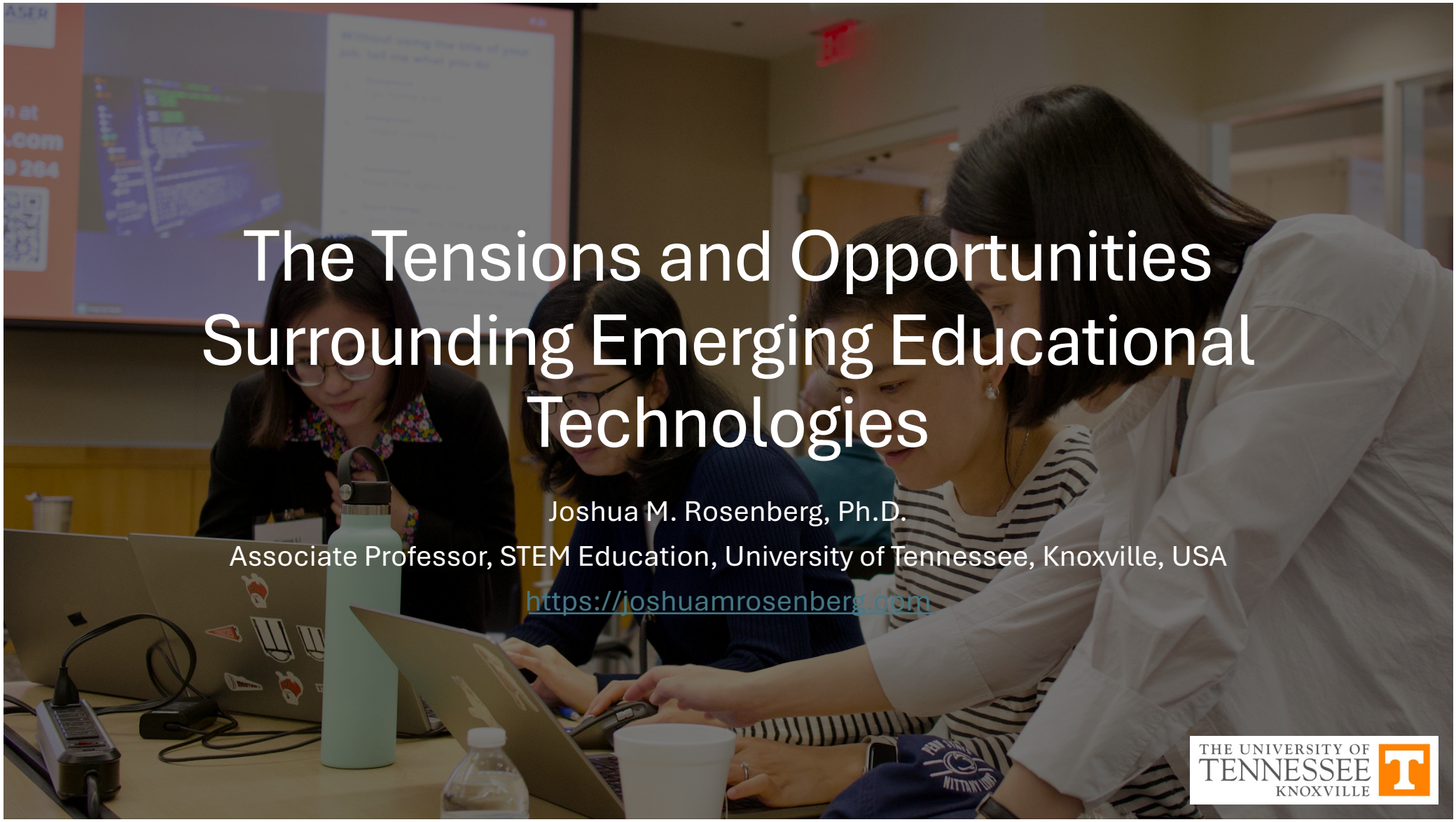


The Tensions and Opportunities Surrounding Emerging Educational Technologies

Joshua M. Rosenberg, Ph.D.
Associate Professor, STEM Education, University of Tennessee, Knoxville, USA
https://joshuamrosenberg.com

THE UNIVERSITY OF TENNESSEE KNOXVILLE

Follow along (or check out after!): https://joshuamrosenberg.com/

Home

Welcome! I am an Associate Professor of STEM Education at the University of Tennessee, Knoxville.

Links/Resources/Affiliations

- Slides from ICITS 2024 presentation
- Project CREDIBLE - NSF CAREER-funded project

About

I’m a faculty member at the University of Tennessee, Knoxville

Photos from the University of Tennessee, Knoxville

I’m also a Husband and Dad (and Football Coach)

