

# Learning and Productivity

Tuesday, August 15th, 2023



# CIRCLS

Center for Integrative Research in Computing and Learning Sciences

**Welcome! Please introduce yourself in the chat:**

- Name, Role, Institution/Organization



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**SRI** Education



# Introductions



**Nicole Hutchins, PhD**  
Research Scientist, Vanderbilt University.

Leveraging her prior experience as a K-12 teacher, her work focuses on developing adaptive classroom technologies and teaching augmentation tools to better support our K-12 classroom teachers and engage all students in meaningful, technology-enhanced STEM learning.

# Introductions

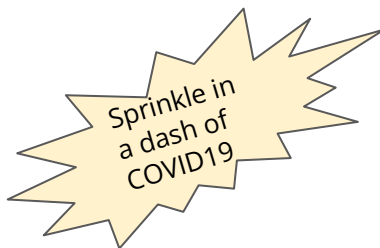


**Dr. Nikki's High School Lab**

# Co-Design: Motivation

## Student-Centered Learning

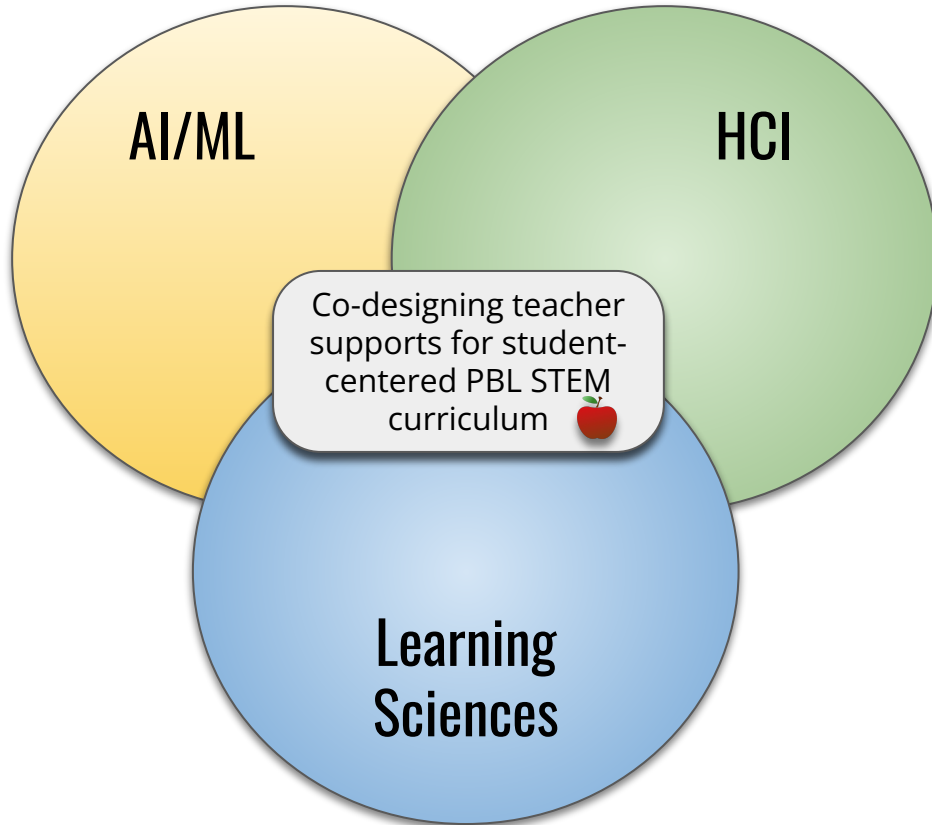
- Student agency
- Real-world, open-ended problem solving
- STEM inquiry, computational modeling
- Technology-enhanced learning
- Impact of emotions on learning
- Communicating developing knowledge and skills



## AI in Education

- Assessments, assessments, assessments
- Personalization at scale
- Behaviorally-driven algorithms
- Adaptive Feedback
- Intelligent tutoring systems
- Algorithmic transparency, trust

# Co-Design: Approach



**Can only do this by INCLUDING  
Teachers, Students, Parents,  
Instructional Coaches,  
Administration in the discussion!**

# Co-Design: What Are Teachers Asking For?

Systematic data collection and visualization for the development of actionable insight.

Evidence-based, responsive teaching in the context of a constrained classroom

Allow teachers to modify tasks, assessments, and environment to support their understanding of what data is being evaluated and why

Provide simple, actionable insight into students' learning and problem solving

Aid in Classroom Mngt.

Help teachers provide timely, evidence-based feedback

Support teachers' immersion in students' thinking, dialog, and engagement

Support teachers as they navigate the impact of students' emotions on their learning

# Co-Design: What Are Students Asking For?

## 1. Consent & Privacy

Throughout the unit, students were generally excited about AI's potential, but frequently voiced concerns about data privacy. For example, students expressed great distress and anger at tools their school had installed to surveil their computer use without seeking their consent. However, students were generally comfortable with the AI agents and their teachers being able to access and monitor their progress in the open-ended environment.

