

EFFECTS OF AN OUT-OF-SCHOOL PROGRAM ON URBAN HIGH SCHOOL YOUTH'S ACADEMIC PERFORMANCE

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Research strongly indicates that low-income youth, particularly those of color who are overrepresented in poverty, have lower levels of academic performance than their higher-income peers. It has been suggested that community-based out-of-school programs can play an important role in reducing these academic differences. This study examined the effect of the YMCA High School Youth Institute on the grades, test scores, and school attendance of urban high school youth using a randomly selected matched comparison group. Those involved in the program had significantly higher English-language art and math standardized test scores and somewhat fewer absences than the comparison group. Active program participants had significantly higher academic grade-point averages (GPAs) and math test scores as well as somewhat higher total GPA. The findings suggest that high-quality out-of-school programs can positively influence the academic performance of low-income youth. Implications for practice are discussed.

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In recent years, there has been substantial interest around increasing high school graduation rates, yet youth from low-income families and communities seem to be especially vulnerable to experiencing academic challenges and dropping out of high school (Balfanz & Legters, 2004; Hammond, Linton, Smink, & Drew, 2007; Reardon, 2011;

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Tyler & Lofstrom, 2009). The achievement gap between children from low- and high-income families has been growing for many years, and students who live in poverty remain well behind their more affluent peers (Center on Education Policy, 2011; Reardon, 2011; Tavernise, 2012) in grades, standardized test scores, and high school completion rates (Balfanz & Legters, 2004; Education Weekly, 2011; Guskey, 2011; Hopson & Lee, 2011; Newcomb et al., 2002; Reardon, 2011; Stuart & Hahnel, 2011). It has been found that a \$1,000 increase in annual income can raise reading and math scores by 6% of a standard deviation (Dahl & Lochner, 2012). Youth from low-income families are also five times more likely than youth from high-income families to drop out of high school (Chapman, Laird, Ifill, & KewalRamani, 2011).

It has been suggested that to increase and sustain higher levels of academic achievement among low-income students, social supports must be put in place (Greene & Anyon, 2010). Unfortunately, youth from lower income families usually have fewer opportunities for out-of-school programs, although quality programs have the potential to increase high school success and encourage postsecondary education (Deschenes et al., 2010; Ferguson, Bovaird, & Mueller, 2007). This study investigates the effects of an out-of-school program on low-income, culturally diverse high school students' academic achievement and school attendance.

Academic Performance and Socioeconomic Status

Socioeconomic status is one of strongest and most consistent predictors of academic achievement. Multiple studies and reviews have indicated that youth from low-income families, schools, and communities have significantly lower grades and test scores than their peers with higher socioeconomic levels (Hammond et al., 2007; Lacour & Tissington, 2011; Center on Education Policy, 2011; Okpala, Smith, Jones & Ellis, 2000; Malecki & Demaray, 2006; Caldas & Bankston, 1997). In a study of the effects of family poverty on education and behavior, Hopson and Lee (2011) found that middle and high school students from poor families self-reported significantly lower grades than their higher income peers. Another study reported that high school students eligible for the school free and reduced lunch program had significantly lower grades at both the first and the last reporting periods. In addition, free and reduced lunch status was related to larger declines in high school students' grades over time, while the grades of students from higher socioeconomic status levels remained more consistent. This research indicated poverty was an important and consistent factor in predicting grades (Guskey, 2011).

A study of standardized test scores in Indiana found that family socioeconomic status was positively predictive of proficiency in language arts and math at both the district and the school levels (Paulson & Marchant, 2009). Similarly, Okpala, Okpala, and Smith (2001) reported that involvement in the free and reduced school lunch program was significantly related to lower proficiency levels on math tests among fourth-grade students. Elementary and middle school youth in high-poverty schools have also been found to have significantly lower math and reading achievement test scores (Southworth, 2010; Okpala et al., 2000). Low-income high school students also score significantly lower on standardized reading, writing, and math than their higher income peers (Hoyle, O'Dwyer, & Chang, 2011) and science tests (Miller-Whitehead, 2001).

Edward and Malcolm (2002) concluded that youth whose parents were unemployed or in low-skill or low-status jobs were more likely to be truant from school. Likewise, children from low-income families are significantly more likely to be absent from school in kindergarten and first grade than their higher income counterparts (Ready, 2010; Chang

& Romero, 2008). Studies on school attendance in England found that child poverty was predictive or related to lower school attendance in elementary, middle, and high school (Zhang, 2003; Attwood & Croll, 2006). Given the link between school attendance and academic performance (Shoenfelt & Huddleston, 2006; Roby, 2004; Claes, Hooghe, & Reeskens, 2009), it is important to implement strategies to increase the attendance of youth from low-income families and communities.

