BRIGHT-CS

Building Student Retention through Individuated
Guided coHort Training in Computer Science

AEA
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Today's presentation

1. **Background:** Understanding BRIGHT-CS

2. **Evaluation:** Getting into a development mindset

3. **Next steps:** Applying our learning

Background

Understanding BRIGHT-CS

Who we are

Principal Investigator
Ryoko Yamaguchi
UNC Greensboro

Over 25 years of experience in K-12 education serving disadvantaged students as a practitioner, researcher and parent leader
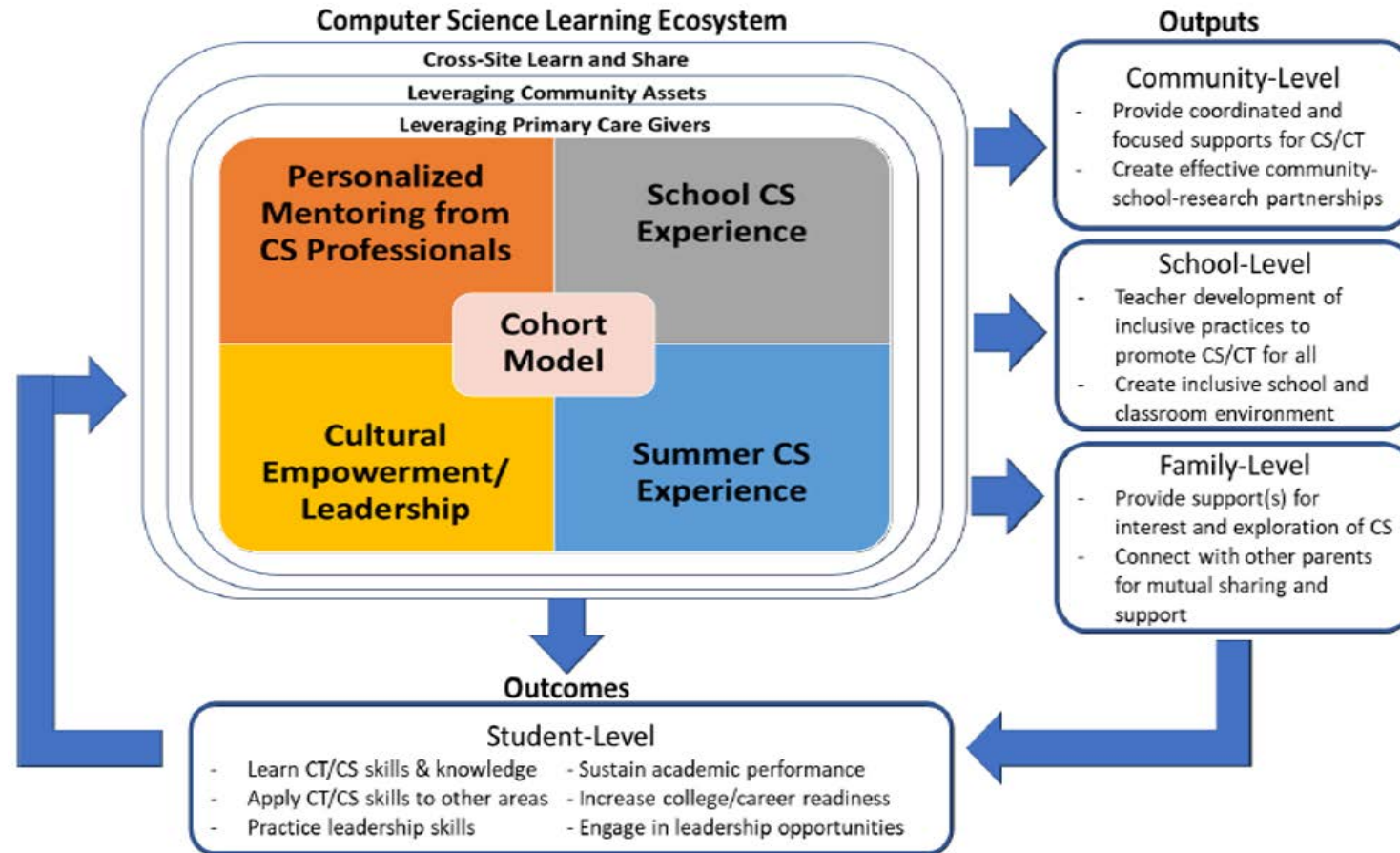
Research Analyst
Veronica Madrigal
Education First Consulting

Qualitative analyst with experience as a middle school teacher and school district project coordinator

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BRIGHT-CS: Two goals

- **Create a computer science learning ecosystem** for middle school Black girls and other girls of color

- **Research the merits of the ecosystem** in supporting persistence in CS to determine best practices for broadening participation to other marginalized student groups in computing

BRIGHT-CS logic model

BRIGHT-CS participants

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Interim results

Sample	Data collected	Findings
In its first semester, BRIGHT CS included: • Four middle schools (in NY and VA) • **46 students--**primarily Black girls (65%), with the remaining girls being Latinx (20%), White (11%), and Asian and multi-racial (4%)	***Baseline student survey*** • **Experiences in computer science** (taken from the Google/Gallup survey) ***Qualitative data*** • **Interviews** with students, parents, mentors, school staff sponsors, and program instructors at multiple time points • **Observations** of afterschool and summer sessions • **Program documents** and **computing artifacts**	***BRIGHT CS has potential to:*** • **Counter implicit school messages** that girls of color do not bring value to STEM+CS • Mitigate stereotype threat by **providing social reinforcement** for the idea that challenges are a normal part of learning • **Nurture feelings of self-efficacy in CS** among girls of color