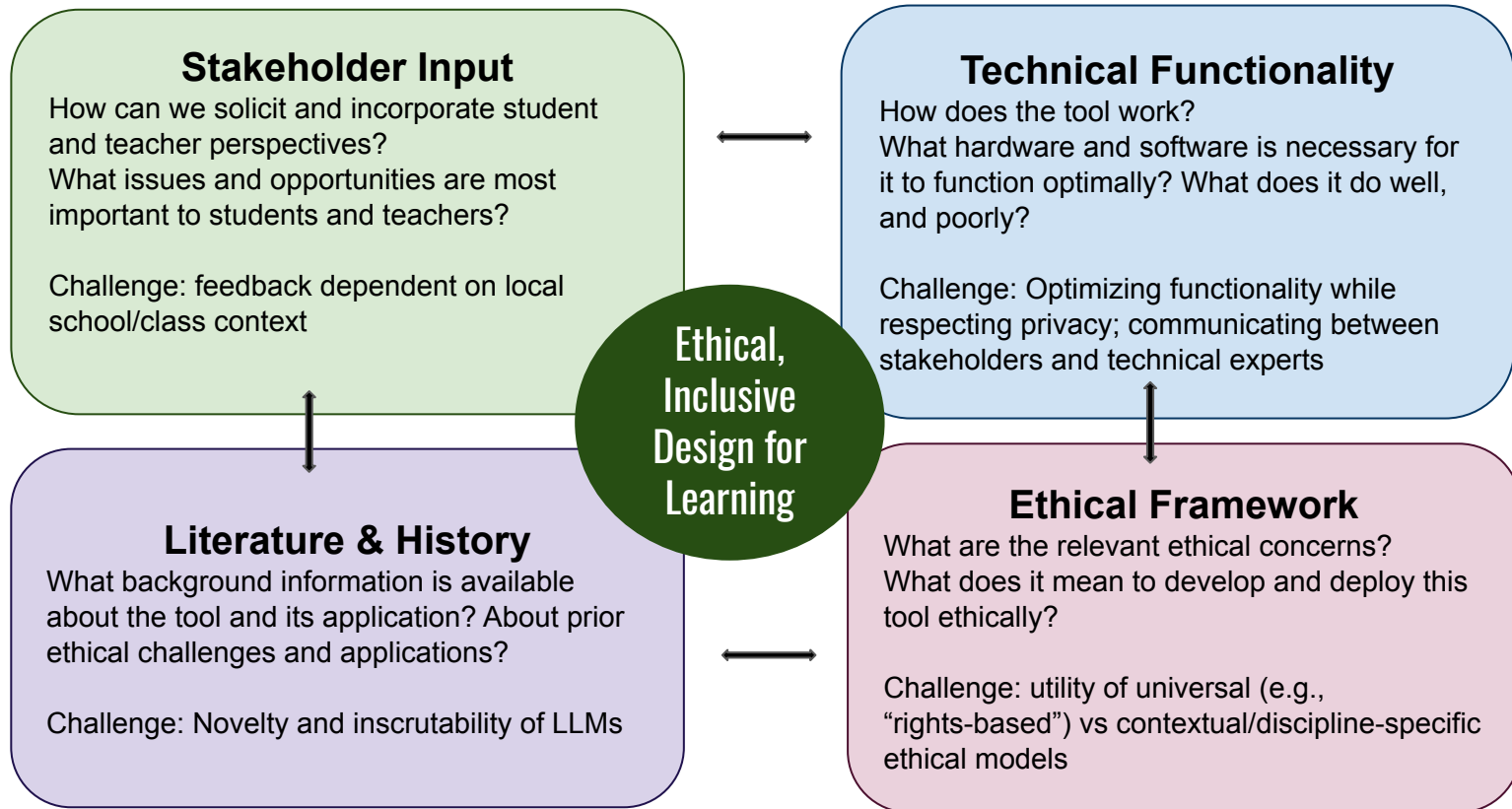
## 2. Context

Students had different reactions to questions about whether they would want their teacher and/or an agent to respond to emotions detected by AI. This variation seemed to be linked to the students' relationships with their teachers; the group that expressed most disapproval of their teachers in general was the least approving of using agents to prompt teacher intervention based on emotion detection.

## 3. Tool Efficacy

How well the tool worked mattered deeply in student considerations of their feelings about being surveilled for its use, both for the agent and emotion detection.

# Co-Design: Framing Good Design





# Discussion

What do you wish developers and researchers knew when designing AI-based technologies for classrooms?

What do you need from developers and researchers to better feel like you can contribute to technology development?

In what ways have these technologies made your work or your students' work more difficult?

What is your experience around this topic?

Where have you seen or want to see students give their feedback?





# CIRCLS '23 CONVENING

*Shaping AI and Emerging Technologies  
to Empower Learning Communities*  
November 2–3, 2023

[August 1st, 2-3PM ET](#) or [August 3rd, 1-2PM ET](#): Drop in to ask about the CIRCLS '23 Convening and learn how to apply.

# Thank you

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