Regardless of ethnicity, children who are low-income have been shown to have below average test scores (Bergeson, 2006) and academic performance (Caldas & Bankston, 1997). However, youth of color, especially Latinos and African Americans, are overrepresented in low-income communities (Balfanz & Legters, 2006; Greene & Anyon, 2010; Stuart & Hahnel, 2011) and have been shown to have lower academic achievement and higher high school dropout rates than White students (Behnke, Gonzalez, & Cox, 2010; Hemphill & Vanneman, 2011). Indeed, Latinos, particularly those who are foreign-born, and African American youth have more difficulty than other adolescents completing school at each stage of the educational system (Fulgini & Hardway, 2004; Fry, 2003). Nationwide, approximately 42% of Latino, 43% of African American, and 46% of Native American students will not graduate on time with a regular diploma, compared to 17% of Asian American and 22% of White students (Alliance for Excellent Education, 2011). In California, approximately 22% of Latino and 29% of African American students do not graduate from high school, compared to 11% of Whites and 7% of Asian Americans (California Department of Education, 2010). Truancy tends to be more predominant among African Americans and Latinos as well (Weden & Zabin, 2005; Woo & Sakamoto, 2010). Students living in poverty and those who are members of an ethnic minority are often concentrated in the lowest achieving schools, further contributing to their poor academic outcomes (Alliance for Excellent Education, 2011; Balfanz, 2007; Education Trust, 2010). Given these academic concerns, it is important to develop programs to support the academic achievement of low-income youth of color.

Out-of-School Programs

Although the research on out-of-school programs has been described as emerging (Scott-Little, Hamann, & Jurs, 2002), quality programs can have a positive effect on the academic achievement, social skills, and behavioral outcomes of youth (Barr, Birmingham, Fornal, Klein, & Piha, 2006; National Dropout Prevention Center, 2012; Hall, Yohalem, Tolman, & Wilson, 2003). According to Hall et al., (2003), the challenge for these programs is to find ways to counteract the negative effects of poverty by creating engaging, motivating, and inspiring learning environments for youth. Out-of-school programs that are grounded in positive youth development principles can assist vulnerable youth to overcome barriers to learning and enhance academic achievement and social skills (Hall et al., 2003) while reducing involvement in adolescent problem behaviors (Roffman, Pagano, & Hirsch, 2001; Meltzer, Fitzgibbon, Leahy, & Petsko, 2006; Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004).

A positive youth development framework requires out-of-school programs to provide safety, supportive relationships, meaningful youth involvement, skill building, and community involvement to effectively move youth toward positive long-term outcomes (Community Network for Youth Development, 2001). Peterson and Fox (2004) suggested that some of the key ingredients in successful out-of-school programs are as follows: academic offerings (homework assistance, tutoring, hands-on learning); enrichment and accelerated learning (field trips, character education, critical thinking skills, and technology);

recreation (sports and sports education); and service opportunities to connect students to their community. Other research indicates the importance of offering diverse program opportunities and allowing high school youth to choose how to be involved (Birmingham & White, 2005; Durlak & Weissberg, 2007).

In a review of the formal evaluations done on a variety of out-of-school programs, the Afterschool Alliance (2008) concluded that participation in quality programs can result in improved school attendance, engagement in learning, test scores, and grades. Further, the students at the greatest risk are likely to evidence the greatest gains. It also appears that more frequent and longer participation increases academic benefits (Afterschool Alliance, 2008). In a longitudinal study looking at the relationship between high-quality after-school programs and academic and behavioral outcomes for low-income students, Vandell, Reisner, and Pierce (2007) found that students who attended high-quality after-school programs across 2 years showed significant gains in work habits and standardized math test scores, compared to their peers who did not attend. A meta-analysis of 73 after-school programs by Durlak and Weissberg (2007) concluded that after-school program participation significantly improved youth's grades and achievement test scores, but only 20 of the programs collected data on grades and only 5% of the studies included focused on high school youth. In contrast, a meta-analysis by Zief, Lauver, and Maynard (2006) on the out-of-school programs found no significant differences between participants and nonparticipants on test scores or grade-point average (GPA) on the five studies used.