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Evaluation

Getting into a development mindset

Getting out of an outcomes mindset

Getting into a development mindset

1. ***Program development***—R&D as the purpose

2. ***Evaluation development***—Constructs of interest and instruments change over time

3. ***Adolescent development***—Capturing the many sides of adolescent girls with data

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1. Program development—R&D as the purpose

Not this…	…But that
Not, "did it work?"… • Inferential	**…But, "what is happening?"** • Descriptive
Not impacts… • How did outcomes change because of the ecosystem?	**…But interactions** • How did participants experience different aspects of the ecosystem?
Not fidelity of implementation… • Making sure all ecosystems (sites) are delivering the same things	**…But variety in implementation** • Exploiting differences between ecosystems to generate hypotheses about what's important

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2. *Evaluation development*—Constructs of interest and instruments change over time

At first we thought…

CS interest and confidence

Pre- and post-test

Student-Level Outcomes

- Learn CT/CS skills & knowledge
- Apply CT/CS skills to other areas
- Practice leadership skills
- Sustain academic performance
- Increase college/career readiness
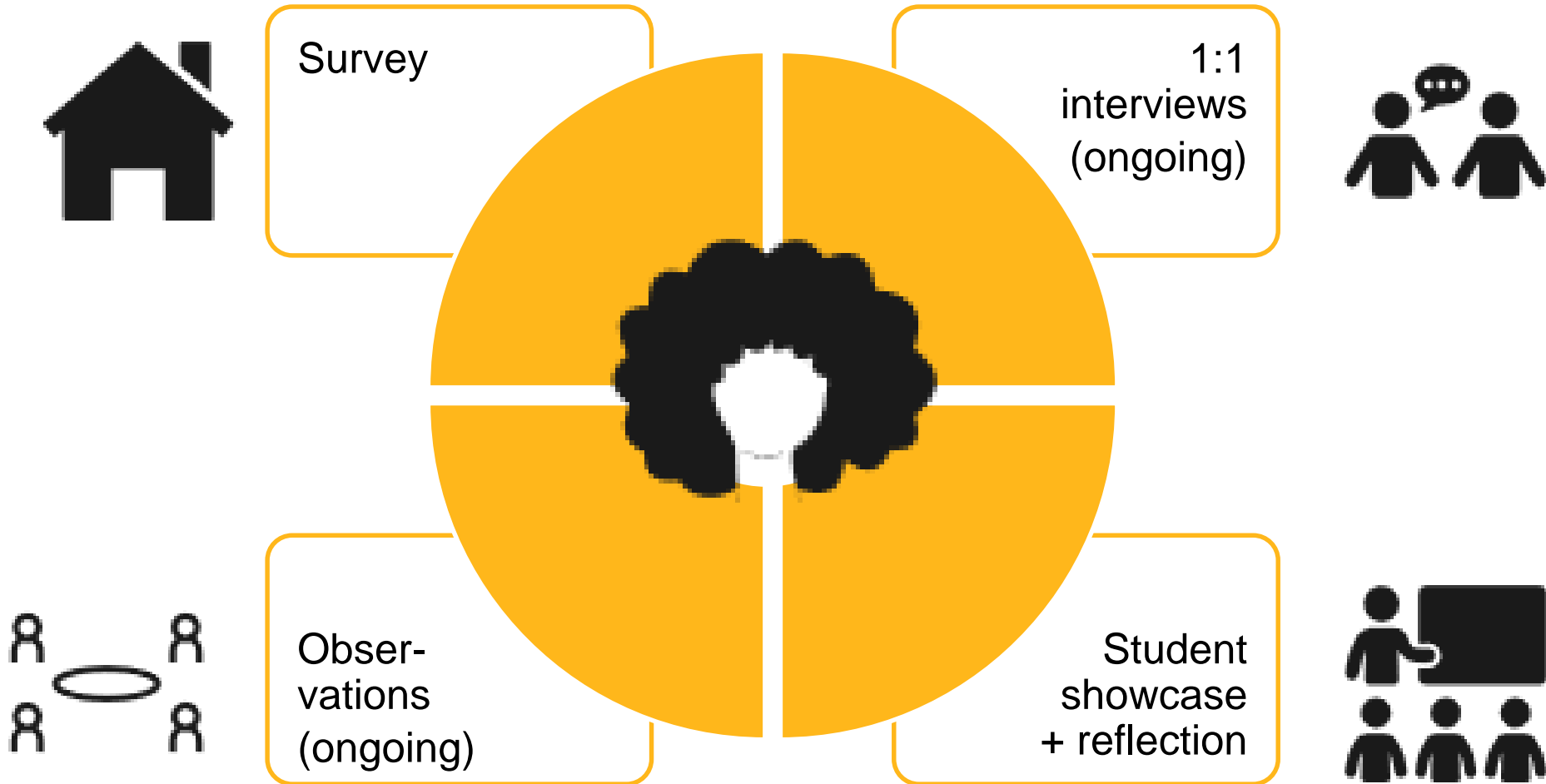- Engage in leadership opportunities

Self-efficacy in CS

Student showcase + reflections

Then we realized…

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3. *Adolescent development*—Capturing the many sides of adolescent girls with data

Survey

1:1 interviews (ongoing)

Obser-vations (ongoing)

Student showcase + reflection

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Next steps

Applying our learning

What we're now doing differently

Lesson	Next step
Program development—R&D as the purpose	Instead of interviewing many students, **going deeper** on what's happening in the program with a **smaller group of target students**
Evaluation development—Constructs of interest and instruments change over time	Working w/ instructor on guiding questions to make **student showcase + reflection** a more intentional artifact of learning
Adolescent development—Capturing the many sides of adolescent girls with data	Investing in audio recording to get **higher quality data**

Contact us!

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