

SCCS

STATE COMMITTEE ON COMPUTER SCIENCE

IN PARTNERSHIP WITH THE OHIO DEPARTMENT OF EDUCATION AND OHIO DEPARTMENT OF HIGHER EDUCATION

Making  Ohio a National Leader in Computer Science Education

Organizational Meeting

Committee Facilitator Kelly Gaier Evans - Battelle

Chair: Mike Duffey, Ohio Department of Higher Education

Vice Chair: John Wiseman, Ohio Department of Education

March 30, 2022 from 9:30a.m.-12:30 p.m.

Approval of Minutes

Chair, Mike Duffey

- March 9, 2022

Need:

- Motion to approve minutes
- Second

Committee Update

PreK-12	Post-Secondary	Nonprofit	Business	Federal
John Wiseman, Vice Chair Ohio Dept. of Education	Mike Duffey, Chair Ohio Dept. of Higher Education	Autum Barry Project Lead the Way	Tonjia Coverdale Nationwide	Lisa Nolan Air Force Research Lab
Tim Conley Bloom Vernon Schools	Debbie Jackson Cleveland State University	Lisa Chambers TECH CORPS	Courtney Falato JP Morgan Chase	
Chelsey Cook Kohn Cleveland Metro Schools	Tsavo Knott† Founder, Pieces.app	Kristi Clouse JobsOhio	David Landreman Olive (replacing Sean Lane)	
Mike Eilerman Tri-Star Career Center	Jong Kwan Lee Bowling Green State University	Katie Hendrickson Code.org	Doug McCullough Color Coded Labs	
Patricia Murakami Dayton Reginal STEM School	Rebekah Michael University of Cincinnati/Cyber-Range	Kelli Shrewsberry Teaching & Learning Collaborative		
Paula Naa Quartey* Student, KIPP Columbus	Tom Newman Cincinnati State			
Bryan Stewart Warren/Montgomery ESC	Tasha Penwell CSTA Designee/Hocking College			
Brent Wise Mariemont Schools	Paul Sivilotti The Ohio State University			

* Paula is a student at KIPP Columbus and special guest who can become a member of the committee in January 2022.

** Tsavo Knott is a recent college graduate and entrepreneur, representing post-secondary students.

*** Lisa Nolan is a non-voting federal government designee from Wright Patterson Air Force Base / Air Force Research Laboratory



Framing our time

Our work today

- 9:30 -9:50 Welcome and recap
- Approval of minutes (March 9)
 - Frame our Time Together and overview of the agenda
 - Recap the charge and our progress (data, challenges)
- 9:50-10:50 Revisited: How should Ohio collect and report on CS education
- 10:50-11:00 Coffee and stretch break
- 11:00-12:15 Challenges that prevent schools and districts from offering CS
- 12:15-12:30 Wrap up
- Homework
 - Assignments for first round of recommendations
 - What's next?

Our Charge – HB 110 – the state budget

We have a unique opportunity to help make Ohio a national leader in computer science education and workforce pipeline.

- (1) Best practices and challenges associated with the implementation of primary and secondary computer science curriculum in this state;
- (2) Demographic data for students who receive instruction in computer science;
- (3) Benchmarks to create a sustainable supply of teachers certified to provide instruction in computer science;
- (4) Best practices to form public and private partnerships for funding, mentoring, and internships for teachers providing instruction in computer science;
- (5) Requiring all students to complete a computer science course prior to high school graduation;
- (6) Establishing a work-based learning pilot program that includes high schools, universities, and local industry and permits the department and the chancellor to develop pathways to align computer science education in the state with the state's workforce needs;
- (7) Any other topic determined appropriate by the committee

HB 110: <https://ohiohouse.gov/legislation/134/hb110> (Pages 703-705)

Our Charge – HB 110 - continued

(D) Within the plan, the committee ... shall include all of the following:

(1) **An examination of the challenges that prevent school districts from offering computer science courses;**

(2) **A requirement that the department of education collect any data regarding computer science courses offered by school districts and school buildings operated by school districts, including the names of the courses and whether the courses were developed using the standards and model curriculum ...and post the collected data on its web site.**

(3) **A requirement that the committee determine the best ways to compile data on computer science courses, teachers, and undergraduate students studying computer science in universities.**

(4) **Any findings the committee determines appropriate** based on its consideration of the topics described in division (B) of this section.

