

Evaluation of Leadership, Technology Skills and School Attitude Outcomes for Stephens YMCA Middle School Youth Institute 2005 and 2006 Alumni at the End of Year One

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Introduction

The Stephens Middle School Youth Institute (SYI) is a 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 middle school students. Classes enter each summer with an intensive six-week program. Upon graduation from the summer program, participants become “Stephens Middle School Youth Institute Alumni,” who are then able to voluntarily participate in a wide range of year-round programs throughout their middle school and, potentially, their high school years. Involvement opportunities include, but are not limited to, digital art labs, community service, equipment check-out, and celebrations.

Three of the goals of the program are: (a) To improve the technology knowledge and skills of participants by providing intensive, year-round enrichment experiences that fully integrate and emphasize state-of-the-art technology, (b) To use youth development principles and project-based learning to develop leadership and decision-making skills, and (c) to improve youth attitudes toward education and learning. This report investigates the effects of the program on achieving these goals after one-year of program participation.

Methods

Data Collection

Program staff collected self-report data from all entering 2005 and 2006 YMCA Stephens Middle School Youth Institute participants on their first day of the program, and, from as many as possible, approximately one year later. Three surveys were completed. The first was the Leadership Skills Inventory (Karnes & Chauvin, 2000), a standardized leadership measure. The inventory measures nine areas of leadership skill. The instrument has been shown to have strong reliability and validity. The second instrument, The Long Beach YMCA Technology Skills Inventory, was created by Dr. Jo Ann Regan of the California State University, Long Beach, Department of Social Work, specifically to evaluate this project. The Technology Inventory measures technology competency. The third survey, which was instituted starting in 2006, was

the School Attitude Assessment Survey – Revised Edition (D. B. McCoach, 2002). This survey measures three areas of education attitudes. This instrument has been shown to have strong reliability and validity.

Sample

Sixty-one students entered the Stephens YMCA Middle School Youth Institute in 2005 and 2006. Of these 61 entering participants, 34 (56%) returned both the beginning and end of year one surveys. Attrition analyses were conducted to determine if the participants included in the sample differed from those who did not have pre- test and post-test data. There were no significant gender, ethnic, or grade at start of program differences.

As shown in Table 1, the participants who were included in this study ranged from 11 to 13 years of age at the start of the program. Eighty-five percent of the youth were 12 or 13 years of age at the start of the program. Fifty-three percent of the participants were female. Latinos (56%) were the largest ethnic group, followed by Asian-Americans/Pacific Islanders (23%) and African-Americans (18%). Seventy-nine percent of the sample was 7th or 8th graders when they began the program.

Table 1
Sample Description of 2005 and 2006 Stephens Middle School Youth Institute
(N=34)

	%	N
◆ Gender		
Female	53%	18
Male	47%	16
◆ Ethnicity		
Latino	56%	19
Asian-American/Pacific Islander	23%	8
African-American	18%	6
Mixed Ethnicities	3%	1
◆ Age at Start of Program		
11	15%	5
12	41%	14
13	44%	15
◆ Grade		
6 th	21%	7
7 th	53%	18
8 th	26%	9

Analyses

Measures

Leadership Skills

Cronbach's Alpha (α) was used to examine the reliability of the leadership skill scales. Nine types of leadership skills were measured including fundamentals of leadership ($\alpha = .82$ to $.86$), written communication ($\alpha = .85$ to $.90$), speech communication ($\alpha = .91$ to $.92$), character-building ($\alpha = .89$ to $.89$), decision-making ($\alpha = .89$ to $.90$), group dynamics ($\alpha = .95$ to $.94$), problem-solving ($\alpha = .82$ to $.90$), personal skills ($\alpha = .96$ to $.93$), and planning ($\alpha = .93$ to $.95$). Participants rated themselves on engaging in each behavior on a scale ranging from 0 "Almost Never" to 3 "Almost Always." Higher scores indicated better self-perceived skills.

Technology Use

Technology use was measured by participants' self-report of their frequency of use of 12 types of technology. Items included "create web pages" and "use digital video equipment." Participants rated themselves on a scale ranging from 1 "Never" to 4 "Daily." Higher scores indicated greater frequency of use.

Technology Competencies

The Technology Inventory investigated changes in technology competencies. These items were looked at individually. Questions included: "I can use technology to locate, evaluate, and collect information from a variety of sources," and "I can use technology in the development of strategies for solving world problems." The response categories ranged from "1" No Knowledge to "4" Excellent Knowledge.