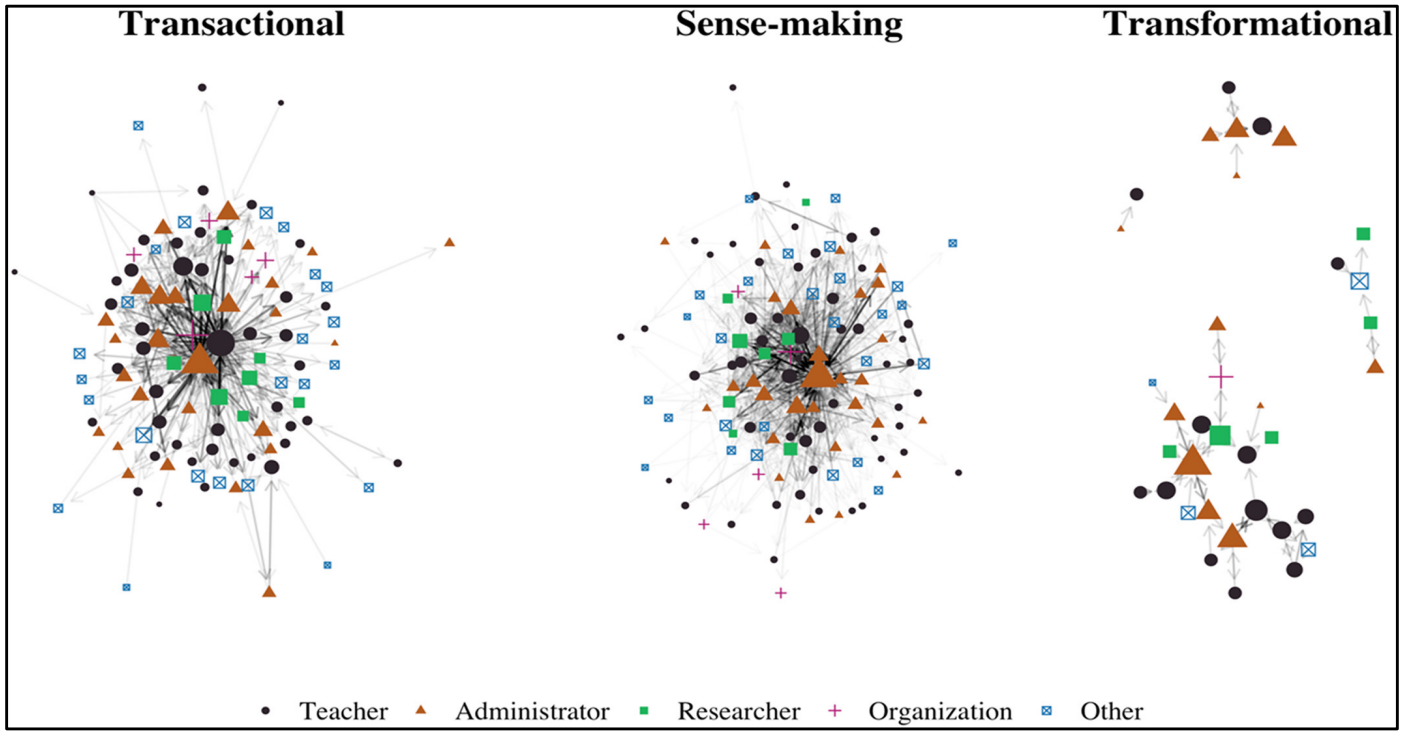
Right photo from Sam Weisbrod

The Tensions and Opportunities Surrounding Emerging Educational Technologies

The Tensions and Opportunities *for Researchers Studying* Emerging Educational Technologies

My Approach

Teachers and others have substantive online conversations

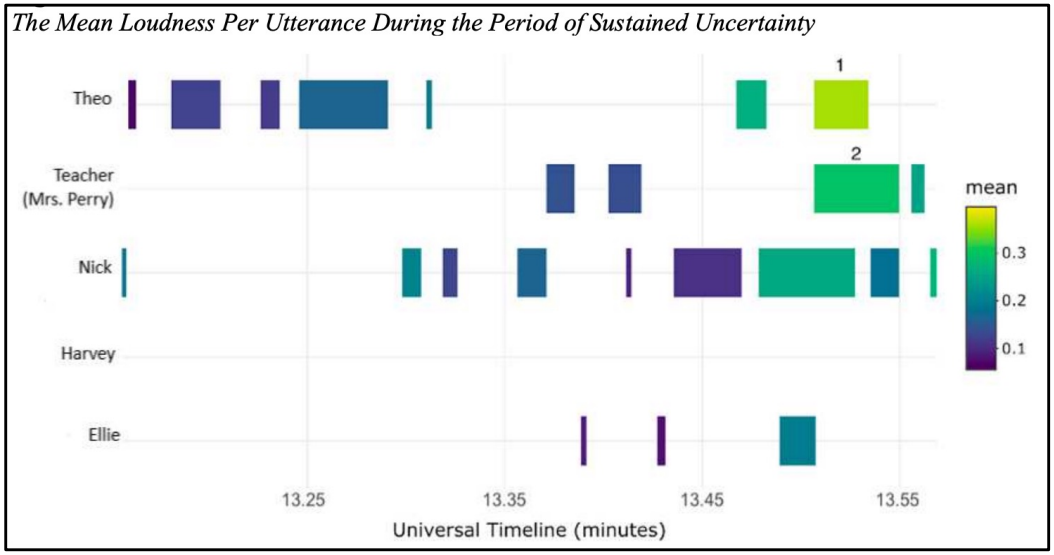


Rosenberg et al., 2020; Rosenberg et al., 2021

Schools have publicly shared a lot of student information

Burchfield et al., 2024; Pritchard et al., 2024; Rosenberg et al., 2023a; Rosenberg et al. 2023b