Norms

- We all have different filters, share yours
- Always assume positive intent
- Be curious and ask questions
- Be here now
- Communicate respectfully
- Safe space to contribute ideas (disagree w/content not the person)
- Treat everyone with courtesy and respect
- Embrace data, where it is and isn't available
- Come to meetings fully prepared which includes any homework or review of materials sent prior.

Identified challenges

CS operationalized
in K-12



-
- Recap from February
 - Information shared
 - Answers to your questions



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In the February meeting....



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In review | February we discussed

INFO RELATED TO COLLECTING CS COURSE DATA

- EMIS: system schools use to report which courses are taught
- ODE has developed three tables that relate to CS
 - Table 16 | Computer Science Codes
 - Table 18 | Technology Education Codes (first half)
 - Table 29 | Career Field 12: Information Technology Codes

In review | February we discussed

INFO RELATED TO COMPILING CS COURSE DATA

- The Ohio Computer Science Data dashboard
- Takes a wide lens look at CS as compared to the State of CS Report (compiled nationally) which looks at just access and participation in *foundational CS*.

You worked in groups to determine the best ways for Ohio to compile data and report on computer science courses (k-12).



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In review | February we discussed

High level take-aways included:

1. Provide more support to administrators around course codes
2. Provide a recommendation on how to track in EMIS when a course is integrating CS
2. Work to better understand current context of courses being offered
 - Conduct a statewide survey to track CS access that isn't currently listed in EMIS (i.e. short term CS nonprofit partnerships)
 - Capture elementary courses better

You also had many, many, questions...



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Recommendation on operationalizing CS in K-12

i. Questions:

1. Can you add course codes that allow schools to choose when CS is integrated - i.e. ELA with foundational CS standards?
Adding course codes would not be the solution – you would have to add a separate code or every other course in EMIS One for nonintegrated and one for integrated. This would not be efficient and would create a burden on the districts.
2. Can you add a drop-down menu option to EMIS to distinguish between courses that have embedded CS or not?
This functionality could be requested in EMIS however the deadline to make that or other requests was 3/1/22 for this year. Another option would be using a secondary code similar to the EMIS Course Level Element field used to record Advanced Placement. This change would also require an EMIS change request
3. Is there a way to gather data on standards average in K-5 instead of courses for integrated CS?
Need clarification on this question. Are we trying to create a checklist for standards in EMIS? This is not how EMIS is designed and would cause a burden on districts.
4. E.g. a course code for Grade 2 CS & a code for integrated Grade 2 CS
No other courses have individual course codes by individual grade in k-8. Typically, courses are grade banded k-3, 3-4, 4-6 and 7-8.
5. A question we have - is there a way to track 6 wk., 9 wk., etc?
 - a. If this question is about receiving real-time enrollment data, data is only reported once a year. There's one period that ends mid-year, but that's typically only used for staff reporting. We don't really provide course data until the end of the year after Report Card.
 - b. Might need clarification on this question to answer it accurately including looking at existing functionality such as the course schedule element.
6. In EMIS can you add 2 codes to a given CS or add a checkbox to flag it is integrated?
Any changes to EMIS courses would need to be part of an EMIS change request. Or is this a question about two CS courses being integrated, if so, which grades? (K-8 or high school)
7. Question - how many districts are teaching K-8 CS this year?
Data is not collected in real-time; data normally collected for a school year is not available until the fall after it is collected, so this year's data (FY2022) will be available in the fall of next school year (FY2023).
8. HS CS: Table 16 course descriptions seem too general, Should the CS and CS in depth study call out specific sets of standards addressed by each course.
Due to the local control districts have, ODE needs to make sure that courses are broad enough to give schools options to teach what their students and workforce need. There

are also resources available for schools that are looking for more detailed content specific course outlines, in the form of the CTE IT and Engineering course description documents.