School Attitudes

Cronbach's Alpha (α) was used to examine the reliability of the school attitude scales. Five areas of school attitudes were measured including academic self-perceptions ($\alpha = .86$ to $.87$), goal valuation ($\alpha = .90$ to $.85$), and motivation/self-regulation ($\alpha = .04$ to $.91$). Participants rated their attitudes on a scale ranging from 1 "Strongly Disagree" to 7 "Strongly Agree." Higher scores indicate better school attitudes. Examples of questions from the academic self-perceptions scale include "I feel that I can learn new ideas quickly" and "I feel intelligent." Examples of questions from the goal valuation scale include "It is important for me to get good grades" and "I spend a lot of time on my schoolwork." Examples of questions from the motivation/self-regulation scale include "I check my assignments carefully before turning them in" and "I work hard in school."

Results

Extent and Type of Program Involvement

As shown in Table 2, there were different types as well as levels of involvement, among the Classes of 2005 and 2006, in the SYI Alumni Program during the year immediately

following their graduation from the summer program. The Digital Arts Lab had the highest level of participation among this group.

Table 2
Extent and Type of Involvement in Program Activities
2005 and 2006 Stephens Youth Institute Alumni

Activity	Class of 2005				Class of 2006			
	N	Mean	SD	Range	N	Mean	SD	Range
Digital Arts Lab	13	25	26	3-101	18	23	19	2-73
Digital Arts Lab (High School)	-	-	-	-	9	7	11	1-36
Equipment Checkout	14	11	7	1-27	13	3	2	1-8
Community Service Projects	2	1	0	1	17	5	2	1-8
Fall Meetings	-	-	-	-	10	1	.5	1-2
Holiday Parties	10	1	0	1	12	1	0	1
Total	16	31	30	1-129	18	35	24	3-83

Comparison between Program Start and After Year One

Leadership Skills

As shown in Table 3, study participants reported significant improvements on Fundamentals of Leadership, $t(33) = 2.17, p < .05$, Written Communication Skills, $t(33) = 2.13, p < .05$, Character Building Skills, $t(33) = 2.25, p < .05$, Group Dynamic Skills, $t(32) = 2.57, p < .05$, Decision-Making Skills, $t(33) = 2.05, p < .05$, Problem Solving Skills, $t(32) = 2.80, p < .05$, Personal Skills, $t(32) = 2.47, p < .05$, and Planning Skills, $t(32) = 2.47, p < .05$, after their first year of program participation. Prior to attending the program, these teens rated themselves lowest on speech communication, written communication and fundamentals of leadership and highest on character building and personal skills. The greatest gains were found in problem-solving skills, fundamentals of leadership and planning skills. *Double check against results at the end of the summer same or different findings—can mention in discussion in different*

Table 3
Participant Report of Changes in Leadership Skills
2005 and 2006 Stephens Youth Institute Alumni

Scale	Beginning of Program			End of Year One		
	Mean	SD	N	Mean	SD	Difference
Fundamentals of Leadership	2.00	.56	34	2.26	.55	.27
Written Communication	1.95	.53	34	2.17	.64	.22
Speech Communication	1.96	.60	34	2.16	.62	.19
Character Building	2.27	.46	34	2.43	.42	.16
Group Dynamics	2.06	.60	33	2.31	.54	.25
Decision-Making	2.09	.58	34	2.31	.57	.22
Problem-Solving	2.01	.59	33	2.34	.63	.33
Personal	2.19	.62	33	2.44	.47	.25
Planning	2.05	.59	33	2.32	.58	.27

**p<.05

* Approaching significance, p<.10

Technology Use

As shown in Table 4, study participants reported significantly more frequent use of a computer at home and school, $t(33) = 2.81, p < .05$, sending email, $t(29) = 2.43, p < .05$, accessing the Internet, $t(31) = 2.49, p < .05$, use of word processing software applications to write text, $t(32) = 2.45, p < .05$, use of data processing software applications for databases or spreadsheets, $t(28) = 2.35, p < .05$, using digital video equipment, $t(27) = 6.50, p < .05$, participation in Internet chat rooms/discussion boards, $t(31) = 2.82, p < .05$, and use of a computer to complete school assignments, $t(33) = 3.25, p < .05$, and somewhat of an improvement in creating web pages, $t(28) = 1.73, p < .10$, and creation of graphic designs with computer software and code applications, $t(27) = 2.01, p < .10$, at the end of year one. Prior to entering the program, participants rated their frequency of use highest on using computers at

home and school, accessing the Internet and playing computer games. The greatest gains in frequency of technology use were found on using digital video equipment, participating in Internet chat rooms, and using the computer to complete school assignments.