I’ve worked to develop new methodological approaches

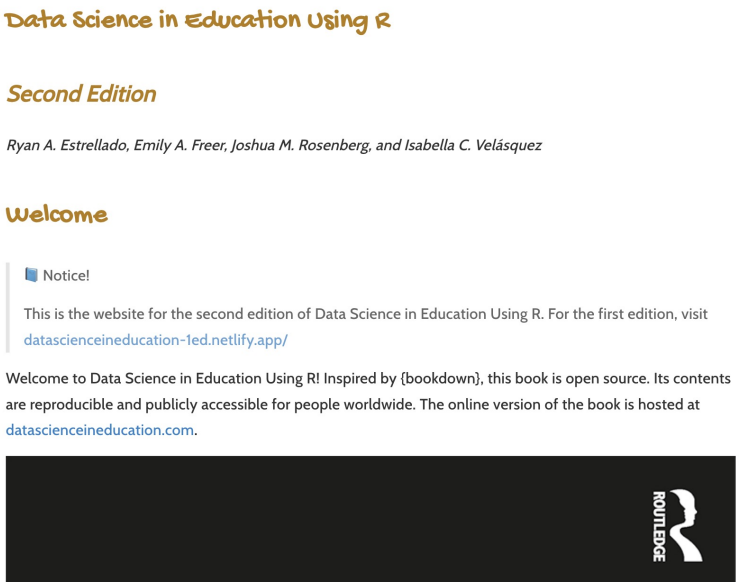


Rosenberg & Krist, 2020; Krist et al., 2023; Kubsch et al., 2023

I’m interested in making data analysis more accessible and powerful

Rosenberg et al., 2020; Staudt Willet & Rosenberg, 2023; Dogucu et al., 2024

I’m interested in advancing open science



Data Science in Education Using R

Second Edition

Ryan A. Estrellado, Emily A. Freer, Joshua M. Rosenberg, and Isabella C. Velásquez

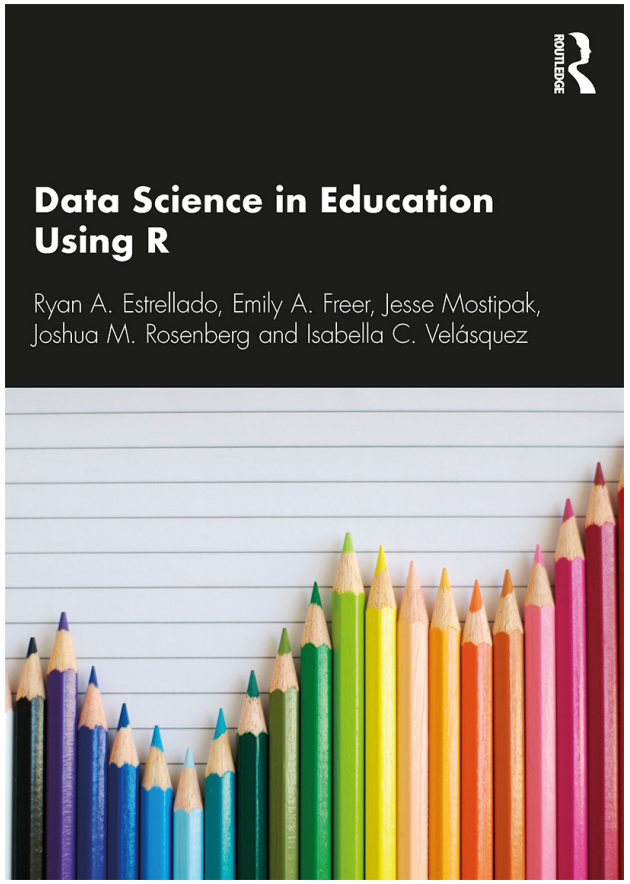
Welcome

Notice!

This is the website for the second edition of Data Science in Education Using R. For the first edition, visit datascienceineducation-1ed.netlify.app/

Welcome to Data Science in Education Using R! Inspired by {bookdown}, this book is open source. Its contents are reproducible and publicly accessible for people worldwide. The online version of the book is hosted at datascienceineducation.com.

ROUTLEDGE



https://datascienceineducation.com

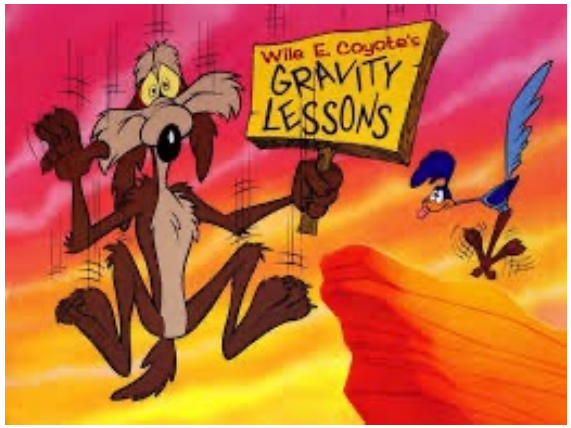
Estrellado et al., 2020); Rosenberg et al., 2023; Rosenberg et al., 2024, under review

Opportunities (and Tensions)

Are we chasing AI?

Are we not anticipating what emerges next?

Are we forgetting the past?



These are process-focused and (I hope) foundational

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What is a substantial challenge or tension for the field?

