Evaluation of the Effects of All 2014 Replication Youth Institute Summer Programs on Leadership and Technology Skills, Educational Attitudes and Positive Youth Development

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Table of Contents

Introduction

The Youth Institute (YI) is an intensive, year-round program that uses technology as an integral mechanism for promoting positive youth development and enhancing the academic success and career readiness of low-income, culturally-diverse high school students. The goals of the Youth Institute are to: (a) improve the technology, career, leadership and decision-making skills of these 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 pro-social adults and community attachment among urban youth to ensure that they remain engaged in their schools and communities. The program is divided into two components: the intensive summer technology program and the year-round academic support program. In summer, 2014 the YI program was replicated at 12 sites in California, Washington and Vancouver, British Columbia. This report documents the effects of the programs on leadership and technology skills, positive youth development, and educational attitudes. It also explores whether program outcomes varied by gender, ethnicity, location, and grade level.

Intensive Technology Summer Program

Across the 12 Replication Youth Institute sites, incoming youth participated in a 30 to 35 hour per week, five to eight-week summer program. The first week, for all but one site, was spent at a wilderness retreat focused on team building, cultural diversity training, decision-making and life sciences. Participants were assigned to project teams that were maintained throughout the summer so there was an ethnic and gender mix when possible. Initiative games and a low-ropes course were used to promote group cohesion and leadership skills while improving problem-solving and communication skills. Cultural awareness and tolerance activities were also integrated and life sciences were introduced. This week was designed to help

participants develop the group and problem-solving skills they needed to work in groups to accomplish their summer tasks.

During the remaining weeks, the program used project-based learning to teach information technology skills. Projects included: (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, PageMaker, Flash, Extensis InDesign, GarageBand and Macromedia Dreamweaver. Participants also learned how to connect, troubleshoot and use computer networks. All classes had a curriculum description that identified the pedagogical approach and linked the skill sets to be learned to school content standards. Products included animated logos, five to ten minute movies, a magazine focused on teen issues, and a website. All projects were designed to help participants gain literacy, math and higher-level thinking skills, and were completed in teams. Participants at 75% of the sites received a monetary stipend for the summer, ranging between $200 and $500.

Methods

Data Collection

Self-report survey data was collected from all entering 2014 YI Summer Program participants at 12 different sites prior to the start and during the last week of the program or shortly after. The survey measured leadership skills, technology skills, educational attitudes and positive youth development. The leadership skills questions came from a revised version of the Leadership Skills Inventory (Karnes & Chauvin, 2000), a standardized leadership instrument which measures nine areas of leadership skills. The positive youth development measures were created by the researchers to evaluate this project based on The Toolkit for Evaluating Positive Youth Development (The Colorado Trust, 2004). The technology skills section was created by

the research team and the items reflected the current YI technology curriculum. The three educational attitude measures came from The School Attitude Assessment Survey – Revised Edition (McCoach & Siegle, 2003), a standardized measure with strong reliability and validity.

Sample

One-hundred and sixty (90%) of the 178 new YI participants who completed the summer program had consents and both pre- and post-assessment data and were included in these analyses. As shown in Table 1, just over half (53%) of participants were male. Latinos (51%) were the largest ethnic group, followed by African-Americans (20%). Participants ranged from 10 to 18 years old, with an average age of 14. Almost two-thirds (64%) were high school students.