Table 4
Participant Report of Changes in Technology Use
2005 and 2006 Stephens Youth Institute Alumni

	Beginning of Program			End of Year One		
	Mean	SD	N	Mean	SD	Difference
Use the computer at home/school	2.79	.95	34	3.35	.81	.56
Send e-mail	2.17	1.09	30	2.73	1.05	.57
Access the Internet	2.97	1.00	32	3.47	.95	.50
Create web pages	1.41	.91	29	1.90	1.35	.48
Create graphic designs with computer software applications	1.82	1.22	28	2.43	1.26	.61
Use word processing software applications to write text	2.33	1.08	33	2.88	.99	.55
Use data processing software for databases or spreadsheets	1.69	.85	29	2.21	1.15	.52
Use digital video equipment	1.61	.83	28	3.00	1.05	1.39
Participate in Internet chat rooms/listservs	2.22	1.10	32	2.97	1.18	.75
Play computer games	2.73	1.13	33	2.97	.95	.24
Buy things on the Internet	1.41	.87	29	1.55	1.18	.14
Use the computer to complete school assignments	2.68	1.15	34	3.38	.74	.71

**p<.05

* Approaching significance, p<.10

Technology Competence

As shown in Table 5, study participants reported significant improvements in their competencies with: (a) using input and output devices to successfully operate computers, VCRs,

audiotapes, etc., $t(32) = 3.37, p < .05$; (b) using a variety of media and technology resources to create knowledge products for audiences inside and outside the classroom, $t(30) = 4.29, p < .05$; (c) working collaboratively with others to use technology to compile, synthesize, produce, and disseminate information, $t(31) = 2.58, p < .05$; (d) creating multimedia products with support from teachers, family members, or student partners, $t(31) = 5.25, p < .05$; (e) using technology tools to locate, evaluate, and collect information from a variety of sources, $t(31) = 3.16, p < .05$; (f) using technology tools to process data and report results, $t(32) = 3.71, p < .05$; (g) using technology in the development of strategies for solving problems in the world, $t(30) = 4.25, p < .05$; and somewhat of an improvement in (h) using technology tools for managing and communicating personal/professional information, $t(31) = 1.84, p < .10$; and (i) using a variety of media and formats to communicate information and ideas effectively to multiple audiences, $t(31) = 1.95, p < .10$, at the end of year one. Prior to entering the program, participants rated their technology competence lowest in the areas of creating multimedia products with support from teachers, family members, or student partners, and using technology tools for managing and communicating personal/professional information. The greatest knowledge gains were found on the use of technology for creating multimedia products with support from teachers, family members, or student partners, the use of technology tools to process data and report results, and the use of a variety of media and technology resources to create knowledge products for audiences.

Table 5
Participant Report of Changes in Technology Competencies
2005 and 2006 Stephens Youth Institute Alumni

	Beginning of Program			End of Year One		Difference
	Mean	SD	N	Mean	SD	
Use input and output devices to successfully operate computers, VCR's, audiotapes, etc.	2.79	1.11	33	3.45	.71	.67
Use a variety of media and technology resources to create knowledge products for audiences	2.32	.98	31	3.13	.85	.81
Work collaboratively with others to use technology to compile, synthesize, produce, and disseminate information.	2.75	.88	32	3.28	.89	.53
Create multimedia products with support from teachers, family members, or student partners.	2.00	.95	32	3.22	.91	1.22
Use technology tools to locate, evaluate, and collect information from a variety of sources.	2.29	1.08	32	2.97	.82	.69
Use technology tools to process data and report results.	2.33	.99	33	3.06	.86	.73
Use technology in the development of strategies for solving problems in the world.	2.13	.88	31	2.74	.73	.61
Use technology tools for managing and communicating personal/professional information.	2.12	1.16	32	2.56	1.05	.44
Use a variety of media and formats to communicate information and ideas effectively.	2.37	1.16	32	2.81	1.03	.44

**p<.05

* Approaching significance, p<.10

School Attitudes

As shown in Table 6, study participants reported no significant change in school attitudes at the end of year one.

