COMPUTER SCIENCE FOR HIGH SCHOOL PROGRAM EVALUATION RESULTS

Summer 2013

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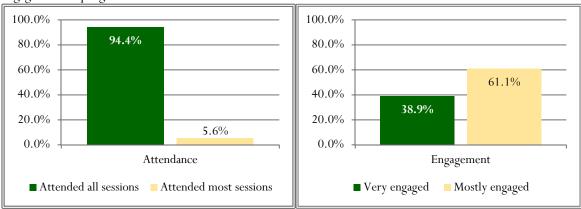# Computer Science for High School Program Evaluation Results
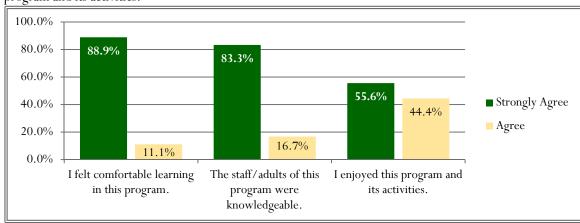
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Introduction

Crafton Hills College conducted the Computer Science for High School (CS4HS) program in Summer 2013. The program was planned for approximately twenty high school students to attend a week-long summer experience involving hands-on workshops which introduced participants to computer science through storytelling using 3-D animation programming and mobile application and game development. Materials were provided in both English and Spanish, were closely tied to societal and cultural issues, and included mentors and role models who provide access to higher education pathways for pursuing computer science careers. Project partners included Redlands East Valley High School, Redlands High School, San Bernardino High School, and Yucaipa High School. Additionally, a two-day instructors' workshop was planned for interested instructors at the project partner schools to be introduced to various computer science topics and methods to incorporate computer science in the instructors' lesson plans.
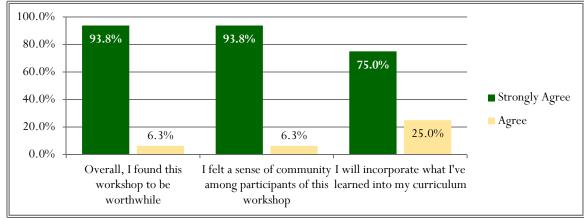
Summary of Results

- 94% of student respondents attended all program sessions, and 100% were either very engaged or mostly engaged in the program.

- 100% of student respondents either agreed or strongly agreed that they felt comfortable learning in the program, that the staff/adults of the program were knowledgeable, and that the participants enjoyed the program and its activities.

- 100% of teacher respondents either agreed or strongly agreed that they will incorporate what they learned into their curriculum, that the workshop was worthwhile, and there was a sense of community.

- 100% of respondents in both workshops would recommend their respective workshops to friends or colleagues.

Methodology

The CS4HS program, in conjunction with an external evaluator, developed three paper surveys to measure participants' perceptions of computer science and program satisfaction.

Two surveys, one pre-survey and one post-survey, were for participants in the week-long high school student program. The pre-survey was distributed by the program leader to participants at the beginning of the program and immediately collected; the post-survey was distributed by the program leader to participants at the conclusion of the program and immediately collected.

The pre-survey contained two multiple choice questions which identified the participants' experiences with computer science and goals for participation. Three Likert-scale questions measured participants' interests and attitudes toward computer science. Questions 3c, 3d, 4d, 4g, 5g, and 5h were stated negatively; therefore, responses were recoded so positive responses calculated into higher scores. Seven demographics questions identified the participants' self-selected gender, disabilities, language preferences, ethnicity, age, and level of education.

The post-survey contained one multiple choice questions which identified the participants' experiences with computer science since the beginning of the program. Three Likert-scale questions measured the participants' level of engagement and satisfaction of the program. Two open-ended questions were provided to elicit responses regarding the participants' favorite and least favorite components of the program. A dichotomous question measured whether the participants would recommend the workshop to colleagues. Four Likert-scale questions measured participants' interests and attitudes toward computer science since beginning the program. Questions 8c, 8d, 9d, 9g, 10g, and 10h were stated negatively; therefore, responses were recoded so positive responses calculated into higher scores. Five demographics questions identified the participants' self-selected gender, disabilities, ethnicity, age, and level of education.