Table 1

Description of 2014 Replication Youth Institute Summer Program Participants

(N= 160)

	%	N
Site		
Stephens Middle School	15%	23
Central Bay (Berkeley) YMCA	13%	21
San Luis Obispo (Cambria) YMCA	12.5%	20
Weingart East L.A. YMCA	11%	18
San Diego Mission Valley YMCA	10%	16
Crenshaw YMCA	7.5%	12
Weingart South L.A. YMCA	7%	11
Seattle YMCA	6%	10
THINK Together Valley	6%	10
Anaheim YMCA	4.5%	7
East Palo Alto YMCA	4.5%	7
YMCA of Greater Vancouver	3%	5
Gender		
Male	53%	85
Female	47%	75
Ethnicity		
Latino	51%	81
African-American	20%	32
White	13%	21
Asian American/Pacific Islander	8%	13
Bi/Multicultural	8%	13
Age at Program Start		
10	2%	3
11	10%	16
12	9%	15
13	22%	36
14	31%	50
15	12%	19
16	12%	19
17	1%	1
18	1%	1

Table 1 (Continued)	%	N
Grade at Program Start		
6th	8%	13
7th	11%	17
8th	17%	27
9th	30%	48
10th	21%	34
11th	10%	16
12th	3%	5

Analysis

Measures

Leadership Skill Scales

Nine types of leadership skills were measured. The fundamentals of leadership scale (α = .66 to .76) consisted of five items measuring general leadership skills. Questions included, "I understand the meaning of the term leader" and "I am able to identify the various styles of leadership." The written communication scale (α = .75 to .80) consisted of six items. Questions included, "I know how to get and use written information" and "I can write my ideas so that others can read and understand them." The speech communication scale (α = .77 to .78) consisted of seven items. Questions included, "I can speak in a clear and concise manner" and "I can summarize the ideas of the group and express them."

The character-building scale (α = .76 to .82) consisted of ten items. Questions included, "I understand my own feelings" and "I care about others and treat others fairly." The decision-making scale (α = .75) consisted of six items. Questions included, "I can accept advice from others" and "I can analyze facts before making a decision." The group dynamics (α = .82 to .84) consisted of 11 items. Questions included, "I can lead a group discussion" and "I can lead a group so that people feel safe expressing their opinions." The problem-solving (α = .75 to .82)

consisted of five items. Questions included, "I know and use the elements of problem-solving" and "I can select the best way to solve a problem."

The personal skills (α = .83) consisted of 12 items. Questions included, "I am self-confident," and "I feel comfortable in most situations." The planning skills (α = .87) consisted of 11 items. Questions included, "I have organizational skills," and "I set reachable goals." Participants rated themselves on a scale ranging from 0 "Almost Never" to 3 "Almost Always." Higher scores indicated better self-perceived skills. Changes in skills were investigated using paired-samples t-tests.

Technology Skills

Technology skills were measured using 13 individual questions measuring different types of technology skills. Participants rated themselves on a scale ranging from 1 "No Skills" to 4 "Excellent Skills." Higher scores indicated better self-perceived skills. Skill changes were explored using paired-samples t-tests. Questions included; "How do you rate your skills in web design," and "How do you rate your skills in presentation software?"

Educational Attitude Scales

Three educational attitudes were measured including academic self-perceptions (α = .86 to .90), goal valuation (α = .92 to .94), and motivation/self-regulation (α = .94 to .95). The academic self-perception scale consisted of seven items that measured the perception/confidence that students had in their own skills. Questions included, "I feel that I can learn new ideas quickly" and "I feel intelligent." The goal valuation scale consisted of six items that measured how much students valued education. Questions included, "It is important to me to get good grades" and "I want to do my best in school." The motivation/self-regulation scale consisted of 10 items and measured how self-motivated students were and how good they were at self-monitoring. Questions included, "I use a variety of strategies to learn new material in high

school" and "I am a responsible student." Participants rated their agreement with each statement on a scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree." Higher scores indicated more positive attitudes. Changes in attitudes were investigated using paired t-tests.

Positive Youth Development Scales

The cultural competence scale (α = .80 to .84) consisted of seven items measuring respect for and comfort with their own and others' cultures. Questions included, "I have respect for teens of other cultures or ethnic groups" and "I feel connected to and proud of my own culture." The life skills scale (α = .77 to .79) consisted of six items measuring proficiencies that allow youth to transition into and achieve successful adulthood. Questions included, "I am good at making friends" and "I am good at taking care of problems without fighting or violence."