Table 6
Participant Report of Changes in School Attitudes
2005 and 2006 Stephens Youth Institute Alumni

Scale	Beginning of Program			End of Year One		Difference
	Mean	SD	N	Mean	SD	
Academic Self-Perceptions	5.77	.90	18	5.61	.98	.16
Goal Valuation	6.70	.56	18	6.51	.71	.19
Motivation/Self-Regulation	6.06	1.76	18	5.77	.88	.30

**p<.05

* Approaching significance, p<.10

Correlations between Participation and Outcomes

To determine if participation at the SYI was related to changes in leadership skills, technology use, technology competence, and attitudes toward educations, correlations were run between levels of participation and outcome measures. The technology use ($\alpha = .87$ to $.63$) and the technology competence ($\alpha = .91$ to $.90$) questions were scaled for this analysis. Significant correlations were found between number of pieces of equipment checked out for the 2006-07 students and written communication skills, $r(18) = .64, p < .05$, and equipment checkouts with technology competence, $r(13) = .61, p < .05$. Significant correlations were also found for participation in the digital arts lab and in all classes and goal valuation, $r(18) = .64, p < .05, r(18) = .65, p < .05$, respectively.

Conclusions

While evaluations of the summer program are completed each year, 2005 and 2006 were the first years that we have collected data from Stephens Youth Institute participants, and had no previous data to compare the years with. It is, however, worth noting that the end of the year

does not mark the end of participation in the Stephens Youth Institute Alumni program and, thus, may not accurately reflect the potential of the program to positively influence the skills and attitudes of these youth.

Extent and Type of Program Involvement

The types and extent of activities offered, and involvement by Stephens Youth Institute participants, in most activities has remained relatively stable throughout the two years of program evaluation. However, 2006 was the first year that there were Fall meetings and the first time the high school digital arts lab was open to SYI participants. The San Francisco trip was not documented and no field trips were offered. There is no way of determining whether these changes resulted in outcome differences found here. The Digital Arts Lab is the most attended activity in the program.

Leadership Skills

At the end of one year of Stephens Youth Institute involvement, these participants evidenced significant skill gains in the areas of fundamentals of leadership, written communication, character-building, group dynamics, decision-making, problem solving, personal, and planning. However, it is interesting, given the emphasis on the Stephens Youth Institute, that the gains in speech communication were not significant. It is possible that these youth were not involved in enough activities that required this skill. Stephens Youth Institute staff may want to develop strategies to ensure that youth have the opportunity to practice their speech communication by having the youth present projects, as well as teach them effective speech communication techniques so they continue to hone these skills which will be important to their future.

Technology Use

At the end of one year, participants showed significant increases in the use of a computer at home and school, sending email, accessing the Internet, using word processing software applications to write text, using data processing software for databases or spreadsheets, using

digital video equipment, participating in Internet chat room/listservs, and using the computer to complete school assignments. Participants also reported somewhat of an increase in creating web pages and creating graphic designs with computer software and code applications.

Technology Competence

At the end of one year, participants showed significant increases in the use of media and/or technology to: 1) successfully operate computers, VCRs, audiotapes, etc., 2) create knowledge products for audiences, 3) compile, synthesize, produce, and disseminate information 4) create multimedia products with support from teachers, family members, or student partners, 5) locate, evaluate, and collect information from a variety of sources, 6) process data and report results, and 7) develop strategies for solving problems in the world. Participants also reported somewhat of an increase in the use of media and/or technology to: 1) manage and communicate personal/professional information, and 2) communicate information and ideas effectively.

School Attitudes

Participants reported no significant change in school attitudes at the end of year one. One possible explanation for there being no significant changes in school attitudes and the attitude worsening in motivation and self-regulation could be due to the fact that when participants compare their relationships with the Stephens Youth Institute staff to their teachers at school, their relationships with their teachers may seem less satisfying. It may also be difficult, if not impossible, for the program to change teacher and school relations since it does not have the ability to change or influence the school environment. However, if a goal of the Stephens Youth Institute is to improve school attitudes (motivation, assignment completion), then it may be useful to formalize the program's approach to supporting the academic achievement and long-term commitment to school for all participants. For example, program staff could meet each

semester with participants to discuss course schedules and progress in school or workshops could be held with youth or their parents to encourage college readiness and/or study skills.

Overall, these findings are quite positive and suggest that the Stephens YMCA Youth Institute is helping youth to develop long-term gains in both leadership and technology competence. However, additional interventions may need to be implemented to address school attitudes.