One survey was for participants in the two-day instructors' workshop. The surveys were distributed by the workshop leader to participants at the conclusion of the workshop and immediately collected. Two questions were multiple-choice options to identify the grade(s) and subject(s) taught by the participants. One question was a Likert-scale which measured the participants' level of satisfaction with the workshop. A dichotomous question measured whether the participants would recommend the workshop to colleagues. Five open-ended questions were provided to elicit responses regarding various components of the workshop.

Findings

High School Participant Survey Demographics

Table 1 illustrates participants' responses to demographic questions on gender, age, education level and disability. Fifty-nine percent of respondents were male, 36% of respondents were 16 years old and entering the eleventh grade, and 78% of respondents reported having no disabilities.

Table 1: Participants' responses to demographics questions regarding gender, age, education level and disabilities

Demographic & Responses	N	%
Gender		
Female	9	40.9%
Male	13	59.1%
Total	**22**	**100.0%**
Age		
13	6	27.3%
14	4	18.2%
15	1	4.5%
16	8	36.4%
17	2	9.1%
18	1	4.5%
Total	**22**	**100.0%**
Grade entering		
8th	5	22.7%
9th	4	18.2%
10th	2	9.1%
11th	8	36.4%
12th	3	13.6%
Total	**22**	**100.0%**
Disability		
I do not have a disability	14	77.8%
Attention-Deficit/Hyperactivity Disorders	2	11.1%
Autism-Spectrum Disorders and Asperger Syndrome	1	5.6%
Blindness or Low Vision	1	5.6%
Brain Injuries	0	0.0%
Cognitive Disabilities	0	0.0%
Deafness/Hard-of-Hearing	0	0.0%
Emotional or Behavioral Disorders	0	0.0%
Learning Disabilities	0	0.0%
Mobility/Physical Disabilities	0	0.0%
Psychiatric/Psychological Disabilities	0	0.0%
Speech and Language Disabilities	0	0.0%
Total	**18**	**100.0%**

Table 2 illustrates participants' responses to demographic questions on languages spoken, race and ethnicity. Sixty-four percent of respondents reported speaking only English at home. Of those respondents who spoke another language at home, 50% of the respondents reported speaking Spanish at home, 42% were Caucasian, and 33% were Hispanic/Latino(a).

Table 2: Participants' responses to demographics questions regarding languages spoken, race and ethnicity

Demographic & Responses	N	%
Language spoken at home		
Only English	14	63.6%
Mostly English/Sometimes another language	3	13.6%
Half English/Half another language	2	9.1%
Mostly another language/sometimes English	3	13.6%
Only another language	0	0.0%
Total	**22**	**100.0%**
Language spoken at home, if other than English		
Spanish	5	50.0%
Chinese	1	10.0%
Hindi	1	10.0%
Indonesian	1	10.0%
Spanish, Chinese	1	10.0%
Spanish, Portuguese	1	10.0%
Total	**10**	**100.0%**
Race or ethnicity		
Caucasian/European American/White	10	41.7%
Hispanic/Latino(a)	8	33.3%
Asian	3	12.5%
American Indian or Alaskan Native	1	4.2%
Hawaiian or Pacific Islander	1	4.2%
Other: American	1	4.2%
Black/African-American	0	0.0%
Total	**24**	**100.0%**

High School Participant Survey Responses

Table 3 illustrates participants' experiences with computer science and compares their responses from the pre-survey to the post-survey. Prior to the program, 17% of respondents reported on the pre-survey taking a computer science class at school. On the post-survey, an equal number (n=9) reported talking with someone that works in computer science or talking with a teacher or other adult about computer science since at the beginning of the program.

