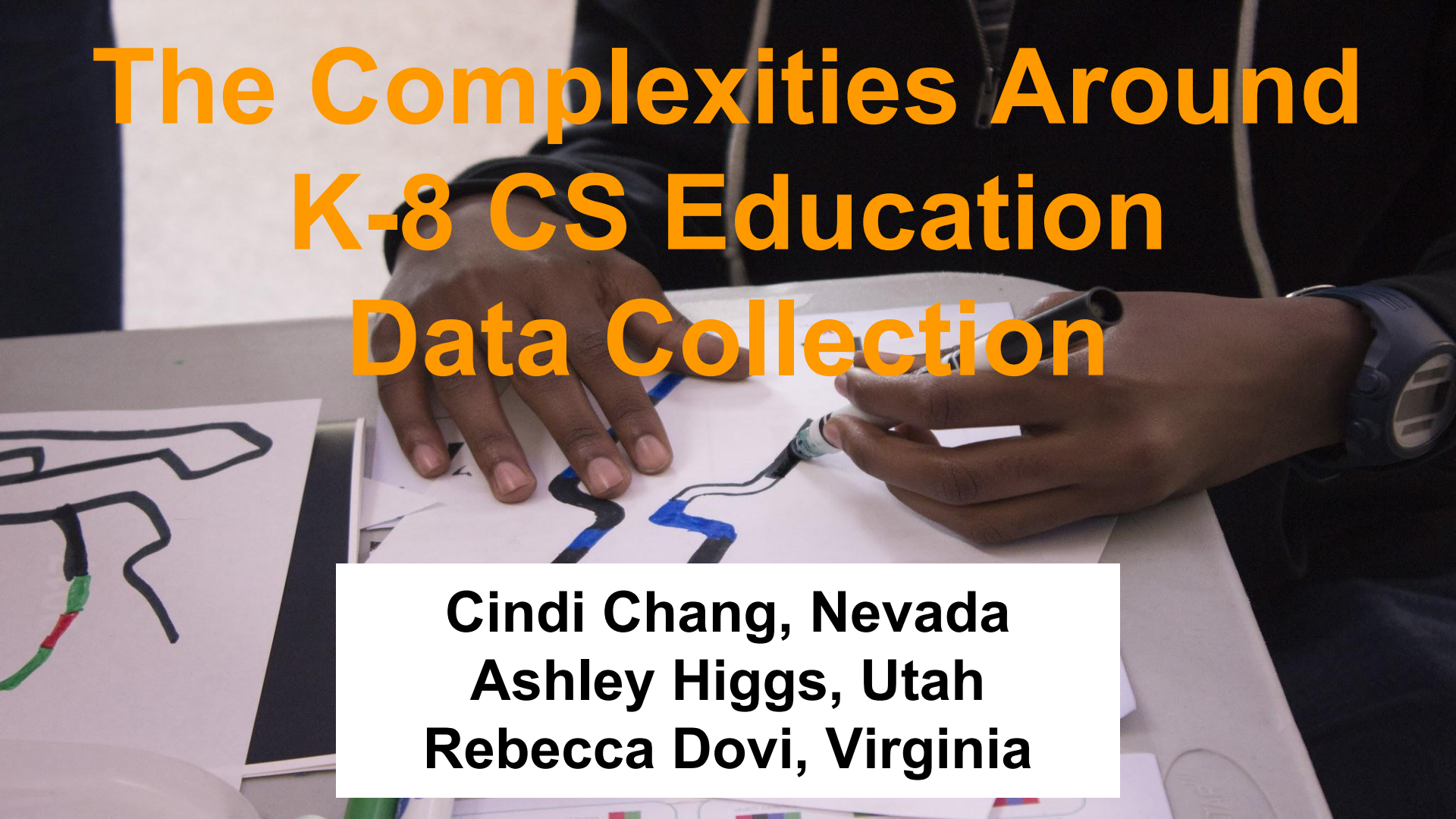

The Complexities Around K-8 CS Education Data Collection

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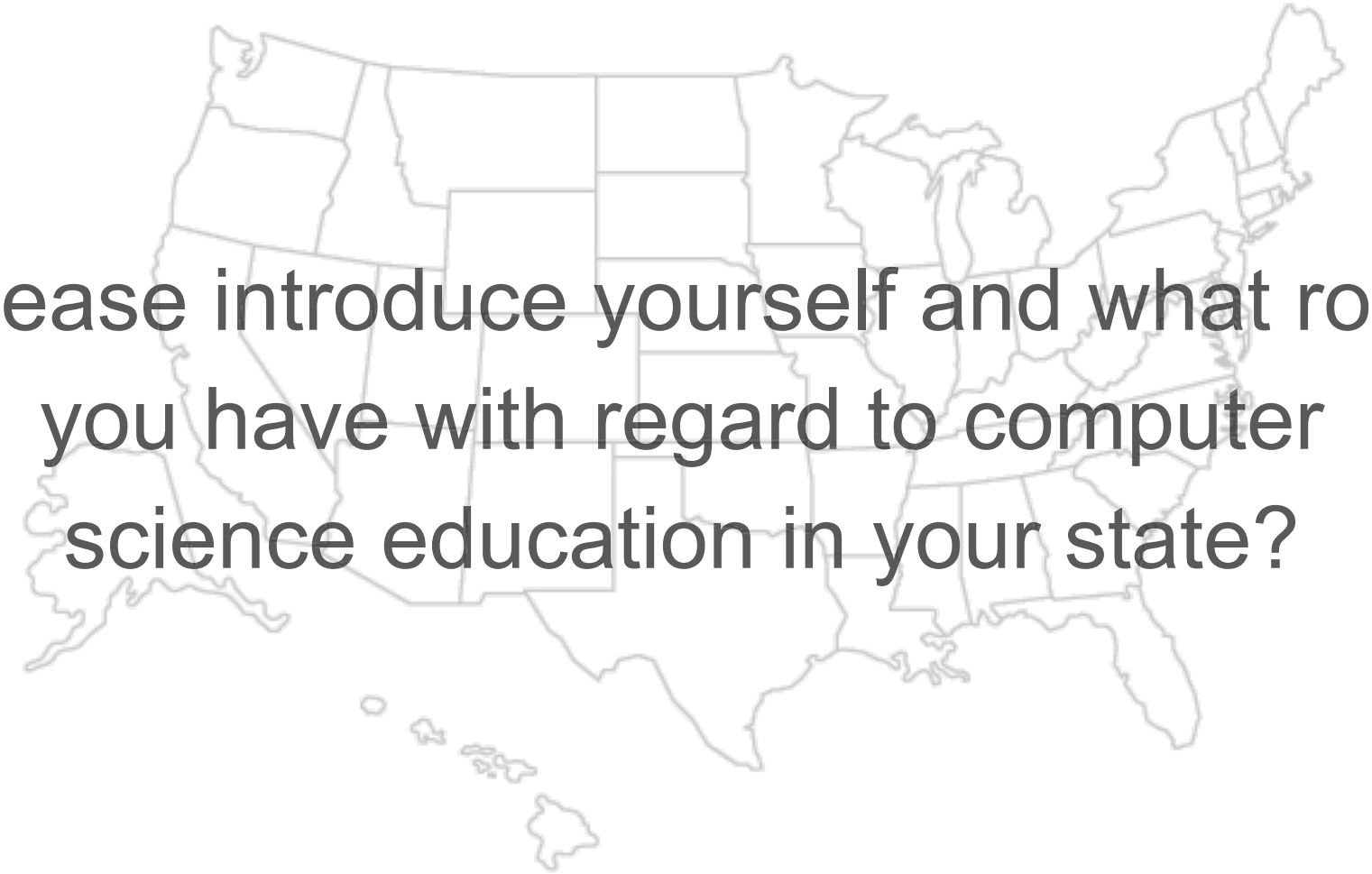
