Computer Science Work Group

May 11, 2021, 3:30-5:00 p.m.

Members Present

Co-Chair Kathleen Kay, Co-Chair Jeff Weld, Wendy Batchelder, Dan Carver, David Collison, Nicole Crain, Samantha Dahlby, Jacquie Drey, Linda Fandel, Dan Greteman, Dee Hamlett, Denise Hoag, Wren Hoffman, Doug Jacobson, Joe Murphy, Melissa Pettigrew, Kyle Rector, Ben Schafer, Robert Stough, Joe Stutting, Beth Townsend, Timothy Urness

Roll Call

Department of Education Computer Science Consultant Wren Hoffman facilitated the roll call of members.

Welcome/Opening Remarks

Co-Chair Kathy Kay, Principal Financial Senior Vice President and CIO, welcomed everyone. While considering the Computer Science Work Group's recommendations, she reflected upon whether these will move the needle enough, prepare our children effectively and help excite our kids as they move onto other roles beyond high school. In striving to achieve these ends, Co-Chair Kay thanked the Work Group members for all the work they have been doing.

External Perspectives on Iowa's Recommendations

Sean Roberts, the Code.org Director of State Government Affairs, was invited to provide an external perspective on Iowa's Computer Science Work Group recommendations. Worth noting, Mr. Roberts spoke to the Computer Science Work Group at its initial meeting on December 8, 2020, regarding computer science from a national perspective.

As part of his role with Code.org, Mr. Roberts has helped nine other states with the development of their statewide computer science education plans. Given that, Mr. Roberts was able to provide some context as to what he has seen nationally and what is working well, along with some things to consider.

Mr. Roberts noted the Work Group's draft recommendations are fantastic. He was impressed with the creativity and unique approaches reflecting a real understanding. Things like the annual computing week is a great idea, he thought. The AEA Working Group with a regional model for expanding computer science education he has not seen in other states, save Arkansas. Even the legislation passed in Iowa is trend setting, he said. No other state has included parts of the Iowa law around each district creating its own plan as to how they were going to implement computer science education. The Code.org policy team is going to explore this further and share this with other states as a model.

Looking through the draft recommendations, there were three major things that stuck out to Mr. Roberts as considerations that the Work Group may want to explore.

1. Attaching dates to activities for clarity, such as what is near term versus far term – one year or five years? When looking at state plans, Code.org has a rubric they use to assess whether a state has a viable state plan for computer science education. Part of

that rubric includes timelines for the actions and soft or hard targets so everyone across the state is on the same page.

2. Long-term sustainability of the computer science teacher pipeline. One of the things missing from the recommendations is a long-term sustainability plan for the computer science teacher pipeline. Funding to train teachers is crucially important and a key component to making computer science foundational. Correlating very strongly with schools actually offering computer science education or not is whether that funding is available to train teachers to teach computer science. There can be additional training after pre-service teacher preparation. However, to make this sustainable, it is far better to ensure each teacher coming out of a pre-service program is prepared to teach computer science. A few states and university systems are either incentivizing pre-service teachers to include computer science preparation or including a computer science education background course in their existing pre-service program requirements.

3. Ideas around equitable access. Schools or districts providing virtual or after school computer science courses are fine to have as a supplement. If that is the only opportunity for some students to learn computer science, some students will be left behind. There is a fear this will disproportionately affect certain students who already do not have those opportunities in computer science education. Teachers are critically important to this work, and a teacher in the classroom is the best way to deliver computer science education. Everything possible should be done to encourage schools to make the time to ensure they have the teachers, technology, training and equipment to ensure they can provide in-person computer science education to their students with a teacher in the classroom.

Overall, Mr. Roberts thought Iowa's was a great set of recommendations, and he was very proud to be associated in a small part in what is happening in Iowa.

Review and Lock in the Top Three Recommendations

Co-Chair Jeff Weld, Governor's STEM Advisory Council Executive Director, reviewed the recommendations with a goal of narrowing them further to a top three that can be debuted in the report.

Co-Chair Weld pointed out the Work Group is very fortunate to have Linda Fandel working on the Group's behalf and lending her editing expertise to the crafting of this report.

Computer Science Education to the Underserved Subcommittee Lead Kyle Rector reviewed the latest, refined recommendation of this subcommittee.

Bridge the funding gap in communities with lower socio-economic status.

1. Provide (remote) instruction to students in districts that do not have the same level of access to quality computer science instruction.
2. Train people who already do technology support for the district to turn around and instruct students. (move to revise?)

The subcommittee proposed the following definition of quality computer science instruction:

Quality computer science instruction defined
- We define quality computer science instruction as offering curricula that emphasize inquiry-based learning, problem solving or critical thinking;

- They should be flexible in input (i.e., computer, tablet, mobile), output (i.e., visual, auditory, tactile) and expression (e.g., storytelling, music);
- Instruction must be culturally responsible.

Feedback included adding that computer science being taught in this framework at every grade level to encourage school districts to go this more ambitious route sooner than later, exploring whether this definition aligns with the existing "Computer Science Definition – Iowa Style" found at: https://educateiowa.gov/pk-12/instruction/computer-science/computer-science-definition, and the main point that was absolutely important moving forward for students was their ability to learn critical thinking skills. The subcommittee will merge the State's definition with the augmentation of the subcommittee's definition between now and report time.

Computer Science Education Educator Support In looking at professional development, Dr. Ben Schafer indicated the subcommittee proposed a working group of Area Education Agency (AEA) representatives who would do a number of things. One would be to serve as a guidance to the Department of Education and to serve as a guidance and corroborate things with the legislature. Relative to equity, by having all the AEAs collaborating and working together in this working group, then offerings to the teachers in the state would be equitable across the state. Thereby, there would not be one or two AEAs producing great professional development limited to their area because they had people who knew how to make the training while other parts of the state did not. The subcommittee was proposing a multi-faceted group in this AEA team who could make sure the state was providing professional development opportunities through the AEAs available across the state, not just locally, as well as serve as a guidance moving forward.

Dr. Schafer indicated he has no problem with an advisory body larger than the AEAs. There is an existing advisory body which Wren Hoffman works with through the Department of Education that already includes representation from each of the AEAs.

Priority Three Discussion There was a lack of consensus for the third priority recommendation. Each of the subcommittee leads was invited to advocate for theirs. The recommendations related to work-based learning, flex credit and teacher preparation were broadly discussed to try to arrive at a consensus. Following robust discourse, consensus was reached that the work-based learning recommendation would be the third priority. This recommendation is to include the definition of what the Work Group means by work-based learning and include a tracking measure to help determine if the priority is being achieved.

Closure and Foreshadow of June Meeting

Co-Chair Weld acknowledged the Work Group now has the framework for the document that will change thousands of lives.

Linda Fandel shared her thoughts around incorporating all the great input and thanked the Work Group members for their tremendous contributions, thoughtfulness and fantastic result. She noted they have a template to work from which will include a cover page and an introduction which will capture the bulleted top three recommendations followed by a composite of all the recommendations as thoroughly as possible. The Work Group will have a draft document to review in June. In the meantime, the writing team will follow up with a number of Work Group members to get some clarification and additional information before sending a draft to the Co-Chairs Kathy Kay and Jeff Weld.

Co-Chair Kathy Kay said she is excited the Work Group got to their final three and is looking forward to the next stage. She expressed how fun it has been watching this evolve and how

appreciative she is for the time everyone has invested in this. Co-Chair Kay thanked Sean Roberts again for joining the meeting and sharing his insights.

Meeting adjourned at 4:52 p.m.

Next Meeting

June 8, 2021, 3:30-5:00 p.m.