The positive core value scale (α = .76 to .79) consisted of six items measuring caring, empathy, integrity, honesty, responsibility, equality and fairness. Questions included, "I am good at taking responsibility for my actions," and "I am good at speaking up for people who have been treated unfairly. The sense of self scale (α = .78 to .81) consisted of five items measuring how youth view themselves and their abilities to cope with the basic challenges of life. Questions included, "I can handle whatever comes my way" and "I believe I can make a difference."

The social competency/responsible choices scale (α = .72) consisted of five items measuring good behavior, hard work, personal responsibility and fairness. Questions included, "I can identify the positive and negative consequences of my behavior" and "I think I should work to get something if I really want it." The community involvement scale (α = .79 to .80) consisted of five items measuring feelings of connectedness to the community and volunteer activities. Questions included, "I feel a strong connection to my community" and "I feel good about myself because I help others."

The positive adult relationships scale (α = .86 to .91) consisted of five items measuring the amount of perceived social support received from adults outside of the family. Questions included, "There is a caring adult outside my family in my life who is around when I need him/her" and "There is a caring adult outside of my family who I can talk to about my problems."

Overall Scales for Demographic Comparisons

For the demographic comparisons, overall scales were computed for each of the scales listed above. The overall Leadership (α = .96) scale consisted of 73 questions from the nine leadership scales. The overall Educational Attitudes (α = .95 to .96) scale consisted of 23 questions from the three educational attitudes scales. The overall Positive Youth Development (α = .95) scale consisted of 39 questions from the seven youth development scales. The overall technology scale consisted of the 13 individual questions measuring the different types of technology skills. The scale reliability was α = .90.

Results

Leadership Skills

As shown in Table 2, summer YI participants reported significantly higher fundamentals of leadership, t (156) = 5.81, $p < .05$; written communication, t (159) = 6.06, $p < .05$; speech communication, t (155) = 4.95, $p < .05$; decision-making, t (155) = 3.52, $p < .05$; group dynamics, t (157) = 3.50, $p < .05$; problem-solving, t (157) = 3.76, $p < .05$; personal skills, t (158) = 3.41, $p < .05$; and planning skills, t (156) = 4.93, $p < .05$, at the end of the summer program. The greatest gains occurred in the areas of written communication, planning skills, fundamentals of leadership, and speech communication.

Table 2

2014 Replication YI Summer Program Participants Report of Changes in Leadership Skills

	Before Summer			End of Summer		
Skills	Mean	SD	N	Mean	SD	Difference
Fundamentals of Leadership	2.36	.46	157	2.59	.43	.23**
Written Communication	2.06	.60	160	2.35	.47	.29**
Speech Communication	2.15	.54	156	2.37	.46	.22**
Character Building	2.53	.37	156	2.54	.39	.00
Decision-Making	2.29	.48	156	2.43	.44	.14**
Group Dynamics	2.31	.46	158	2.45	.40	.14**
Problem-Solving	2.23	.52	158	2.41	.51	.18**
Personal	2.35	.43	159	2.47	.39	.12**
Planning	2.19	.53	157	2.40	.46	.21**

**p < .05

Technology Skills

Technology skills were measured by self-report of skill level with 13 types of technology. Participants rated themselves on a scale ranging from 1 “No Skills” to 4 “Excellent Skills.” As shown in Table 3, participants reported significantly higher skills in all technology areas including, email use, t (156) = 5.65, $p < .05$; Internet use, t (158) = 4.34, $p < .05$; web design, t (153) = 9.04; word processing software, t (157) = 4.38, $p < .05$; data processing software, t (156) = 5.35, $p < .05$; digital video filming, t (155) = 8.39, $p < .05$; using the computer to complete school assignments, t (157) = 2.52; digital music creation, t (158) = 11.36, $p < .05$; presentation software, t (156) = 6.00, $p < .05$; digital video editing software, t (158) = 9.65, $p < .05$; graphic design, t (157) = 11.34, $p < .05$; digital photography, t (157) = 10.30, $p < .05$; and animation, t (158) = 4.47, $p < .05$, at the end of the summer program. The largest gains were in graphic design, digital music creation and digital photography.