- a. Networking and computer science don't seem to fit here. To be considered CS. Networking is called out in Ohio's definition, so it needs to be in the CS table. It is also the only place students can take this type of workforce focused course outside of Career Technical Education.
 - b. Move programming from Table 18 to Table 16.
Programming is in Table 18 due to it being a course that can be taught by CS or Technology teachers. Table 16 is only for computer science courses that align to Ohio's definition.
9. How many course codes are currently slotted to be pulled into the CS Dashboard for this year?
Due to the EMIS changes, that has not been determined yet, but it will be the courses that align to the state definition of computer science.
 10. Can we get a list that separates between grade bands? What is considered K-5? What is considered 6-8? What is considered 9-12?
 - a. Confirm definition but if it doesn't have grade levels then typically would be high school
 - b. K-8 CS: could we separate into grade level (especially for K-5) to match the standards and or/grade band?
This is possible. It usually takes at least a year for EMIS changes to make it to the updated in the fall. This question could use clarification including more specifics on what they're asking. Is the question, "Students actually taking class or students that could take class?"
 11. Follow up on CS EMIS codes in the doc John sent on 2/17?
 - a. Was there another update beyond what was shared previously that was in the fall version?
There have been no updates of EMIS codes since the 2/17 document. Also, moving forward Joint Committee on Agency Rule Review (JACARR) as is listed below in this document.
 12. Can committee recommend and edit in EMIS to add course detail & concepts being taught to ensure administrators know what they are coding?
The committee can make recommendations that the department would consider for updating the descriptions within EMIS – Descriptions should be succinct and address the CS standards. However, it is important for this group to know that we can't just make changes to EMIS or the manual on a whim, or even immediately following a committee's requests. We might want to pull in Erica Weaston about this item since she is in charge of the EMIS Change requests and can speak to the requirements/laws. I think it's important for this group to know that we can't just make changes to EMIS or the manual on a whim, or even immediately following a committee's requests.

Let's revisit this discussion...



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Connecting our discussion to the charge...

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(3) A requirement that the committee determine **the best ways to compile data on computer science courses, teachers, and undergraduate students studying computer science** in universities.

(4) **Any findings the committee determines appropriate** based on its consideration of the topics described in division (B) of this section.

What are the committee's recommendations on:

- How to collect data regarding CS courses offered?
- How to determine if CS courses are aligned to the CS standards?
- What are the best ways to compile and report on CS course access and participation?

Thus far....

What are the committee's recommendation on:

- How to collect data regarding CS courses offered?
- How to determine if CS courses are aligned to the CS standards?
- What are the best ways to compile and report on CS course access and participation?

The committee's recommendation thus far (based on high level take-aways):

- Provide more support to administrators around course codes
- Determine ways to allow for CS immersion or integration
- Survey schools to better understand the context of courses being offered
- Find a way to better capture what is happening in elementary.

Discuss...

What are the committee's recommendation on:

- How to collect data regarding CS courses offered?
 - Reviewing the responses from ODE on EMIS, are there specific recommendations this committee wants to make to ODE on how data is collected on CS courses (EMIS or beyond EMIS)?
- How to determine if CS courses are aligned to the CS standards?
- What are the best ways to compile and report on CS course access and participation?
 - Do you all have any recommendation on which courses should be included as a part of the computer science data dashboard?
 - Should the report have multiple sections (foundational CS, career pathways, integrated CS and etc)?
 - How should this data be shared with the public?
- **Parking lot: Are there other course data questions we should be discussing?**

Next 45 minutes

- 15 minutes per each section
 - 5 minute turn and discuss
 - 5-7 minutes discussing as a full group
 - 3-5 minutes of capturing specific recommendations
 - Captured during discussion
 - Committee member volunteer: Tasha (hw volunteer)

Committee recommendations

How to collect data regarding CS courses offered?

Reviewing the responses from ODE on EMIS, are there specific recommendations this committee wants to make to ODE on how data is collected on CS courses (EMIS or beyond EMIS)?

NOTES:

Cont'd

How to collect data regarding CS courses offered?

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NOTES Cont'd:

Committee recommendations

How to determine if CS courses are aligned to the CS standards?

NOTES:

Cont'd

How to determine if CS courses are aligned to the CS standards?

NOTES Cont'd:

Committee recommendations

What are the best ways to compile and report on CS course access and participation?