Table 3: Participants' responses on experiences with computer science on the pre-survey and post-survey

Statements	Pre-Survey		Post-Survey	
	N	%	N	%
I had no previous (or additional*) experiences in computer science	4	7.1%	4	10.0%
I studied or learned computer science on my own (note this is not simply using a computer at home)	9	16.1%	7	17.5%
I have taken computer science classes at school	10	17.9%	3	7.5%
I have taken computer science classes outside of school (including online courses)	4	7.1%	3	7.5%
Computer science has been introduced in another class at school (such as math or science)	3	5.4%	2	5.0%
I have been a part of an after-school club or group focused on computer science	3	5.4%	1	2.5%
I have participated in a previous summer program, summer camp, or other informal program	5	8.9%	2	5.0%
I have had a job related to computer science	1	1.8%	0	0.0%
I talked to somebody that works in computer science	7	12.5%	9	22.5%
A teacher or other adult has talked to me about computer science	7	12.5%	9	22.5%
Other: I was homeschooled for my 5th - 7th grade years. During those years I did a type of animation course.	1	1.8%	0	0.0%
Other: Personal development of game modifications	1	1.8%	0	0.0%
Other: Self-taught Lua programming	1	1.8%	0	0.0%
Total	**56**	**100.0%**	**40**	**100.0%**

Table 4 illustrates participants' goals for participating in the program. Respondents could select multiple goals and offer additional goals not listed. Twenty-one respondents wanted to learn computer science skills, and 20 wanted to have fun.

Table 4: Participants' goals for participating in the program

Pre-Survey Statements	N	%
Learn computer science skills	21	15.9%
Have fun	20	15.2%
Gain skills to help me in a job or career	16	12.1%
Learn about careers and what computer scientists do	14	10.6%
Prepare me to do well in school	13	9.8%
Learn more about different majors in college (e.g., computer science, engineering, etc.)	9	6.8%
Meet or spend time with adults who know computer science	8	6.1%
Spend time with friends	8	6.1%
Have something to do	7	5.3%
Meet or spend time with supportive adults or educators	5	3.8%
Meet other youth with interests similar to mine	5	3.8%
Make my parents/guardians happy	4	3.0%
Eat some food	1	0.8%
I feel comp. science is a major area and I need to have a basic understanding of it. (it is the future)	1	0.8%
Not sure	0	0.0%
Total	**132**	**100.0%**

Table 5 illustrates participants' attendance and engagement in the program. Ninety-four percent of respondents attended all program sessions, and 100% were either very engaged or mostly engaged in the program.

Table 5: Participants' program attendance and engagement/participation

Post-Survey Statements	N	%
I attended all program sessions (100%)	17	94.4%
I attended nearly all of the sessions (about 90%)	0	0.0%
I attended most of the sessions (about 75%)	1	5.6%
I attended about half of the program sessions (about 50%)	0	0.0%
I attended about a quarter of the program sessions (about 25%)	0	0.0%
I attended few program sessions (about 10%)	0	0.0%
Total	**18**	**100.0%**
Very engaged/I participated fully all the time	7	38.9%
Mostly engaged/I participated almost all of the time	11	61.1%
Fairly engaged/I participated in some of the activities	0	0.0%
Somewhat engaged/I participated in a few of the activities	0	0.0%
Not at all engaged/I did not participate in activities	0	0.0%
Total	**18**	**100.0%**

Table 6 illustrates participants' level of satisfaction with various components of the program. Responses have been sorted by highest average score with Strongly Agree having the highest value of 5. One hundred percent of respondents either agreed or strongly agreed that they felt comfortable learning in the program, that the staff/adults of the program were knowledgeable, and that the respondents enjoyed the program and its activities.

Table 6: Participants' level of satisfaction with various program components

Post-Survey Statements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		**Average Score**
	N	%	N	%	N	%	N	%	N	%	
I felt comfortable learning in this program.	16	88.9%	2	11.1%	0	0.0%	0	0.0%	0	0.0%	**4.89**
The staff/adults of this program were knowledgeable.	15	83.3%	3	16.7%	0	0.0%	0	0.0%	0	0.0%	**4.83**
The staff/adults of this program cared about my success.	14	77.8%	3	16.7%	1	5.6%	0	0.0%	0	0.0%	**4.72**
I enjoyed this program and its activities.	10	55.6%	8	44.4%	0	0.0%	0	0.0%	0	0.0%	**4.56**
My goals for participating in this program were met.	7	38.9%	9	50.0%	2	11.1%	0	0.0%	0	0.0%	**4.28**
The activities were related to my interests.	6	33.3%	5	27.8%	6	33.3%	1	5.6%	0	0.0%	**3.89**
The content or activities were just right for my skills.	4	22.2%	7	38.9%	7	38.9%	0	0.0%	0	0.0%	**3.83**

Table 7 illustrates participants' increase in computer science skills and knowledge. Responses have been sorted by highest average score with Strongly Agree having the highest value of 5. One hundred percent of respondents either agreed or strongly agreed that the program increased their computer science skills.