Table 3

2014 Replication YI Summer Program Participants Report of Changes in Technology Skills

	Before Summer			End of Summer		
Technology	Mean	SD	N	Mean	SD	Difference
Email use.	2.93	.97	157	3.32	.89	.39**
Internet use (visit websites/surf web).	3.38	.78	159	3.65	.64	.26**
Web design (construction, layout, domain registration, maintenance, applications, Dreamweaver, Photoshop, HTML, peripheral configuration).	2.16	.99	154	2.88	.85	.73**
Word processing software (Word) to write reports and/or letters.	3.05	.89	158	3.37	.82	.32**
Data processing software (Excel) for databases or spreadsheets.	2.21	.95	157	2.68	.92	.46**
Digital Video Filming (Camera, lighting, etc.)	2.48	1.07	156	3.22	.80	.74**
Using the computer to complete school assignments.	3.34	.76	158	3.51	.68	.16**
Digital music creation (GarageBand, Reason, Logic Pro).	2.01	.99	159	3.09	.93	1.08**
Presentation software (PowerPoint, Keynote, Inspiration).	2.94	.99	157	3.41	.72	.47**
Digital Video Editing (Final Cut Pro, iMovie, After Effects, etc.).	2.16	1.09	159	3.13	.88	.96**
Graphic Design (Photoshop, Illustrator, InDesign).	1.98	1.01	158	3.07	.86	1.09**
Digital Photography (DSLR camera, lighting, memory card, Photoshop, etc.).	2.15	1.02	158	3.05	.85	.90**
Animation (Cinema 4D, After Effects, Stop Motion).	1.96	1.06	159	2.37	1.01	.41**

**p < .05

Educational Attitudes

As shown in Table 4, these YI youth self-reported significant improvement in academic self-perceptions, t (158) = 3.95, $p < .05$; and motivation/self-regulation, t (158) = 4.10, $p < .05$, at the end of the summer program.

Table 4

2014 Replication YI Summer Program Participants Report of Changes in Educational Attitudes

	Before Summer			End of Summer		
Educational Attitude Scale	Mean	SD	N	Mean	SD	Difference
Academic Self-Perceptions	5.43	1.04	159	5.75	1.03	.32**
Goal Valuation	6.17	1.07	159	6.29	.97	.12
Motivation/Self-Regulation	5.37	1.14	159	5.67	1.07	.30**

**p < .05

Positive Youth Development

As shown in Table 5, participants self-reported significant improvement in life skills, t (159) = 2.20, $p < .05$; positive core values, t (159) = 2.34, $p < .05$; social competency/personal responsibility, t (157) = 3.08, $p < .05$; and community involvement, t (157) = 3.59, $p < .05$, at the end of the summer program.

Table 5

2014 Replication YI Summer Program Participants Report of Changes in Positive Youth Development

	Before Summer			End of Summer		
Development Scale	Mean	SD	N	Mean	SD	Difference
Cultural Competence	3.57	.45	159	3.65	.39	.08
Life Skills	3.33	.48	160	3.42	.46	.09**
Positive Core Values	3.41	.48	160	3.52	.42	.10**
Sense of Self	3.25	.58	156	3.34	.52	.09
Social Competency/Personal Responsibility	3.40	.44	158	3.52	.41	.13**
Community Involvement	3.03	.60	158	3.21	.57	.18**
Caring Adult Relationships	3.33	.64	158	3.43	.67	.10

**p < .05

Demographic Comparisons of YI Outcomes

Multivariate analysis of variance (MANOVA) was then used to determine whether there were gender, grade level (high school versus middle school) or geographic location (rural vs. urban) differences in how participants responded to the intervention. In order to control the Type II error rate, the overall scales in each category were used in these analyses.