In a summary report of statewide and local evaluations of the After School Learning and Safe Neighborhoods Partnership Program, the California Department of Education (2002) noted many positive effects of quality after-school programs on the academic performance of elementary and middle schools students. The findings included large improvements in achievement among the most at-risk students, including those in the lowest quartile on standardized tests and English language learner students, improved both SAT-9 reading and math test scores and school attendance (California Department of Education, 2002). Despite all of these potential benefits, quality high school out-of-school programs are in extremely short supply (Barr et al., 2006). Little research on the effects of such participation on academic achievement has been published on the high school population and this age group is rarely included in meta-analyses (Zeif et al., 2006; Durlak & Weissberg, 2007).

Although an evaluation of After School Matters reported no differences in grades or school attendance between intervention and control high school students (Hirsch, Hedges, Stawicki, & Mekinda, 2011), an evaluation of the Exito after-school program found its' predominantly low-income Latino participants were less likely than comparison students to have failed English and been retained (Hartman, Good, & Edmunds, 2011). In a study of The Afterschool Corporation, Birmingham and White (2005) also reported better school attendance and a higher rate of test passing among program participants in comparison with nonparticipants. Given the academic challenges facing low-income youth combined with the lack of research in this area, it is important to explore the effect of specific out-of-school program models on the academic performance of low-income high school students.

The YMCA Youth Institute

The YMCA of Greater Long Beach Youth Institute, established in 2001, is an intensive, year-round, community-based program that uses technology as mechanism for promoting

positive youth development and enhancing the academic success and career readiness of low-income, culturally diverse high school students (O'Donnell & Coe-Regan, 2006; Coe-Regan & O'Donnell, 2006). The goals of the Youth Institute (YI) are as follows: (a) improve the technology, career, leadership, and decision-making skills of youth to promote readiness for higher education or career entry after graduation; (b) improve academic achievement and stimulate interest in higher education among low-income, culturally diverse, urban high school youth; and (c) promote bonding to prosocial adults and community attachment among urban youth to ensure that they remain engaged in their schools and communities. Youth interested in participating in this program must submit an application. The selection process is structured to ensure, to the greatest degree possible, gender and ethnic diversity among each incoming class. The neighborhoods in which almost all YI youth live are densely populated, ethnically diverse, and have the highest poverty rates in the city. Youth are prioritized for program selection based on a question about adversity they have experienced in their lives so that vulnerable youth are served. New cohorts are selected in the spring and enter the program each summer.

The program has two components: the intensive summer technology program and the year-round academic support program. Incoming youth participate in a 35-hour per week 8-week summer program. The first week is spent at a wilderness retreat at a national park and focuses on team building, cultural diversity training, decision making, and life sciences. Participants are assigned to project teams comprising mixed gender and ethnicity that work together the entire summer. Initiative games and a low-ropes course are designed to promote group cohesion and leadership skills while improving problem-solving and communication skills. Activities to increase cultural awareness and tolerance are integrated into the week, which is critical because it helps the youth develop the group and problem-solving skills they will need to successfully accomplish their summer tasks (O'Donnell & Coe-Regan, 2006; Coe-Regan, & O'Donnell, 2006).

During the rest of the summer, the program uses project-based learning to teach information technology skills. Projects include (a) digital story telling/movie making, (b) graphic design, (c) web site creation, (d) presentation and office software, (e) 3D animation, and (f) use of peripheral hardware (scanner, DV cameras, etc.). A wide range of the latest software is used including Cinema 4D, Adobe Illustrator, Adobe Photoshop, iMovie, Final Cut Pro, PowerPoint, Keynote, Adobe PageMaker, Adobe Flash, Adobe InDesign, Extensis, GarageBand, and Macromedia Dreamweaver. Participants also learn how to connect, troubleshoot, and use computer networks. All classes have a curriculum that includes the pedagogical approach, the skill sets to be learned, and the content. Products include animated logos, 5- to 10-minute movies, a magazine focused on teen issues, and a website. All projects are designed to help participants gain literacy, math, and higher level thinking skills, are linked to school content standards, and completed in teams (O'Donnell & Coe-Regan, 2006; Coe-Regan & O'Donnell, 2006). Youth are paid a \$500 stipend for successfully completing the summer program, which culminates in a graduation and film festival celebration for family and community members.