Table 7: Participants' skill and knowledge improvement

Post-Survey Statements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		**Average Score**
	N	%	N	%	N	%	N	%	N	%	
increased my computer science skills.	3	16.7%	15	83.3%	0	0.0%	0	0.0%	0	0.0%	**4.17**
helped me understand what computer science is.	4	22.2%	11	61.1%	2	11.1%	1	5.6%	0	0.0%	**4.00**
helped me understand how computer science is important and useful.	5	27.8%	9	50.0%	3	16.7%	1	5.6%	0	0.0%	**4.00**
increased my interest in taking computer science classes.	5	27.8%	9	50.0%	3	16.7%	1	5.6%	0	0.0%	**4.00**
made me more confident in my ability to succeed in computer science.	3	16.7%	11	61.1%	4	22.2%	0	0.0%	0	0.0%	**3.94**
made me more likely to consider a job related to computer science.	4	22.2%	8	44.4%	5	27.8%	1	5.6%	0	0.0%	**3.83**

Table 8 illustrates that 100% of respondents would recommend the program to a friend.

Table 8: Participants' program recommendation

Post-Survey		N	%
Would you recommend this program to a friend?	Yes	18	100.0%
	No	0	0.0%

Table 9 illustrates participants' views of computer science and compares their responses from the pre-survey to the post-survey. Post-surveys were matched to pre-surveys to measure whether any respondents had a positive change in their responses between the two surveys. One hundred percent of respondents on the post-survey either agreed or strongly agreed that knowing computer science would be useful in many jobs, and 44% of respondents had a positive change in their level of agreement from the pre-survey to the post-survey.

Table 9: Pre-survey and post-survey comparison of participants' views of computer science

Statements	Percentage of respondents who had positive change in responses from pre- to post-survey	Average pre-survey score	Percentage of respondents selecting Agree or Strongly Agree on pre-survey	Average post-survey score	Percentage of respondents selecting Agree or Strongly Agree on post-survey
Computer science is a valuable subject to learn.	28%	4.50	100%	4.67	94%
Knowing computer science would be useful in many jobs.	44%	4.33	94%	4.72	100%
I don't want people to think I am smart in computer science.*	11%	4.33	83%	4.06	82%
Only certain types of people are good at computer science.*	17%	3.25	38%	3.29	41%
People like me can do well in computer science.	33%	3.67	56%	3.89	72%
There are many opportunities in careers related to computer science.	28%	4.44	94%	4.67	100%
Learning about computer science is fun.	22%	4.33	94%	4.33	94%

* Because the third and fourth statements were presented in a negative view, the statements were recoded so Strongly Disagree had the highest value. Responses of Disagree and Strongly Disagree were subsequently treated as Agree and Strongly Agree, respectively, for the purposes of this comparison.

Table 10 illustrates participants' skills in computer science and compares their responses from the pre-survey to the post-survey. Post-surveys were matched to pre-surveys to measure whether any respondents had a positive change in their responses between the two surveys. Eighty-nine percent of respondents on the post-survey either agreed or strongly agreed that they were the type of person who can do well in computer science, and 33% of respondents had a positive change in their level of agreement from the pre- to the post-survey.

