MASSACHUSETTS DIGITAL LITERACY NOW

Introduction to Computer Science for Educators Workshop Survey - Revised Report

SAGEFOX
CONSULTING GROUP

30 Boltwood Walk, Amherst, MA 01002

Report Prepared by Jeffrey Xavier, Amanda Menier, and Stacey Sexton

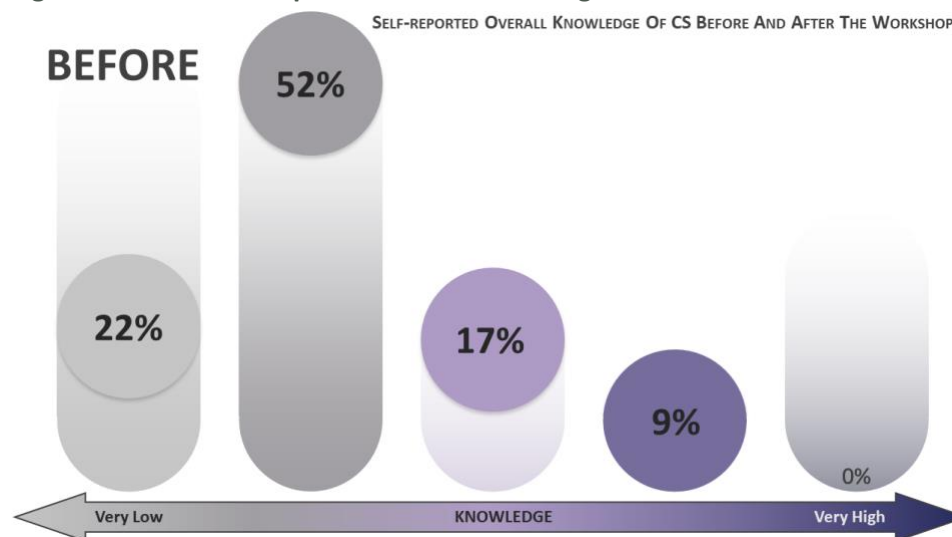**August 22, 2022**

SUMMARY OF FINDINGS

In late June 2022, approximately 30 teachers participated in two professional development (PD) workshops designed to give them a stronger foundation in computer science (CS) ahead of Digital Literacy Now (DLN) grant-sponsored curriculum professional development sessions later in the summer. SageFox developed a short survey to gauge the impact of the workshop on their perceived knowledge of CS and feeling of preparedness for additional learning. As stated, two separate workshops were held - one for teachers in elementary grades and another for middle and high school teachers. Of the approximately 30 teachers from seven DLN districts who participated in the sessions, 23 teachers completed the survey for a response rate of about 77%. This report includes a brief summary of findings, followed by additional information about the evaluation as well as a question-by-question breakdown of the survey results.

Participants varied in terms of their years of teaching experience, though most are new to teaching CS. More teachers reported teaching elementary grades, which is consistent with the attendance at the workshops.

The PD seems to have met its goal of improving teachers' confidence and knowledge in CS, since most teachers "leveled-up" by rating their post-workshop knowledge at least one point higher than their before-workshop knowledge (see Figures 1 & 2). More than half of participants said that most or all of their CS knowledge came from this PD experience. Additionally, 61% feel very prepared for the curriculum PD they will be taking at the end of the summer, with only a single person reporting that they feel very unprepared.

In terms of general feedback, participants especially appreciated the instructors and the hands-on activities. However, many participants felt that there was too much "down time" during the day that could be filled with additional instruction. Looking to the future, participants are interested in more training.