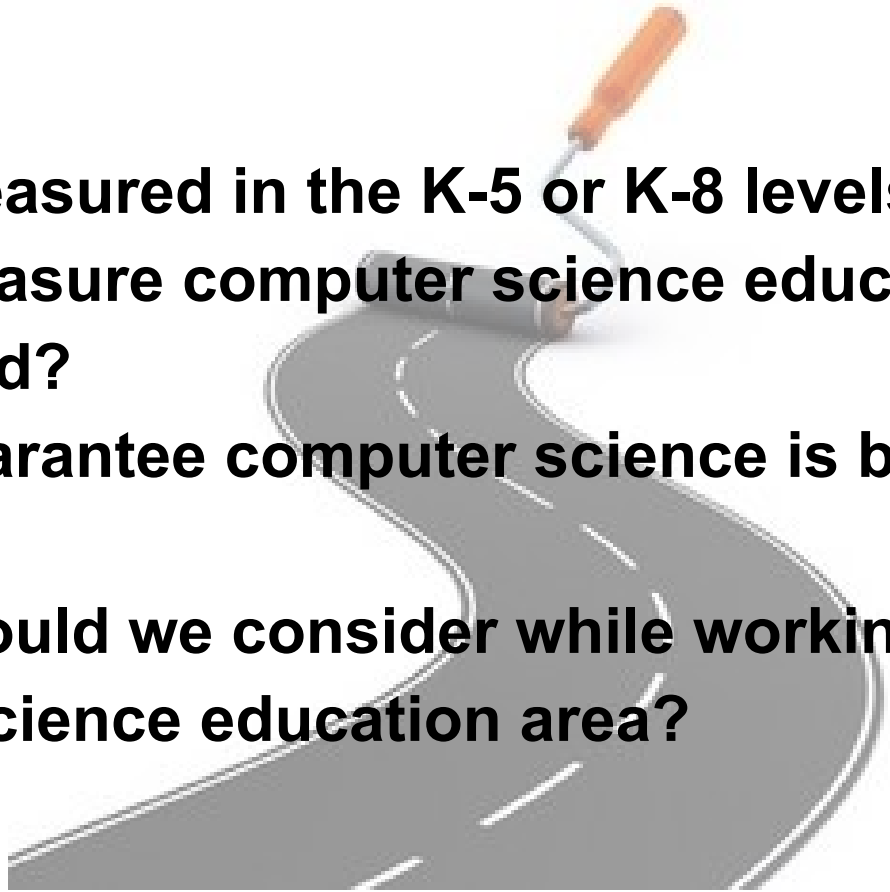


Please introduce yourself and what role you have with regard to computer science education in your state?