Upon graduation from the summer program, participants become "Youth Institute Alumni," who are then able to voluntarily participate in a wide range of year-round programs throughout their high school and college years. Involvement opportunities include, but are not limited to, daily digital art labs and homework assistance, academic and personal advising, community service, equipment check-out, field trips, weekend leisure activities, community leadership positions, and social work support (O'Donnell

& Coe-Regan, 2006; Coe-Regan & O'Donnell, 2006). Alumni can also apply to receive a stipend for returning as mentors for future summer program participants or work as a paid intern with Change Agent Productions, a multimedia social enterprise associated with the program (O'Donnell, Tan, & Kirkner, 2012). The YI also has a College Readiness program that takes youth on college field trips and assists them in selecting the courses needed to transition to higher educational institutions, and in completing college and financial aid and scholarship forms. An earlier evaluation of the program suggested that key elements related to the program's success in attracting and involving high school youth were the positive youth development framework, the use of technology, service learning, project-based learning, and the development of positive relationships (Coe-Regan & O'Donnell, 2006). The current study investigates the effects of participation in the Youth Institute on grades, test scores, and school attendance.

METHODS

Data Collection

Both the youth and their parent signed an informed consent allowing researchers to collect grades, school attendance, and test scores from the Long Beach Unified School District (LBUSD). The research was approved by both the university and the school district institutional review boards. Research staff from the school district then randomly selected a comparison sample of high school students who were matched to the YI sample based on gender, ethnicity, and year in school. Approximately five comparison students were matched for each YI youth. The district provided academic GPA, total GPA, absences, and trancies from the last semesters of both 2010 and 2011. Academic GPA comprised the mean of grades from English, math, science, social science, and foreign language courses, and total GPA incorporated electives and other course. English language arts (ELA) and math content standard test scores were provided from the end of 2010 and 2011 for those students who took the tests.

Sample Description

One hundred eighteen (81%) of the YI participants who finished the program in the summers between 2007 and 2010 had both parent and child informed consents, and some useable data for the 2010–2011 academic year. However, the district was unable to provide matched comparison youth for the ninth graders, so nine YI youth were removed from the analyses. Table 1 displays the demographic characteristics of the YI sample (109) and the matched comparison sample ($N = 545$). There were no significant demographic differences between the two groups.

ANALYSIS

Multivariate analysis of covariance (MANCOVA) was used to compare outcome differences between high school YI and comparison students on GPA, standardized test score, and school attendance while controlling for baseline scores. Because of the exploratory nature of this study and the hypothesized positive program effect, results are reported out at the .10 level.

Table 1. Demographics of YMCA YI Participants and Comparison Students for the 2010–2011 Academic Year

| | HSYI participants (<i>N</i> = 109) | | Comparison students (<i>N</i> = 545) | |
|---------------------------------|--|----------|--|----------|
| | % | <i>N</i> | % | <i>N</i> |
| Gender | | | | |
| Male | 55% | 60 | 55% | 300 |
| Female | 45% | 49 | 45% | 245 |
| Ethnicity | | | | |
| Latino | 50% | 55 | 50% | 275 |
| African American | 25% | 27 | 21% | 115 |
| Asian American/Pacific Islander | 19% | 21 | 23% | 125 |
| European American | 6% | 6 | 6% | 30 |
| Grade | | | | |
| 10 th grade | 28% | 30 | 28% | 150 |
| 11 th grade | 41% | 45 | 41% | 225 |
| 12 th grade | 31% | 34 | 31% | 170 |

Note. YI = Youth Institute; HSYI = high school Youth Institute.

Table 2. Academic Comparisons Between YI Participants and Comparison Students for the 2010–2011 Academic Year

| Measure | HSYI participants | | Comparison students | | <i>F</i> -value |
|------------------------------------|-------------------|----------|---------------------|----------|-----------------|
| | Adjusted mean | <i>N</i> | Adjusted mean | <i>N</i> | |
| Academic GPA | 2.45 | 101 | 2.33 | 545 | 2.60 |
| Total GPA | 2.55 | 106 | 2.47 | 545 | 1.49 |
| Absences | 7.19 | 108 | 8.69 | 545 | 2.98* |
| Truancies | 2.81 | 108 | 3.05 | 545 | .18 |
| Content standards | | | | | |
| English language arts [†] | 338.51 | 67 | 326.78 | 356 | 6.16** |
| Math [†] | 309.65 | 57 | 295.35 | 319 | 5.41** |

Note. YI = Youth Institute; HSYI = high school Youth Institute; GPA = grade-point average.

**Significant at the .05 level.

*Approaching significance at the .10 level.

[†]10th and 11th graders only.