Figures 1a & 1b: Self-reported overall knowledge of CS before and after the workshop
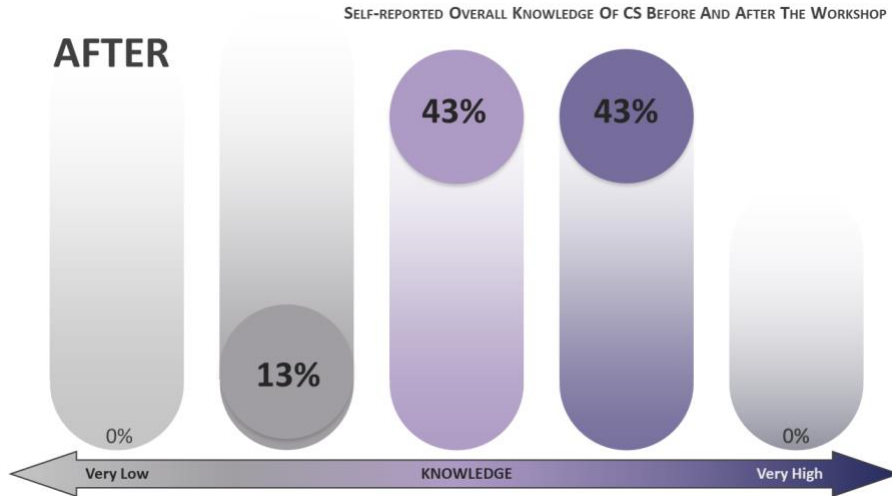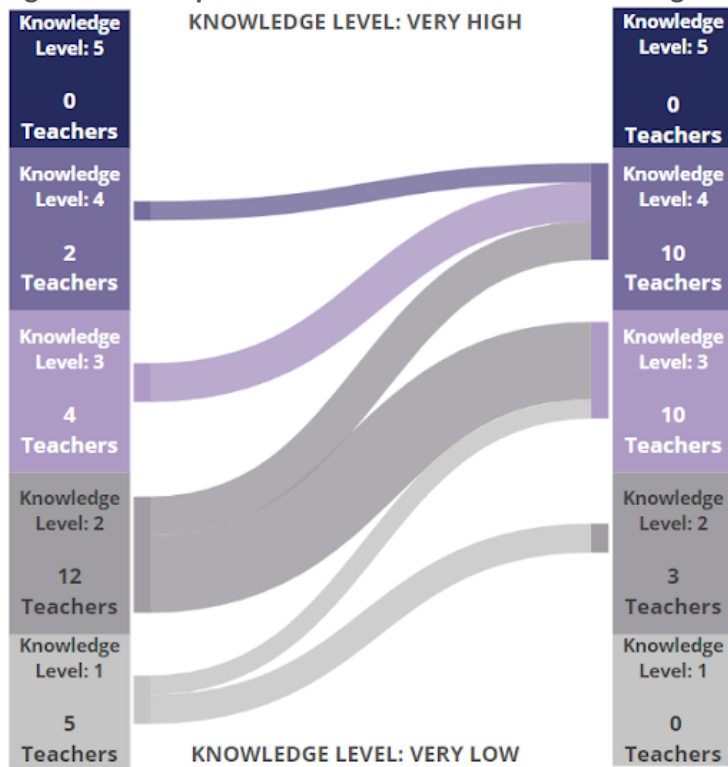

SELF-REPORTED OVERALL KNOWLEDGE OF CS BEFORE AND AFTER THE WORKSHOP

BEFORE

52%

22%

17%

9%

0%

Very Low   KNOWLEDGE   Very High

SELF-REPORTED OVERALL KNOWLEDGE OF CS BEFORE AND AFTER THE WORKSHOP

AFTER

43% 43%

13%

0% 0%

Very Low KNOWLEDGE Very High

Figure 2: Self-reported distribution of teacher knowledge: Before and after the workshop

KNOWLEDGE LEVEL: VERY HIGH

Before	After
Knowledge Level: 5 — 0 Teachers	Knowledge Level: 5 — 0 Teachers
Knowledge Level: 4 — 2 Teachers	Knowledge Level: 4 — 10 Teachers
Knowledge Level: 3 — 4 Teachers	Knowledge Level: 3 — 10 Teachers
Knowledge Level: 2 — 12 Teachers	Knowledge Level: 2 — 3 Teachers
Knowledge Level: 1 — 5 Teachers	Knowledge Level: 1 — 0 Teachers

KNOWLEDGE LEVEL: VERY LOW

Research Questions

To better understand the experience of PD participants, we focused on a subset of research questions, which are specified below:

EDUCATORS

- How many educators participated in professional development (PD), how were they recruited, what are their positions, and what was their experience with the PD and in the classroom?