- Do you all have any recommendation on which courses should be included as a part of the computer science data dashboard?
- Should the Ohio CS Report have multiple sections (foundational CS, career pathways, integrated CS and etc)?
- How should this data be shared with the public?

NOTES:

Cont'd

What are the best ways to compile and report on CS course access and participation?

- Do you all have any recommendation on which courses should be included as a part of the computer science data dashboard?
- Should the Ohio CS Report have multiple sections (foundational CS, career pathways, integrated CS and etc)?
- How should this data be shared with the public?

NOTES Cont'd:

Coffee & Stretch

10 minutes



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Identified challenges facing districts and schools



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Challenge 3:
Schools do not have the
support they need to
implement Computer
Science.

Challenge 4:
Students do not enroll in
CS courses.

Challenge 5:
There is a low supply
of CS teachers.

Part A: Licensure challenges
& Teacher Recruitment

Challenge 5:
There is a low supply
of CS teachers.
Part B: Training & Prof.
Development around CS

Roles to maximize our group work

Role	Responsibility
<u>Facilitator</u>	Responsible for getting the group started, keeping it on task, and involving all members.
<u>Timekeeper</u>	Responsible for keeping group on task and on time
<u>Reporter</u>	Responsible for summarizing group decisions for the larger class.
<u>Recorder</u>	Responsible for keeping a record of the group's discussion
Prioritizer	Makes sure group focuses on most important issues and doesn't get caught up in details.
Investigator	Responsible for getting info from other groups when appropriate.
Reality checker	Responsible for noting group decisions and whether they are realistic.
Devil's advocate	Responsible for pointing out alternate viewpoints and asking tough questions.

Group Assignments

	School supports	Students do not enroll	Teacher Supply: Licensure & recruitment	Teacher Supply: Training & PD
<u>Facilitator</u>	Bryan Stewart (PK-12)	Tsavo Knott (Post-secondary)	Debbie Jackson (Post-secondary)	JK Lee (Post-secondary)
<u>Timekeeper</u>	Autum Barry (nonprofit)	Paula Naa Quartey (PK-12)	Mike Eilerman (PK-12)	Rebekah Michael (Post-secondary)
<u>Reporter</u>	Tom Newman (post-secondary)	Lisa Chambers (nonprofit)	Brent Wise (PK-12)	Chelsey Cook Kohn (PK-12)
<u>Recorder</u>	Tim Conley (PK-12)	Tasha Penwell (Post-secondary)	Katie Hendrickson (nonprofit)	Kelly Shrewsberry (Nonprofit)
Unassigned Role	Courtney Falato (Business)	David Landreman (Business)	Paul Sivilotti (Post-secondary)	John Wiseman (PK-12)
Unassigned Role	Mike Duffey (Post-secondary)	Kristi Clouse (nonprofit) <i>(absent 3/30)</i>	Doug McCullough (Business) <i>(absent 3/30)</i>	Tonja Coverdale Business <i>(absent 3/30)</i>
Unassigned Role		Pat Murakami (PK-12) <i>(absent 3/30)</i>		Lisa Nolan (Federal)

Unassigned roles to decide upon: Prioritizer, Investigator, Reality checker, Devil's advocate

SCCS – Breakout Group Instructions

March 30, 2022 Meeting

PRE WORK

Please read the four challenge areas included in the following pages. For each challenge areas, consider the following prompts (*note: you do not need to submit this work, but please be prepared to discuss at the meeting*):

- How would you approach solving this challenge?
- How might this solution connect back to our previous recommendations?
 - How might staff from an office of CS carry out this solution?
 - What funding needs are necessary to carry out this solution?
 - Would this recommendation serve and support CS access or a CS course requirement?

MEETING INSTRUCTIONS

Read all instructions.

Start by assigning additional roles and reading through responsibilities. See table below for roles and responsibilities as well as named assignments.

Next, each committee member should share how they would approach solving this challenge.

As a group, discuss and capture your best-case scenario for how this recommendation could be implemented being sure to address all five sections of a SMART goal (page 4). Please discuss and capture in any order, but indicate on your planning document where each SMART section is being addressed.

Each sub- group will have 70 minutes to work. Your notes from this session will be shared with the entire committee. Committee members are asked to review and provide feedback on each recommendation as homework between the two meetings. Your sub-group will then re-convene on April 20th to further flesh out recommendation, incorporate committee feedback, and share out recommendation to the full committee.