Table 10: Pre-survey and post-survey comparison of participants' skills in computer science

Statements	Percentage of respondents who had positive change in responses from pre- to post-survey	Average pre-survey score	Percentage of respondents selecting Agree or Strongly Agree on pre-survey	Average post-survey score	Percentage of respondents selecting Agree or Strongly Agree on post-survey
I am the type of person who can do well in computer science.	33%	3.83	67%	4.11	89%
I feel confident about my ability to do computer science.	22%	3.94	78%	4.11	83%
I am certain that I can learn computer science.	11%	4.28	94%	4.22	94%
I am unsure of myself when I do computer science.*	22%	3.61	61%	3.83	67%
I can get good grades in computer science.	22%	4.00	83%	4.00	78%
I am sure I could do advanced work in computer science,	22%	3.61	50%	3.56	50%
Computer science is too hard for me.*	22%	4.28	83%	4.11	83%

* Because the fourth and seventh statements were presented in a negative view, the statements were recoded so Strongly Disagree had the highest value.
Responses of Disagree and Strongly Disagree were subsequently treated as Agree and Strongly Agree, respectively, for the purposes of this comparison.

Table 11 illustrates participants' interests in computer science and compares their responses from the pre-survey to the post-survey. Post-surveys were matched to pre-surveys to measure whether any respondents had a positive change in their responses between the two surveys. Sixty-one percent of respondents on the post-survey either agreed or strongly agreed that they would like to major in computer science in college, and 39% of respondents had a positive change in their level of agreement from the pre-survey to the post-survey.

Table 11: Pre-survey and post-survey comparison of participants' interests in computer science

Statements	Percentage of respondents who had positive change in responses from pre- to post-survey	Average pre-survey score	Percentage of respondents selecting Agree or Strongly Agree on pre-survey	Average post-survey score	Percentage of respondents selecting Agree or Strongly Agree on post-survey
Generally, I am interested in learning about computer science.	6%	4.56	100%	4.06	78%
I would like to participate in computer science activities after school or in the summer.	39%	4.17	94%	4.24	71%
I am interested in taking a computer science class in school.	33%	3.89	67%	4.17	72%
I am interested in taking a computer science course in college.	33%	4.00	72%	4.17	72%
I would like to major in computer science in college.	39%	3.56	44%	3.72	61%
I would like a job where I could do computer science.	17%	3.78	56%	3.61	56%
I enjoy doing computer science on my own, but I do not want to take classes in or have a job in this field.*	28%	3.28	44%	3.50	56%
I do not enjoy computer science.*	6%	4.72	100%	4.44	94%

* Because the seventh and eighth statements were presented in a negative view, the statements were recoded so Strongly Disagree had the highest value. Responses of Disagree and Strongly Disagree were subsequently treated as Agree and Strongly Agree, respectively, for the purposes of this comparison.

Lastly, respondents provided 18 responses to what they liked best about the program and 17 responses to what they would change. Responses to what participants liked best can be grouped into three categories: mobile application programming, Alice animation programming, and general comments. Responses to what participants would change can be grouped into three categories: change nothing, make the program longer, and other suggestions.

What did you like best about the program?

- Mobile application programming (n=8):
  - I liked having the opportunity to create a mobile app and learning the science behind it.
  - I liked that we got to use a website that helped us create android apps.
  - What I liked about this program was learning how to create the animation and app.
  - What I liked about this program the most was when we made our own app.
  - I liked being able to learn a lot about app inventor. I hope to use it to make my own app.
  - Developing the apps and being able to be partners with my friends.
  - Android programming
  - Learning basic animation on Alice, and how to make your own Android app.

- Alice animation programming (n=5):
  - What I liked about this program was learning how to create the animation and app.
  - I liked best is making the animation.
  - I liked Alice the best. Taught me simple animation skills.
  - The Alice animation programming
  - Learning basic animation on Alice, and how to make your own Android app.

- General comments (n=7):
  - Learning new things, all the special guests that came and lectured, and all the activities.
  - What I liked best about this program is that I got to realize the different opportunities I can have with computer science or related.
  - What I enjoyed most about this program was the participation of creativity; meaning in all activities and projects me creativity was always in correspondence!
  - I loved working with different programs and getting to know how to use them better.
  - The instructors and guest speakers
  - I liked that this program used free software, so that we could continue doing it after the program.
  - Learning how to perform basic programming

If you were in charge, what would you change about the program?