Talking Points



- **What can be measured in the K-5 or K-8 levels?**
- **How can we measure computer science education that is integrated?**
- **How can we guarantee computer science is being taught?**
- **What things should we consider while working in the K-8 computer science education area?**

Talking Point #1: What can be measured in K-5 or K-8 levels?

- Surveys, artifacts, numbers of teachers who have had PD
- Online program usage / online LMS
- Computer science road maps - what do the districts already have to do (ie. technology plan; formulate a one-pager that can be handed out to that school tech committee
- Learning.com has created an online assessment that school districts are using (not high stakes testing)
- Pull out the terminology with teachers - do you use abstraction, looping, etc
- Is there a tech integration specialist at that school; what is expected of that person, is it aligned in CS
- Micro credentialing - train local district folks to do local testing, data on folks getting those
- Administrators in the schools should be accountable for observations
- MA - one-pager “what to look for in the classroom for Computer Science?”
- Math/Science Computational Thinking framework
- Badges for ES teachers: CS pioneer - teachers who have completed their first lesson, CS collaborator - worked with someone else on a lesson, CS coach - trains other teachers, CS Explorer - tried computer science lessons multiple times

Talking Point #1 cont'd: What can be measured in K-5 or K-8 levels?

- ECEP - point person to gather the data from curriculum providers such as Code.org platform for state data usage
- Classroom level (pre and post assessments) - time consuming
- standards -based grading
- Participation in activities / competitions
- Survey the number of teachers who have participated in CS Professional Development
- Survey - teacher self-efficacy and comfort level in teaching CS and even particular CS standards
- MS - measure participation in CS course electives
- Teacher lesson plans that incorporate CS instruction - projects, rubrics, self-tracking of standards being taught
- Observations of teaching
- CS Access / participation ⇒ affecting math or science outcomes (correlational data)
- Measure use of certain vocabulary
- Tech integration specialist - do they have one; measure resources in school
- Collect digital artifacts created by students

Talking Point #2: How can we measure computer science education that is integrated?

- National Elementary Principals Association / Secondary Principals - add CS to their survey
- Surveys to the teachers
- Non high stakes observations by principals of whether CS is being taught in the classroom
- Hook into surveys from School Association organizations - problems may exist with honesty
- Capstone project by groups of students to measure mastery
- Use a secondary code in teacher/course/student data collections
- Via PowerSchool - collect info on student enrollment (maybe only MS??)
- Determine if known curriculum is being taught (e.g. Code.org)
- Integrated NSF projects like Bootstrap and Project GUTS, and report back to them
- NGSS and Common Core could include computational thinking and CS
- Provide CS software/programs where data collection is built in
- Make it part of state's existing data collection processes
- Down the road: teacher evaluation plans as a metric

Talking Point #3: How can we guarantee computer science is being taught?

- Down the road - do you see an increase in enrollment in high school courses? Increase in ethnicity in CS courses
- Districts can be required to sign statements of assurance which impact accreditation.
- Observation / Learning Walks
- K-8 standards implementation
- Surveys - but difficult to get meaningful response
- Collect sample student work as evidence - provide recognition
- Partner with National Principals Associations (ES, MS, HS) to survey people
- Work with Google to access data from Gallup survey at the state level
- Teacher landscape surveys
- It’s easy to know what’s going on if you’re the one providing the funding to make it happen
- Get Code.org to show their tracking data

Talking Point #4: What things should we consider while working in the K-8 computer science education area?

- Access participation, engagement, etc with CS activities - i.e. Girls Who Code activity on Saturday that enrollment goes quickly
- K-8 Lead Teacher program in Arkansas
- Arkansas included CS education in their ESSA plan
- VA includes it in school accreditation planning - principals have to account for this
- Interview the folks in your state who integrated prior subject areas - i.e. financial literacy, etc
- What is the saturation of devices in the K-8 grade levels in your state
- Diversity and inclusion
- Motivations for universities to develop CS ed certificates, degrees, etc AND get teachers to enroll in such programs
- Informal ed participation
- Varying methods of implementation
- K-5: consider a separate computer teacher like an art / music teacher [to support classroom work] Title 1, etc; K-8: short form separate course

K-8 ECEP Working Group

If you are interested in being a part of an ECEP K-8 Working Group, please contact Sarah Dunton at sdunton@cs.umass.edu or 413.577.0393.

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