- How well did the PD prepare educators for DLCS implementation? What elements were particularly useful/missing?

- Quality of the PD such as:
  - How useful was the PD for implementation of the curriculum in the classroom?
  - What aspects of the PD were particularly helpful?
  - What other topics should the PD have covered?

RESULTS (N=23)

Table 1: Which district are you a part of?

District	N
Boston	1
Burlington	2
Chelmsford	3
Dennis-Yarmouth	2
Lowell	1
North Reading	8
Springfield	6

Table 2: How many years of teaching experience did you have at the start of this academic year?

This is my first year teaching.	13%
1-4	30%
5-9	30%
10+	26%

Table 3: How many years of *DLCS* teaching experience did you have at the start of this academic year?

This is my first year teaching DLCS content.	92%
1-4	-
5-9	-
10+	8%

Table 3: Which grades do you currently teach or support? (check all that apply)	
K	48%
1	52%
2	43%
3	48%
4	57%
5	30%
6	17%
7	30%
8	26%
9	22%
10	22%
11	22%
12	22%

Table 4: Which grades do you currently teach *DLCS* or coach teachers to teach *DLCS*? (check all that apply)	
K	48%
1	48%
2	39%
3	43%
4	52%
5	26%
6	22%
7	35%
8	30%
9	22%
10	22%
11	17%
12	17%

Table 8: Which of the following best describes your professional role(s)? (check all that apply)

Classroom Teacher	61%
Instructional Coach	13%
Technology Specialist	22%
District Leader	4%
<u>Other - Write In:</u> • Visual Arts Teacher • Since I'm not currently a CS teacher in my school, I might break my way in leading after school activities	9%

Table 9: How would you rate your overall knowledge of CS:

	Before PD	*After PD*
Very low (e.g. no prior knowledge)	17%	-
Somewhat low	57%	13%
Average	17%	43%
Somewhat high	9%	43%
Very high (e.g. working software engineer)	-	-

Table 10: What proportion of your overall CS content knowledge do you attribute specifically to this PD experience?

None	0%
Some	23%
About half	23%
Most	41%
All	14%

Table 11: Do you feel prepared to engage in the curriculum-specific PD later this summer?

Very prepared	61%
Somewhat prepared	35%
Very unprepared	4%

Open Ended Responses (Comments may appear in multiple classifications)

What would help you feel more prepared?

- On own time, believe they should've spent more time familiarizing themselves with the information on code.org (x1)
  - Because I had little understanding of this topic before attending the workshop, I think I would feel more prepared if I continued to familiarize myself with the information from

code.org. This is something that I can do on my own time, and I am very appreciative of the efforts of the instructors! They were wonderful!
- Will be studying the material from this course/looking to apply it (x3)
  - On my own time I would need to spend more time practicing and engaging with the information learned during this PD.
  - Just working more with the materials would help me.
  - More practice with using the conditionals when working on some of the coding activities.
- Training/Program changes (x5)
  - I'd love more training please!
  - More PD like this.
  - More time with different applications.
  - More unplugged activities and visuals or examples for open ended activities. Some were too open ended.
  - More practice with using the conditionals when working on some of the coding activities.
- Liked that this truly was an introductory course, no preparation needed (x2)
  - I love that this was an intro course and we were not expected to know anything yet. It was very helpful to walk into an environment with my prejudgements, or thinking that we were experts because we are not! However now, I have a great baseline understanding of CS!
  - This was a great introduction that covered many areas at a surface level. For someone who had CS knowledge going in it was more of a refresher for me.
- Collaboration (x2)
  - Collaborate with other teachers and admins.
  - I would like to have more time to hear of other classroom experiences.

General reflections

What went well at the PD?