Gender Comparisons

As shown in Table 6, female YI students showed significantly higher leadership skills compared to YI males, at the end of the summer program, F (1, 155) = 4.80, p < .05.

Table 6

Gender Comparisons of Summer 2014 Replication Site Participants

	Males		Females		
	Adjusted Mean	N	Adjusted Mean	N	F-Value
Leadership Skills	2.40	84	2.51	74	4.80**
Technology Skills	3.11	84	3.16	75	.29
Educational Attitudes	5.78	84	5.94	75	1.78
Positive Youth Development	3.42	84	3.48	75	.99

**Significant differences between groups at the .05 level

School Level Comparisons

As shown in Table 7, high school YI students showed significantly higher leadership skills, F (1, 155) = 4.37, $p < .05$; and technology skills, F (1, 156) = 10.01, $p < .05$, compared to middle school YI youth, at the end of the summer program.

Table 7

School Level Comparisons for Summer 2014 Replication Site Participants

	High School		Middle School		
	Adjusted Mean	N	Adjusted Mean	N	F-Value
Leadership Skills	2.50	101	2.38	57	4.37**
Technology Skills	3.24	101	2.97	58	10.01**
Educational Attitudes	5.94	102	5.79	57	1.45
Positive Youth Development	3.46	102	3.44	57	.09

**Significant differences between groups at the .05 level

Geographic Location Comparisons

In order to investigate geographic differences in program outcomes, urban versus rural middle school participants were compared on the four overall measures. As shown in Table 8, rural YI students showed significantly higher positive youth development, F (1, 54) = 6.12, p < .05, compared to urban middle school YI youth, at the end of the summer program.

Table 8

Geographic Location Differences for Summer 2014 Replication Site Participants

	Urban		Rural		
	Adjusted Mean	N	Adjusted Mean	N	F-Value
Leadership Skills	2.36	38	2.51	19	3.13
Technology Skills	2.95	39	3.17	19	2.17
Educational Attitudes	5.79	38	6.09	19	2.62
Positive Youth Development	3.39	38	3.61	19	6.12**

**Significant differences between groups at the .05 level

Ethnicity

Linear regression analyses were run to determine whether ethnicity was related to any of the overall scale measures. Ethnic groups were recoded to "0" and "1." The five ethnic measures were Latino, African American, Asian American/Pacific Islander, Multicultural, and White. The findings indicated that, after controlling for baseline measures, being African American (β = .217, p < .05) was a significant predictor of lower technology skills at the end of the summer program, F (5, 153) = 7.60, p < .05, $\hat{R}^2$ = 053.

Conclusions

Overall, the results of the 2014 YI Summer Program across the Replication sites were very positive and represent an improvement over those found last year in most areas. These youth self-reported significant improvement on the majority of scales or items in each of the domains hypothesized to be influenced by the YI program model. While it is not possible to definitely conclude the changes found here were solely the result of the YI, it is unlikely that changes in so many diverse areas would be found in such a short period of time without some type of intervention. At the end of the summer, these youth rated themselves significantly higher on eight (89%) of the leadership skills measured. Thus, it appears that program participation helped youth to develop a diverse range of leadership skills that should prove beneficial to them both in school, the larger community, and in the future. This is particularly true since many of the leadership skills measured here are similar to the skills that have been identified as necessary to compete in the 21st century (The Partnership for 21st Century Learning Skills, 2003).

Similarly, these youth self-reported significantly better technology skills on all of the 13 skills measured here, including e-mail, Internet use, web design, word processing, data processing, digital video filming, use of computers to complete school assignments, digital music creation, presentation software, digital video editing, graphic design, digital photography, and

animation. These findings suggest that the summer program, with its intensive technology focus, was able to teach participants a wide variety of high-end digital media skills. This is encouraging since people with strong technological skills are becoming more highly valued in the workforce (Baron, 2002). These findings are also very encouraging given low-income youth have been shown to have lower levels of technology access and skill, both of which are critical for school and productive adult employment (Morse, 2004; Warschauer & Matuchniak, 2010).