- Change nothing (n=7):
  - I really wouldn't change anything, but I would like a program where you learn a whole language.
  - I wouldn't have changed anything.
  - I wouldn't change anything.
  - I don't think I would change it.
  - I would not change this program.
  - Trick question, I wouldn't.
  - I wouldn't change anything. I loved it.

- Longer program (n=4):
  - make the program longer.
  - I would it longer, 2 weeks.
  - I would give more time
  - I would make it longer maybe like 2 weeks.

- Other suggestions (n=6):
  - I really wouldn't change anything, but I would like a program where you learn a whole language.
  - I would incorporate more puzzles involving computer science.
  - I would only change the way we learned about app development by teaching the pure JavaScript/C/C++/CLI com
  - maybe longer breaks
  - Longer/more frequent breaks
  - Cover more advanced programming topics

Teacher Participant Survey Responses

Table 12 illustrates the grades and subjects participants taught. Seventy-nine percent (79%) of respondents taught 9th, 10th, 11th, and/or 12th grades. One-third (33%) of respondents taught math, and 29% taught science.

Table 12: Grade levels and subjects taught by participants

Questions & Responses	N	%
What grade(s) do you currently teach?		
6	1	1.8%
7	4	7.1%
8	3	5.4%
9	10	17.9%
10	12	21.4%
11	11	19.6%
12	11	19.6%
University/College level	2	3.6%
Alternative education	1	1.8%
Substitute	1	1.8%
I am not a teacher	0	0.0%
Total	**56**	**100.0%**
What subject(s) do you currently teach?		
Math	8	33.3%
Science	7	29.2%
CS/IT/Technology	3	12.5%
AVID	3	12.5%
Social Studies	1	4.2%
Business Math	1	4.2%
Psych, Driver Ed, other electives	1	4.2%
English/Language Arts	0	0.0%
Art/Music	0	0.0%
Total	**24**	**100.0%**

Table 13 illustrates participants' overall level of agreement with various statements regarding the program. One-hundred percent (100%) of respondents either agreed or strongly agreed that they will incorporate what they learned into their curriculum, that the workshop was worthwhile, and there was a sense of community.

Table 13: Participants' level of agreement with various statements

Statements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Average Score
	N	%	N	%	N	%	N	%	N	%	
I will incorporate what I've learned into my curriculum	12	75.0%	4	25.0%	0	0.0%	0	0.0%	0	0.0%	**4.75**
Overall, I found this workshop to be worthwhile	15	93.8%	1	6.3%	0	0.0%	0	0.0%	0	0.0%	**4.94**
I felt a sense of community among participants of this workshop	15	93.8%	1	6.3%	0	0.0%	0	0.0%	0	0.0%	**4.94**

Table 14 illustrates that 100% of respondents would recommend the program to a colleague.

Table 14: Participants' program recommendation to a colleague

Question & Responses		N	%
Would you recommend this workshop to other colleagues?	Yes	15	100.0%
	No	0	0.0%

Lastly, respondents provided the following responses to five open-ended questions. Responses to what participants liked best can be grouped into three categories: new tools to incorporate into curriculum, resources, and other elements. Responses to what participants didn't like can be grouped into two categories: various elements and nothing; participants didn't collectively identify any specific area of dislike. Responses to what participants would like to learn can be grouped into two categories: nothing additional identified and other additional elements; again, participants didn't collectively identify any additional specific elements. Responses to what participants need in order to incorporate what they learned can be grouped into three categories: additional resources, follow-up and time, and would immediately incorporate. Additional comments from participants can be grouped into two categories: praise for the program and additional contact requested.

What did you like about the program? (n=15)

- New tools to incorporate into curriculum (n=6):
  - Learning how to use the programs was great. I enjoyed the guest speaker. So many new ways to make my class both more enjoyable and rigorous.
  - I saw some topics I could incorporate into my computer science classes. I also learned about software, etc. I could use in my math classes.
  - New programs that I can use for teaching and cool and useful websites for teaching.
  - I enjoyed the ability to learn activities that I could immediately take back home, continue, and prepare to take to the beginning of the school year.
  - I appreciated the time to play with the new app after a period of instruction. I felt [name] and [name] were immediately available to help us when we got stuck. I'm leaving with so many new tools!
  - Useful apps for use in classroom. Neat ideas for a computer club. Network with peers.