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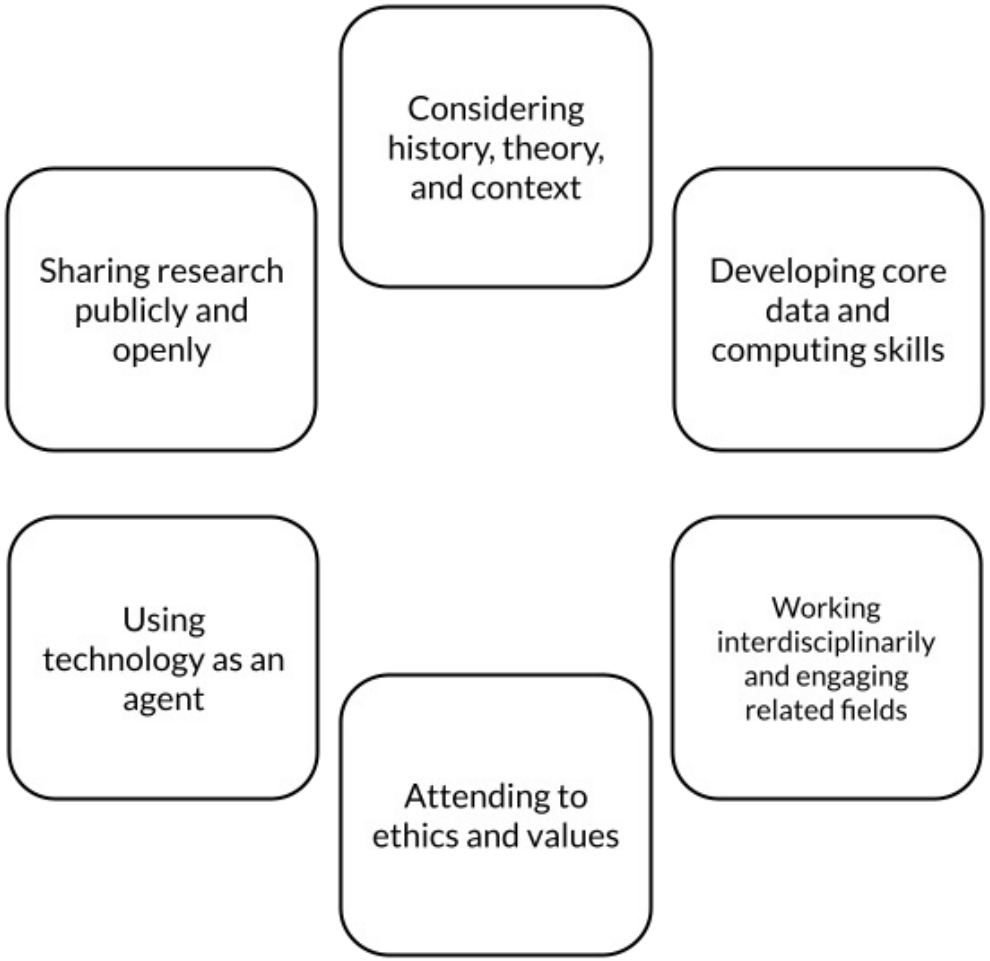
Considering history, theory, and context
Sharing research publicly and openly
Developing core data and computing skills
Using technology as an agent
Attending to ethics and values
Working interdisciplinarily and engaging related fields

1. Considering History, Theory, and Context

University of Wisconsin-Madison Archives (ID S05822)