Academic Comparisons Between All YI Participants and Comparison Students

As shown in Table 2, YI participants had significantly higher ELA, $F(1, 422) = 6.16, p < .05$, and math, $F(1, 375) = 6.91, p < .05$, content standard scores, and somewhat lower absences, $F(1, 652) = 2.98, p < .10$, than comparison students.

Academic Comparisons between Active YI Participants and Comparison Students

Given that prior studies have shown that program attendance is an important factor in outcomes of after-school programs, a second analysis was completed comparing “active” (53) YI youth and their matched comparison students. To be classified as active, YI participants had to have participated in the year-round program for at least 30 days over the past 2 years. On average, these youth attended the YI 119 times over a 2-year period with

Table 3. Comparisons of Grades, Absences, Truancies, ELA, and Math Content Standard Test Scores Between Active YI Participants and Comparison Students for the 2010–2011 Academic Year

| Measure | Active YI participants | | Comparison students | | F-value |
|-------------------|------------------------|----|---------------------|-----|---------|
| | Adjusted mean | N | Adjusted mean | N | |
| Academic GPA | 2.52 | 50 | 2.26 | 265 | 5.59** |
| Total GPA | 2.61 | 52 | 2.41 | 265 | 3.44* |
| Absences | 6.88 | 52 | 8.80 | 265 | 2.36 |
| Truancies | 2.69 | 52 | 3.27 | 265 | .54 |
| Content standards | | | | | |
| ELA [†] | 342.90 | 35 | 335.14 | 178 | 1.24 |
| Math [†] | 318.79 | 28 | 300.35 | 155 | 3.99** |

Note. YI = Youth Institute; GPA = grade-point average; ELA = English language arts.

**Significant at the .05 level.

*Approaching significance at the .10 level.

[†]10th and 11th graders only.

a standard deviation of 92. As shown in Table 3, active YI participants had significantly higher academic GPA, $F(1, 314) = 5.59, p < .05$, and math content standard scores, $F(1, 182) = 3.99, p < .05$, than comparison students. Active YI participants also had somewhat higher total GPAs than comparison students, $F(1, 316) = 3.44, p < .10$.

DISCUSSION

Research indicates that high-quality out-of-school programs can result in better academic achievement and school attendance (Durlack & Weissberg, 2007; Vandell et al., 2007). However, fewer studies have been completed on the effects of these programs on high school students and those results have been mixed (Hirsch et al., 2011; Hartman et al., 2011). This study investigated the effects of participation in the YMCA Youth Institute on the grades, test scores, and school attendance of low-income, culturally diverse, high school youth using a randomly selected matched comparison group. It is particularly important to understand the effectiveness of out-of-school programs with this population given that poverty is related to lower academic achievement, poorer school attendance, and school dropout (Hammond et al., 2007; Lacour & Tissington, 2011; Center on Education Policy, 2011).

YI youth scored significantly higher on both ELA and math content standard measures and had somewhat fewer absences than comparison students. Similar findings have been found in other studies of out-of-school programs (Durlack & Weissberg, 2007; Hartman et al., 2011). Because more frequent participation in after-school analyses have been linked to better outcomes (Roth, Malone, & Brooks-Gunn, 2010), a second analysis was completed with actively involved YI participants. Active YI youth had significantly higher academic GPA and math content standard scores, and somewhat higher total GPA than comparison students. The findings related to GPA are particularly encouraging given that in the prior year, their academic and total GPAs were significantly lower than those of the comparison group. In more practical terms, 31% of Active YI youth improved their academic GPA to a higher grade level, while only 20% of comparison youth did the same. It is possible that these higher grades will make them more competitive when

applying for colleges in the future given that GPA is often considered in admission decisions.

In addition, their higher test scores in both ELA (17% of active youth moved from “basic” to “proficient” or from “proficient” to “advanced,” while only 6% of comparison youth did the same) and math (4% of active youth versus 2% of comparison youth) will make them eligible for some of the more competitive academic high school preparation programs, which may prove beneficial for both college and career preparation. These findings provide preliminary support to the notion that high-quality out-of-school programs grounded in youth development practices and focused on technology can positively influence academic performance among low-income youth and, possibly, school attendance.