- Hands on activities (x8)
  - I loved the hands-on activities, the presenters all did a great job mixing up content in different forms. The presentations were easy to follow and engage with.
  - Hands-on activities, risk free environment, lots of movements and projects that put the practices into real world situations, and great presenters!!
  - The instructors were informative and there were hands-on activities to reinforce concepts.
  - Hands on experience, using the various materials, information about CS and the standards.
  - Lots of hands on learning
  - Pacing Lecture mixed with hands-on examples.
  - Talking with colleagues, the hands on opportunities.
  - Great mix of unplugged and plugged activities. I enjoyed learning about variety of CS topics covered and having hands-on experience.
- Instructors made it run well (x8)

- Beside the chocolate sauce with the cheesecake - ha, ha, the facilitators were very clear with their messages. It was great having the time and coaches for the Coding site.
- I enjoyed how we were given instructions and demonstrations before we were able to play with the technology.
- The instructors were informative and there were hands-on activities to reinforce concepts.
- The instructors are great! The food was great.
- A lot, everything was well organized.
- It was very well organized and thought out.
- Pacing Lecture mixed with hands-on examples.
- Everyone was very welcoming and really great at showing us the different resources, talking out how it might work in the classroom.
- Visuals and examples (x2)
  - The lessons with visuals and examples. hearing from others and asking questions
  - Interactivity.
- Collaboration with others/small groups (x3)
  - The smaller grouping was very helpful. It allowed for more one-on-one interactions between the instructors and the people taking the course.
  - Loved the break out sessions collaborating with other peers. The activities were fun and engaging.
  - Talking with colleagues, the hands on opportunities.
- Everything (x2)
- Other (x3):
  - Time given to us to explore, such as the coding activities.
  - I liked getting to use code.org and the other gadgets.
  - Digital Journal was very helpful and easy to use!

What could have been done better at the PD?

- Better time usage (x6)
  - I think more time to interact with the different lessons would be helpful. It may have been helpful to have us move around more as well, and to interact with other members of the course.
  - I think there was a lot of unused time that could have been taken better advantage of.
  - Some activities went too slowly and I wasn't sure if it was ok for me to speed ahead.
  - More teacher - lead instruction time.
  - A little too much down time.
  - Less time for breaks.
- A compliment (x6)
  - I enjoyed everything about this PD. Topics, activities, time to collaborate with teachers, pace of the coverage of the material.
  - I thought the presenters were very knowledgeable and helpful
  - Honestly this was really great for beginning CS people!
  - I was very happy with the workshop.
  - Nothing - It was great!
  - All went well!

- Other (x4):
  - More applicable ways to incorporate in a first grade classroom.
  - Have a different protein available during the pizza day.
  - more movement and pair programming.
  - Some more point checks.
- N/A (x4)

Please leave any final comments about the PD here.
- More PD (x2)
  - This PD was great. I imagine there are a lot of people like me who have certs in the humanities but might like to break into computer science. I would love to see more PD targeted towards people like me and ideally helping us with resources to pass the MTEL. I would also love resources on how to convince my admin to let me do more of this kind of stuff in an interdisciplinary fashion.
  - I would be interested in taking more similar PD's.
- Instructors did well (x3)
  - I enjoyed this PD very much. I learned a lot of valuable information and learned about many computer science-based resources and processes that I can apply moving forward as an elementary specialist or teacher. A job well done by all presenters and all involved in the workshop, thank you very much for this awesome learning opportunity!
  - The instructors were absolutely wonderful. They were very understanding and I appreciate the amount of time and effort that was put into helping us to understand the information.
  - The presenters were amazing!
- Liked the material review (x2)
  - Even though I was already somewhat familiar with Code.org I loved the review and look forward to using it more in my classroom.
  - Excellent PD and helped me re-connect to my prior learning about CS. Will highly recommend this PD to my colleagues.
- Relevant content (x3)
  - Great job--especially since it was new for presenters. Liked how you worked on the fly to update information.
  - Fabulous PD - relevant content, presenters, representatives, location, meals.
  - Great job helping us be students, as well as teachers!
- Thank you! (x7)
  - Thank you for allowing us to think, and work alone and together! It really was a great balance of on screen and off screen activities.
  - Variations of "thank you" (x6)