ROLES: To maximize our time together, we have assigned one team member to each of the following roles: Facilitator, Timekeeper, Reporter, and Recorder. Additional group members can take on one or more of the following roles: Prioritizer, Investigator, Reality Checker, and Devil's Advocate. See below for the responsibilities of each role.

S

Specific

- Who is involved?
- What will be accomplished?
- Where will this take place?
- What are the requirements and constraints?
- What are the resources needed?
- What are some of the short term and long-term fiscal impacts?
- Why: Provide the specific benefits of accomplishing this goal.

M

Measurable

- What would the unique metrics of success be for this solution?
- What additional metrics might be pulled in from other solutions?
- What are benchmarks that would need to be in place to ensure progress is on track?

A

Attainable

- Is this recommendation achievable?
- What are potential barriers or unintended consequences?
- Outline any steps that should be taken to mitigate these barriers/consequences.
- Is this recommendation dependent upon another recommendation? How so?
- How might staff from an office of CS carry out this solution?*
- What funding needs are necessary to carry out this solution?*
- Would this recommendation serve and support CS access or a CS course requirement?*

R

Relevant

- Does this recommendation solve the challenge identified by the committee?
- Will it support Ohio in becoming a leader in CS education?

T

Time-bound

- What is the timeline for implementation?
- If this recommendation is dependent upon another recommendation, how does that impact this timeline?

CS Solved Note Catcher

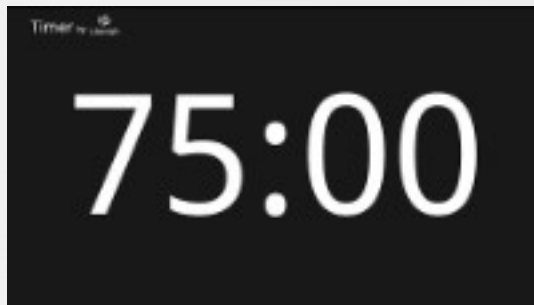
SOLUTION CAPTURE

Challenge	Recommended Solution
Challenge 3: Schools do not have the support they need to implement Computer Science.	
Create your best-case implementation of this recommended solution using your SMART plan.	
What questions does your group have for the state?	

You will be successful if...

at the end of this session you have a clear recommendation to share with the rest of the committee that they can give concrete feedback on between sessions.

Timer counts up! Plan for about 70 minutes.



Before you leave your station

- Save and email each set of recommendations to Kelly and ODE CS account:
 - gaierk@battelle.org
 - ComputerScience@education.ohio

In closing...



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Homework

Each committee member, read every team's capture document. For each recommendation, consider the following prompts and provide any feedback to move this solution and implementation plan forward:

1. If this recommendation is included in the committee report and later implemented, what positive benefits do you see occurring?
2. Are there any blind spots or unintended consequences we should consider? Please explain.
3. If this recommendation proceeds, what considerations would you want for implementation?
4. Evaluate does this solution and implementation plan effectively solve the challenge?
5. As written, would you recommend:
 - Including this proposal in the Ohio CS State Plan
 - Omitting this proposal from the CS State Plan (If recommendation is to omit, please provide feedback on why).

What's next?

Today's Homework: Due Tuesday, March 12, 2022

Each committee member, read every team's capture document. Respond to each recommendation and implementation plan.

April 20, 2022

- Sub-team (same teams from today)
 - synthesizes the committee's individual feedback for the recommendation
 - Improve upon the recommendation
 - Report out on the recommendation
 - Full committee
 - For each recommendation, discussion and sign off to: include, don't include, other action required
 - Panel with industry
-

Pre-work for May 11, 2022

- Pre -read on challenges and potential recommendations in the **CS student to career pipeline**
-

Upcoming Meetings

April 20 | At COSI

May 11 | At COSI

June 1 (& 2) | At COSI

June 2022 – release the plan for public comment

Additional tentative date in July (maybe virtual and only used if needed after public comment)

Blue = tentative (in discussion)

** Note: HB 110 gives us until October 2022, but plan to finish in Summer.*

Closing



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