1. Considering History, Theory, and Context

Holbert et al. (2022), *Playful Testing*

1. Considering History, Theory, and Context

From the University of Wisconsin-Madison Archives

2. Developing Data and Computing Skills

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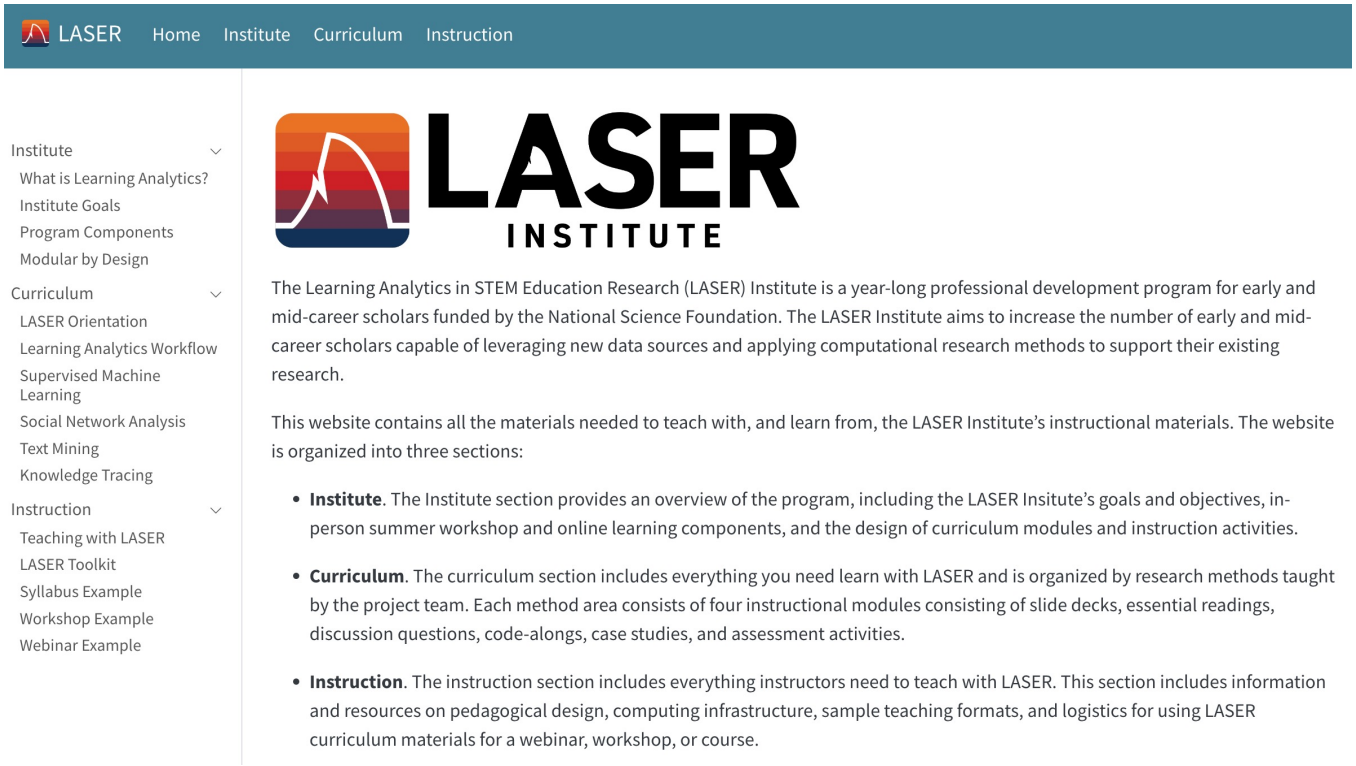
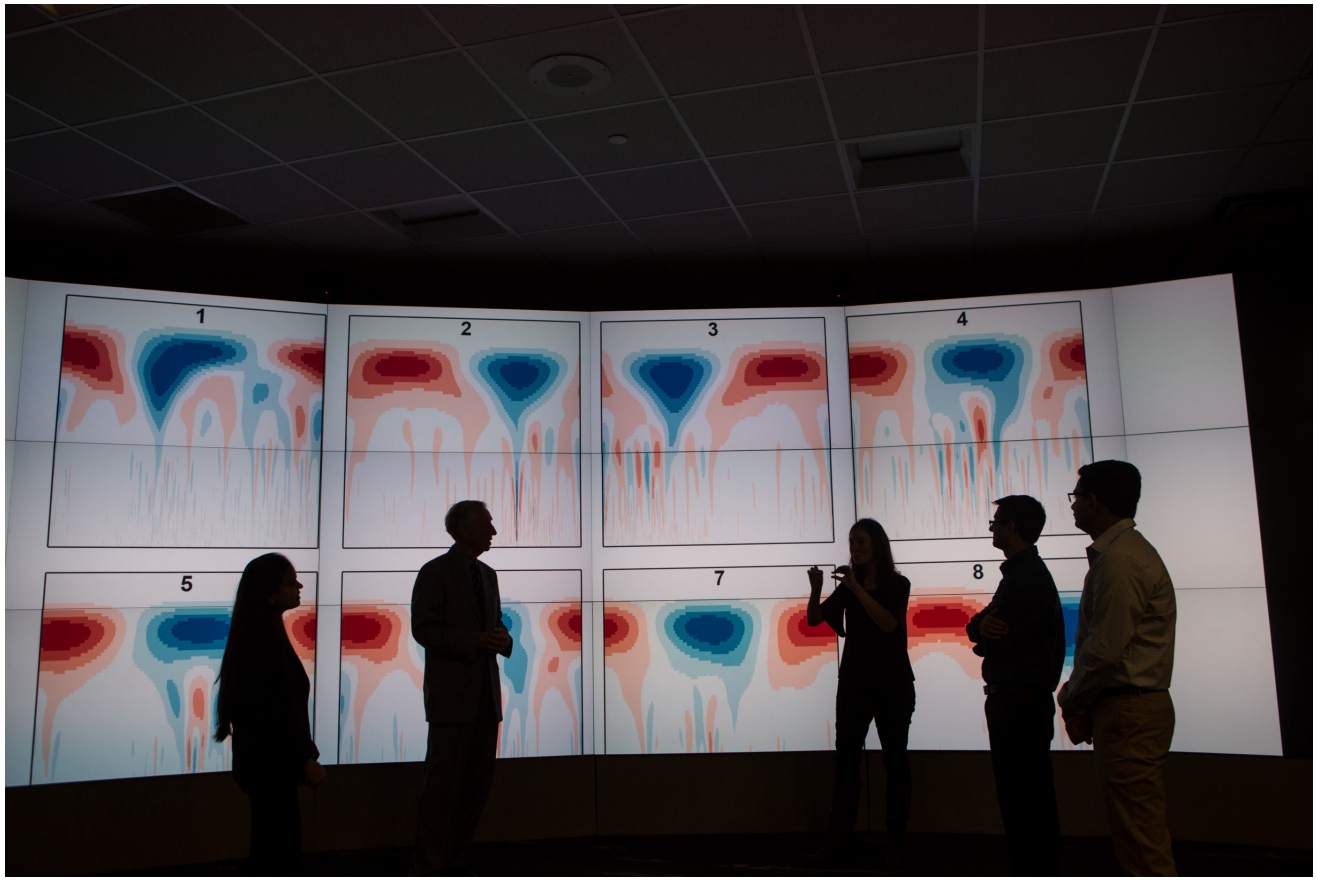


https://laser-institute.github.io/laser-website/

2. Developing Data and Computing Skills

3. Working Interdisciplinarily and Engaging Related Fields



From the University of Tennessee, Knoxville

3. Working Interdisciplinarily and Engaging Related Fields

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From the University of Tennessee, Knoxville

4. Attending to Ethics and Values

4. Attending to Ethics and Values

We should teach CS because... ...it can promote systems thinking - the ability to understand and intervene in complex systems that are ubiquitous in our world.	We should teach CS because... ...computing provides youth with the ability to express themselves creatively and have voice.	We should teach CS because... ...it has students engage in design thinking–identifying problems and then prototyping, testing and iterating on solutions.
We should teach CS because... ...collaboration on CS projects can lead to meaningful relationships between students as well as adults.	We should teach CS because... ...collaboration on CS projects can lead to meaningful relationships between students as well as adults.	We should teach CS because... ...being able to understand and make technologies gives kids power and agency.