Implications for Practice

The YI provides year-round out-of-school programming for low-income urban high school youth, a population that is sometimes difficult to attract and retain given the many competing activities youth this age may choose to be involved in (The After-School Corporation, 2007). The ability to accomplish these tasks are critical for effective after-school programs because consistent and ongoing participation over an extended period of time has been linked to positive academic and behavioral outcomes in multiple studies (Strobel, Kirshner, O’Donoghue, & McLaughlin, 2008; Roth & Brooks-Gunn, 2000). There are several likely aspects of the YI that contributed to the outcomes found here and inclusion of these components in other programs for this population may prove valuable. First, the YI also has a fully developed conceptual framework with clearly articulated program components and hypothesized outcomes. Having such a framework has been shown to improve the quality of youth development programs (Catalano et al., 2002). The YI is a comprehensive program that allows youth to have a voice in the activities that are offered and in which they participate. All of these things have been found to increase the likelihood of high school youth after-school program participation (The After-School Corporation, 2007; Strobel et al., 2008).

The use of a youth development framework, providing safety, supportive relationships, meaningful youth involvement, skill-building, and community involvement to effectively move youth toward positive long-term outcomes (Community Network for Youth Development, 2001), is essential to the development of programs for this population. In particular, developing positive relationships with adults and peers that support success, safety, and meaningful learning opportunities (Strobel et al., 2008) should encourage youth to stay involved. Given that bonding to prosocial others including positive adult role models can contribute to better test scores and grades (Fleming et al., 2008; Wright, John, & Sheel, 2006), having staff who can establish positive relationships with and among youth may be particularly important (Barr et al., 2006). It is possible that when youth are bonded to others who highly value academic performance, they will be more likely to attend school and try harder. Participation in after-school activities has been found to result in having more academic and prosocial peers (Fredricks & Eccles, 2008).

To encourage and support high school youth performing better academically, the YI utilized a number of strategies. It provided daily homework assistance, a college readiness program that helped youth to better understand how their high school performance was associated with long-term success, allowed youth to use state-of-the-art digital media technology to complete school projects or make class presentations, and made participation in internship opportunities contingent upon maintaining an acceptable GPA. This

approach is important given the use of a multipronged approach to supporting academics has been found to be more helpful than the use of homework assistance alone (Barr et al., 2006). In addition, the YI linked its technology curriculum to state content standards and utilized project-based learning to complete all tasks during its summer program as project-based learning has been shown to increase decision-making and social skills and academic achievement (Strobel & van Barneveld, 2009). Noam (2003) suggested that the use of projects in out-of-school programs was beneficial because it creatively engages youth in ways that are more participatory, hands-on, and community-focused than the learning that typically happens during the school day. Programs that link these creative learning opportunities with school learning expectations may be more effective in developing the skills needed to improve grades and test scores.

Finally, the YI taught youth state-of-the-art technology and software and software skills. This is crucial since technology affects every facet of life and enormous opportunities exist for youth who possess technology knowledge and skills (Wilhelm, Carmen, & Reynolds, 2002). Technology use and competence is related to positive educational and career outcomes (Huffman & Huffman, 2012; Jackson et al., 2006). Unfortunately, a large gap still exists between the haves and the have-nots regarding access and knowledge about technology (Davis, Fuller, Jackson, Pittman, & Sweet, 2007; Warschauer, Knobel, & Stone, 2004; Warschauer & Matuchniak, 2010).

In addition, even when low-income youth have access to technology at home and school, they are more likely to use it to focus on developing basic skills, whereas higher income users are more likely to use it to develop higher level thinking and problem-solving skills (Warschauer et al., 2004; Warschauer & Matuchniak, 2010; Morse, 2004). However, there is evidence that community-based technology learning programs that promote the critical use of media and technology may help youth develop 21st century learning skills and contribute to their later success (Warschauer & Matuchniak, 2010). Thus, out-of-school programs for low-income youth should help them to develop technology skills to promote their access to information and the development of critical thinking and problem-solving skills. All of these things should contribute to better academic achievement.

Limitations

There are several limitations to this study. First, this study used a quasi-experimental design with a matched, comparison group. However, it has been argued that although quasi-experimental designs do control for many threats to validity, it is possible that the groups may not actually be comparable (Scott-Little et al., 2002). Second, because the data were collected directly from the school district, there is no way of knowing whether comparison youth were themselves involved in out-of-school programs, which may have influenced the results found here. Finally, although YI youth were all low-income, there was no measure of socioeconomic status provided on the comparison youth, so it is unclear whether they were all low income as well. In the future, it might be useful to explore whether these youth are performing as well as, or closing the gap with, their higher income peers. Although this research indicates high school out-of-school programs can positively influence some aspects of academic performance, future research, particularly experimental research, will need to be conducted to more definitively identify the effect of out-of-school programs on the academic achievement of low-income youth.

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