- Resources (n=4):
  - The great number of resources. The hands on experience with programming. The non-threatening and collegial environment.
  - New programs that I can use for teaching and cool and useful websites for teaching.
  - Resources. Connections.
  - I have learned so much in 2 days about programming and I will use other resources to enhance my teaching. Most important of all I have gained more knowledge about computer science which I will share with my students. Thank you so much for the two day workshop.

- Other elements (n=6):
  - I liked the Android app tutorial and presentations. I like how there was food provided.
  - Learning new technology.
  - Perfect balance of time to listen to info / do hands on / discuss. Handouts are clear enough to program at own pace. Lots of info that is useful. No bombastic pedagogy.
  - Programming, info on computer science.
  - The program has a lot of hands on activities and was very interactive. It gave us, teachers, a time to bond in a short time and thus worked better together.
  - How to program, what it was all about, very interactive

What didn't you like about the program? (n=13)

- Various elements (n=7):
    - I would have liked more time to learn more programs. This has made me investigate taking C.S. classes.
    - The STEM Teacher 2.0 lecture. It broke all the rules of collaboration.
    - Collaborating with other math teachers from outside my local area.
    - No vegetarian food 1st lunch. Need more coffee. [Name] needs a laser pointer for use during her PowerPoints so she can be at her computer while highlighting screen.
    - Takes too long to learn Alice.
    - Being a slower learner, the quickness of everything was overwhelming at times.
    - hands on activities
- Nothing (n=6):
    - Nothing in particular stands out.
    - None that I can think of.
    - N/A
    - Nothing.
    - None
    - N/A

Is there anything you wish you had learned during the workshop, but didn't? (n=13)

- Nothing additional identified (n=8):
    - No.
    - None
    - Nothing comes to mind
    - No.
    - No
    - N/A
    - No.
    - No.
- Other additional elements (n=5):
    - I could use other help, too.
    - More teaching strategies for ELL's.
    - STEM funding opportunities (but I see grant links off page)
    - More subject related activities
    - More user friendly apps.

What would enable you to incorporate what you've learned into your classroom? (n=14)

- Additional resources (n=9):
    - More time and resource. Although I do plan to incorporate some of the ideas regardless of the obstacles.
    - Read the brochure.
    - The android apps for sure. Some of the resources like Khan, Ted, etc.
    - New websites to share with students.
    - Programming, the flip videos
    - Hopefully nothing; hopefully my IT dept is willing to download programs.
    - A lot of the website. A lot of teaching strategies.
    - The different websites, the ability to possibly generate some interest in computer science for the students.
    - access to all resources
- Follow-up and time (n=4):
    - Time. Maybe an autumn follow-up meeting with same folks where we share what we've actually done! Next time, can I bring a token 7th grader to help practice on/brainstorm with?
    - More time and resource. Although I do plan to incorporate some of the ideas regardless of the obstacles.
    - More time to explore
    - Follow-up and ongoing discussion throughout the school year. Where we can share what has worked and what has not.
- Would immediately incorporate (n=3):
    - More time and resource. Although I do plan to incorporate some of the ideas regardless of the obstacles.
    - I would incorporate it voluntarily.
    - I just need to add it to my lesson.

Is there anything else that you would like us to know about your experience? (n=11)

- Praise for the program (n=7)
    - Really enjoyable. Thank you!
    - Excellent experience! I will recommend this workshop to my colleagues!
    - It was well done and very informative! Thanks!
    - Great experience.
    - It was great! Thank you!
    - It was a very informative experience. I feel more knowledgeable now.
    - Fun, interactive, breakfast and lunch was very good.
- Additional contact requested (n=4)
    - I'd like to see the HS workshop student projects later this week?
    - I would like to have a part 2 workshop that is more depth.
    - Yes, I would like to do it again so I can have more time to incorporate all the good stuff. Thanks!
    - It could be longer -- more computer tech info. How to do more.