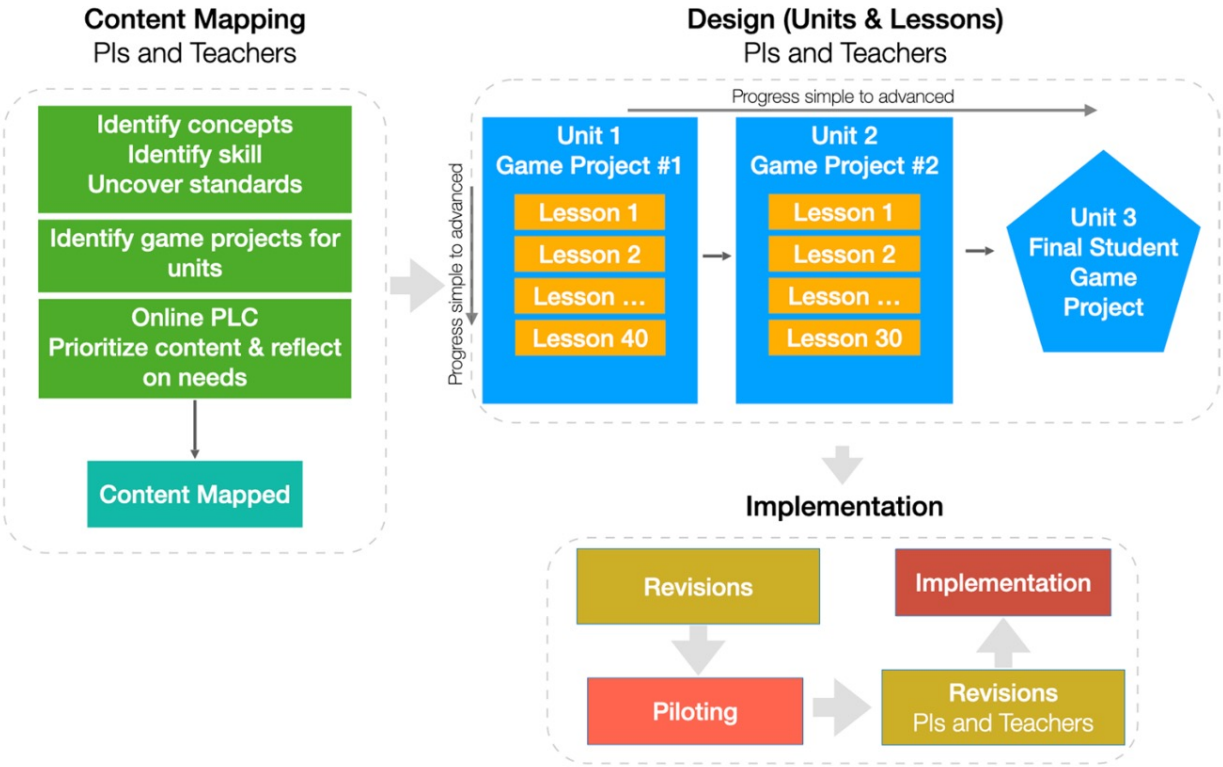
https://www.csforall.org/visions/

4. Attending to Ethics and Values

5. Using Technology as an Agent

From Akcaoglu et al. (2022)