Another anticipated outcome of the YI is improved educational attitudes although this area has, in the past, been found to be more difficult for the summer program to influence. Thus, it is quite encouraging that these Replication participants reported significant improvement in academic self-perceptions (confidence in their skill) and motivation/self-regulation. These changes are important given research has indicated that higher academic self-perceptions are both related to, and predictive of, better academic outcomes (Erkman, Caner, Sart, Borkan & Sahan, 2010; Pershey, 2010) and motivation/self-regulation has been found to be related to higher levels of achievement among high school students (Suldo, Shaffer & Shaunessy, 2008; McCoach & Siegle, 2003). Hopefully, these educational attitude improvements may help participants to achieve better academically in the coming years. While these gains are positive, it will be important for Replication site staff to continue to support academics, possibly with an emphasis on academic commitment given the lack of change in goal valuation, and also to expose youth to higher education in the year-round program to further increase the likelihood of positive academic achievement, high school graduation, and entry into higher education.

The YI is designed to incorporate positive youth development strategies into all aspects of the program since participation in youth development programs has been shown to enhance academic success (Hall, Yohalem, Tolan & Wilson, 2003) while reducing involvement in adolescent problem behaviors (Roffman, Pagano & Hirsch, 2001; Meltzer, Fitzgibbon, Leahy &

Petsko, 2006). This Replication cohort reported significant improvement in life skills, positive core values, social competency/personal responsibility, and community involvement. The increased sense of community involvement found here as well as some of the other changes are quite positive given community involvement has been linked to better academic achievement, increased self-efficacy, better attitudes toward school and education, higher levels of community involvement, and better leadership and empathy skills (Celio, Durlak & Dymnicki, 2011). During the year-round program, staff should continue to work on establishing positive adult relationships since these type of relationships have been shown to predict more successful adolescent development (Serido, Borden & Perkins, 2011; Dubois, Portillo, Rhodes, Silverthorn & Valentine, 2011), higher levels of school commitment and achievement and less involvement in delinquency and other problem behaviors (Paxton, Valois, Huebner & Drane, 2006).

Demographic Differences in Program Impact

Additional analyses were run to determine whether the program outcomes in leadership, technology, educational attitudes, and positive youth development differed by gender, school level, and ethnicity. For the most part, the program appeared to work similarly regardless of demographic characteristics, however, some differences were noted. It appears females gained more leadership skills than males. Larger gains were also found for high schools students in both leadership and technology which may, in part, be a result of some middle school programs being of shorter duration, having major staff changes in the middle of the program, or, in one instance, a different structure. These differences may also indicate that middle school youth might need a revised technology and leadership curriculum. Youth in the rural community also reported significantly higher levels of positive youth development at the end of the summer. African American youth appeared to have lower levels of technology skills, however, a higher proportion of these youth were middle school students and they were overrepresented at a site

which experienced major staff changes during the session which may have contributed to or more fully explain the reason for the lower technology skill levels found here.

Overall, the YI Replication program appears to have made great strides toward meeting its goals to positively influence all domains hypothesized in the model. These outcomes represent a substantial improvement in the areas of educational attitudes and positive youth development over last year when no significant differences were found in these domains. The program appears to have increased the social and interpersonal competence, the technology skills, educational attitudes, and positive youth development of youth, all of which have been found to be predictive of positive development, and greater education, career and life success (Lippman, Atienza, Rivers & Keith, 2008; Warschauer & Matuchniak, 2010).These findings were mostly similar (69%) regardless of gender, grade level, geographic location and ethnicity, suggesting the program can be successfully replicated, if done with fidelity, with diverse populations.

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