attending a network high school. For example, if network school students were more likely to leave their city or state to attend college, then it might be more likely that we located outdated contact information for these participants. Therefore, although survey weights attempt to correct for study attrition and missing outcome data, results based on these weights possibly do not completely represent differences between groups among incoming cohorts of Grade 9 students as we intended.

Key Takeaways

According to our study's theory of action, attending a deeper learning network high school is expected to increase students' opportunities to experience instruction aligned with deeper learning and build students' interpersonal and intrapersonal competencies. We expected that these opportunities and competencies should then have a longer-term influence on students' civic engagement and workforce outcomes, both directly and through increased college enrollment and graduation. Previous analyses demonstrated that students who attended deeper learning network schools were indeed more likely to experience opportunities for deeper learning in their core courses (Bitter et al., 2014), as well as enroll in college (Zeiser et al., 2014). We also found that students who attended deeper learning network schools reported higher levels of collaboration skills, academic engagement, motivation to learn, and self-efficacy in the short term; however, students from network and non-network schools did not differ significantly in their reported locus of control, perseverance, self-management, or creative thinking skills (Zeiser et al., 2014).

The findings presented in this report provide mixed evidence of the effectiveness of attending a deeper learning network school on students' *longer-term* civic engagement and workforce outcomes. Key findings related to the impact of attending a network school include:

Civic engagement: We did not observe significant differences in the perception of the importance of community service or political participation, the likelihood of donating or raising money for charity, or the likelihood of engaging in several political activities (e.g., voting, signing a petition, attending a protest or demonstration) between students who attended network schools and those who attended matched non-network schools. However, a few significant differences were observed:

- Network school students were significantly *more* likely to have volunteered in the past year than students who attended matched non-network schools.
- Network school students were significantly *less* likely than students who attended matched non-network schools to report engaging in two political behaviors related to their role as a consumer: (1) boycotting a product in disagreement with the values or conduct of the company that produced it, and (2) expressing opinions online in protest of a specific business or company for something they did.

Workforce: We did not observe significant impacts of attending a deeper learning network school on several workforce outcomes including earned income, unemployment, alignment of jobs with career goals, and job satisfaction. In addition, students who attended network schools were significantly *less* likely than students who attended non-network schools to be employed when they took the survey. Because nearly a third of survey respondents reported that they were still enrolled in college when they took the survey, we examined their employment and college-going together:

- Both study groups were similarly likely to be working only (and not attending college), or attending college only (and not working), at the time they took the survey.
- Network school students were significantly *less* likely to be both working and attending college in fall 2019 than students who attended matched non-network schools.
- Network school students were significantly *more* likely to be both *not* working and *not* attending college in fall 2019.

In sum, the current analyses did not provide strong evidence of the impact of attending a deeper learning network school on civic engagement and workforce outcomes. These findings suggest a limited long-term impact of attending a network school in these outcome areas. Results of additional correlational analyses and

findings from follow-up interviews, however, hint at some potentially promising connections between deeper learning in high school and students' longer-term outcomes.

Correlational analyses demonstrated that, regardless of the type of school that students attended, opportunities for deeper learning in high school were significantly, positively related to several civic engagement outcomes. Beliefs about the value and importance of political participation were positively related to all six deeper learning opportunities we examined, and self-reports of donating or raising money for charity and expressing opinions during political conversations with friends were positively related to five of the six opportunities. Voting in a national election, volunteering in the past year, and using social media to express opinions about a product or company also were significantly, positively related to several opportunities for deeper learning. We observed fewer significant relationships between opportunities for deeper learning in high school and workforce outcomes, though opportunities for complex problem solving, creative thinking, collaboration, and real-world connections were significantly, positively related to reports that participants' jobs aligned, or were a step on the path toward, their career goals. These findings suggest that experiencing deeper learning opportunities in high school may contribute positively to students' civic engagement and work experiences later, regardless of the high school they attend.

Follow-up interviews with survey participants also revealed several ways in which high school experiences aligned with deeper learning may have provided students with a strong foundation for civic engagement and employment. Several participants from network schools described how a strong focus on civic engagement in high school (e.g., through clubs focused on policy or social justice issues) fostered a longer-term interest in civic engagement. All respondents who attended network schools identified aspects of their high school experiences that influenced their career goals and/or contributed positively to their preparation for work, including strong relationships with adults who spent time to foster students' interests, project-based learning experiences that fostered teamwork and leadership skills, and internships that helped students set goals and learn how to get along with others in the workplace.

Despite these potential connections between deeper learning opportunities and longer-term outcomes, several challenges associated with conducting longitudinal research may have limited our ability to detect a significant effect when examining the impact of attending a network school in this study. These challenges include the following:

- Students who attended non-network schools may have been exposed to opportunities for deeper learning outside their high schools—in extracurricular activities (e.g., sports, student government); activities in their communities (e.g., participation in church or girl/boy scouts)—or during college. In our study, more than half of study participants attended a 4-year college before completing the follow-up survey, and they likely were exposed to greater opportunities for deeper learning (e.g., complex problem solving, creative thinking, collaboration and communication, connecting course work to real-world problems) during college. Therefore, any differences in experiences with opportunities for deeper learning may have been eliminated once participants experienced these opportunities in college. In addition, specific experiences in college (e.g., service-learning opportunities, participation with college-based community service groups, guidance from career offices) may have had more direct impacts on participants' civic engagement and workforce outcomes than more distal experiences in high school. When examining the impact of high school experiences on longer-term outcomes, one must take into consideration that these intervening life events have the potential to “wash out” significant impacts.
- The follow-up interviews with a subset of respondents provide evidence to suggest that a longer-term impact on civic engagement and workforce outcomes may not yet be detectable with the current participant sample. The interviews revealed that most study participants are in a time of transition, moving between jobs and between work and postsecondary education, and many are not yet settled

into longer-term careers. Furthermore, although some respondents reported an interest in civic engagement, they also reported that finding time for civic engagement was challenging. Interview respondents reported being focused on work, completing degrees, and starting families. These responses suggest that it may be too early to detect a longer-term impact on careers and civic participation.

- Difficulty locating respondents from the original study limited our response rate. When our study participants were invited to take the follow-up survey in 2019, they had not been contacted by the research team for approximately 6 years. It is likely for this reason that less than a third of study participants completed the follow-up survey. In addition, because we had not continually updated participants' contact information in the years between the original and follow-up study, invitations to take the follow-up survey might have been sent to outdated addresses. These challenges reveal implications for the field with respect to designing and conducting longitudinal research in education. When a theory of action includes longer-term outcomes, and it is possible that study participants will be followed for several years to measure those outcomes, studies should be designed to prepare for this in advance. Unfortunately, lapses in funding between periods of active data collection often prevent researchers from sustaining regular contact with study participants. Therefore, future research following a similar design should consider, and funders should be willing to support, regular outreach to study participants between periods of data collection to make sure that contact information is up-to-date and that study participants are aware that the study is continuing.

The world has already changed significantly since the survey in this report was administered. It is reasonable to assume that the impact of the COVID-19 pandemic, the complex political landscape, and increased efforts toward social justice have affected the work status and civic engagement of many of our study participants. Indeed, follow-up interview respondents spoke about changes in their jobs, their education plans, and the ways in which they engage in their communities and in local and national issues. Although we did not find strong evidence of an impact of attending a deeper learning network school, the study did uncover evidence supporting the underlying theory that opportunities for deeper learning are positively related to participants' civic engagement and workforce outcomes, regardless of the high school setting. These findings demonstrate the promise of deeper learning for preparing young adults well for work life and civic participation, a goal even more important within the current uncertain and challenging context.

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