5. Using Technology as an Agent



https://gogoboard.org/

5. Using Technology as an Agent

6. Sharing Research Publicly and Openly

From the University of Tennessee, Knoxville

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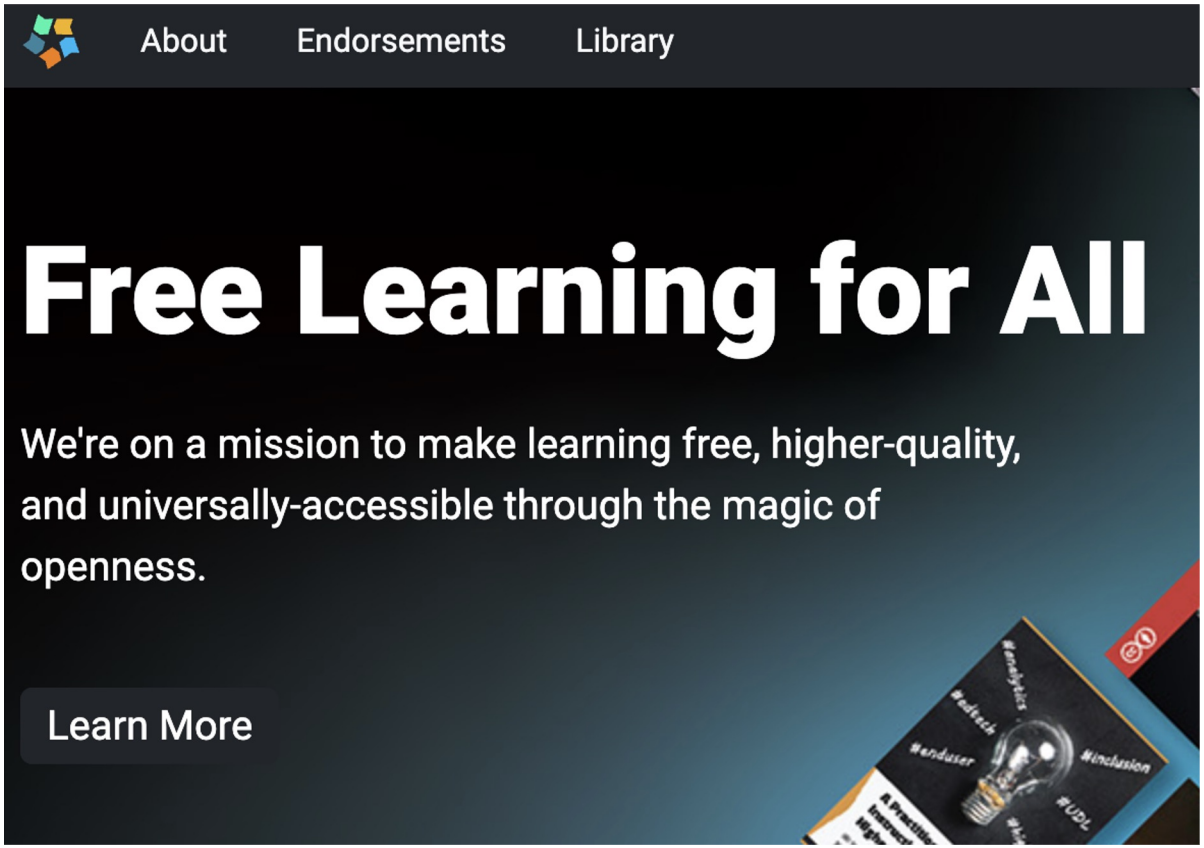
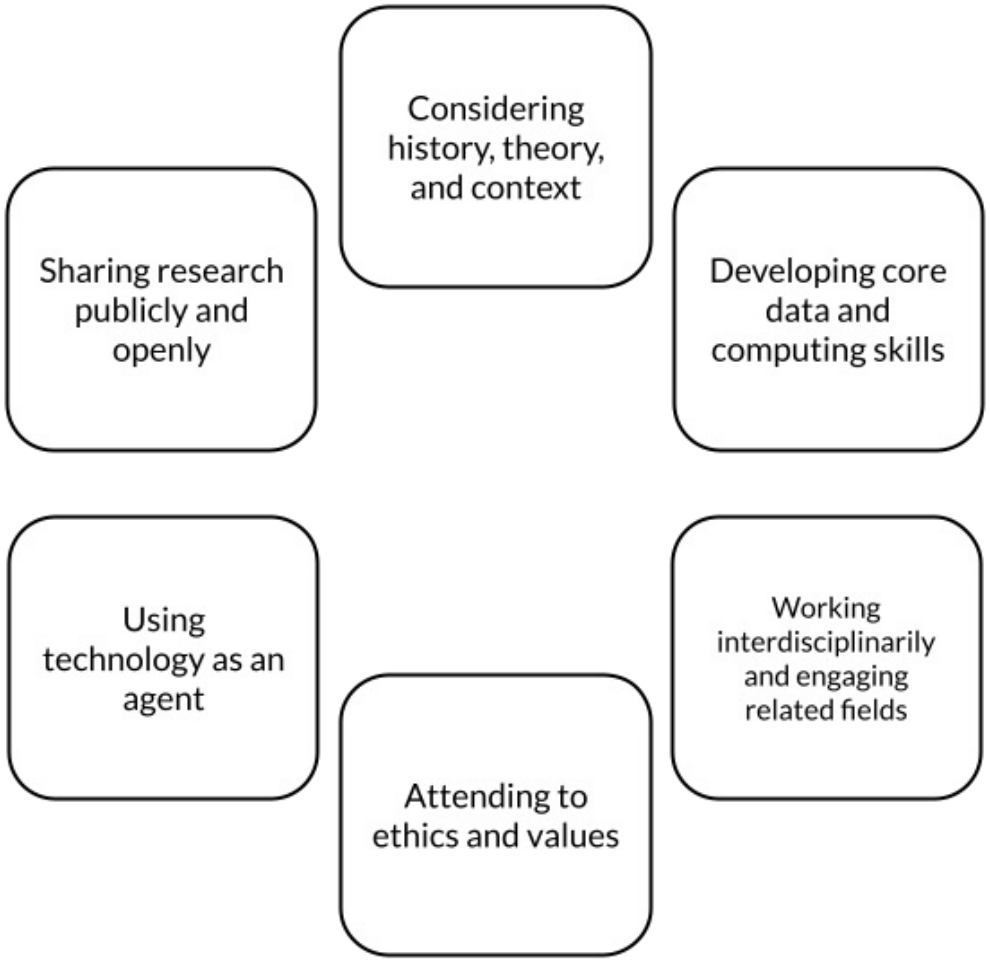


From https://edtechbooks.org/

6. Sharing Research Publicly and Openly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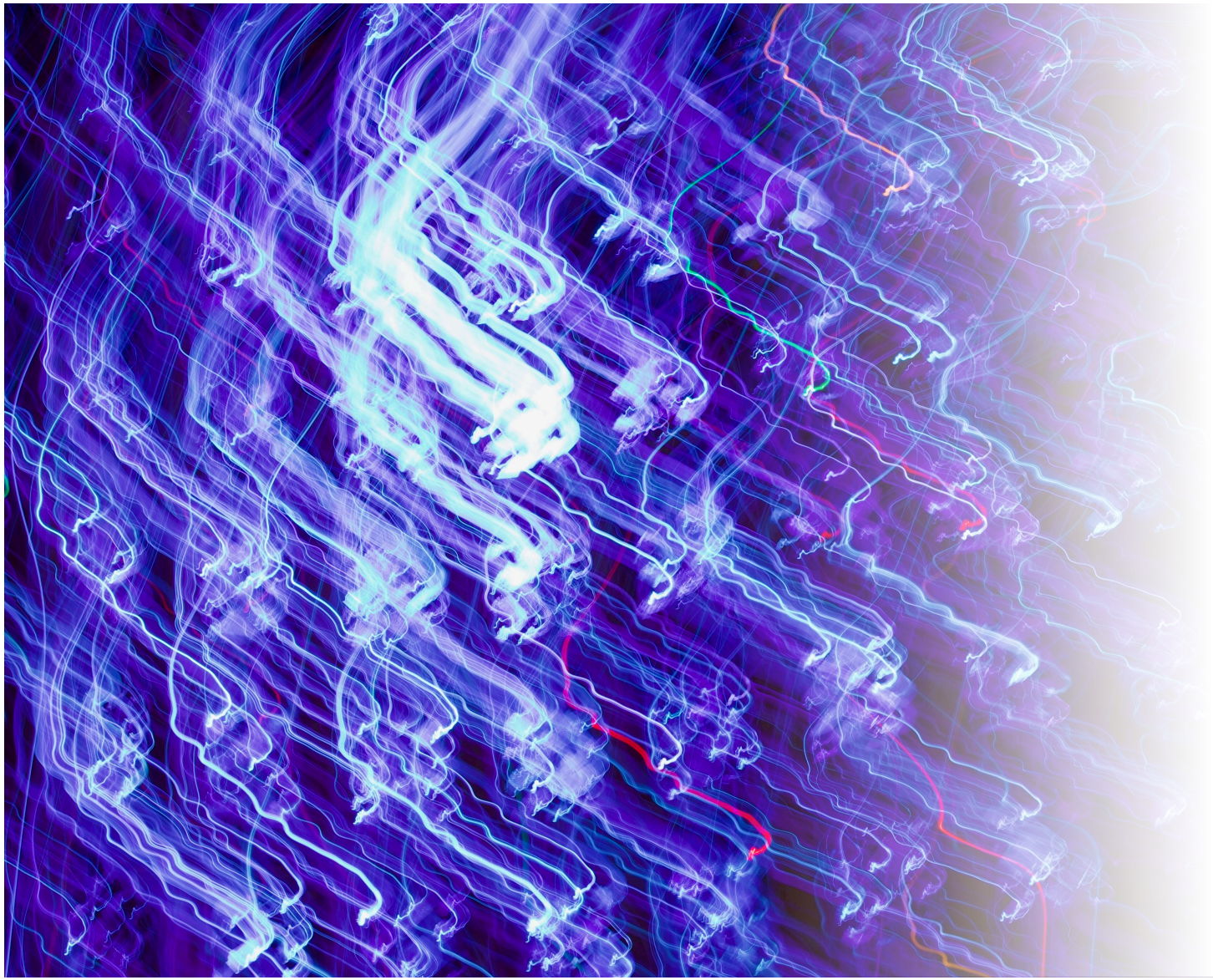


fin

What can leveraging these opportunities do?

Shaping **current** technologies – e.g., games and digital stories

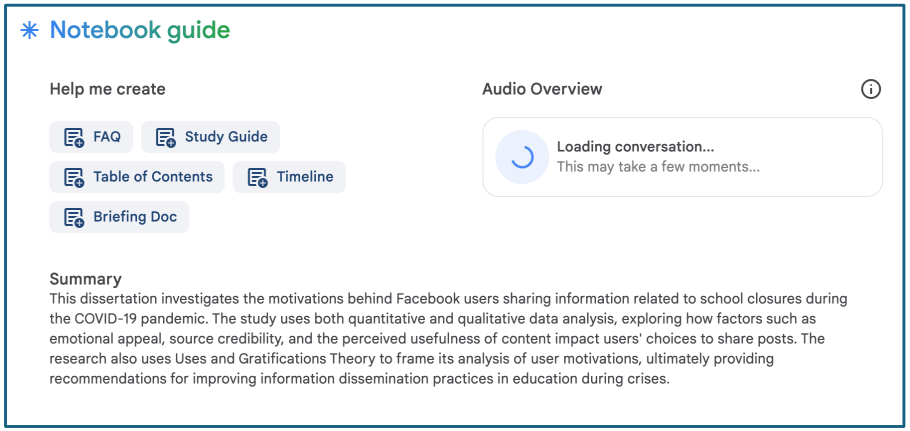
Anticipating **emerging** technologies – e.g., AI, VR, and others

What can leveraging these opportunities do?

Shaping **current** technologies – e.g., games and digital stories

Anticipating **emerging** technologies – e.g., AI, VR, and others

Allowing us to look both back and ahead with wisdom and courage



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What should we make sure to discuss this week?

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In summary

- I shared about how this talk was on tensions and opportunities facing **researchers studying emerging technologies**
- I shared a bit about my **educational data science approach**
- We discussed and I proposed six **key tensions and opportunities**
- These were **process-oriented –** purporting to avoid both hype and despair
- I propose that these can help us to **shape** and **anticipate technologies**

Left photo from the University of Tennessee, Knoxville;
right photo from Recreation Links

Thank you!

Thank you kindly to our hosts at Kastamonu University and the organizers of the 17th International Computer and Instructional Technologies Symposium

Thank you to my collaborators (pictured here among others):








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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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What questions do you have?

I'd love to answer any questions!

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