Board on International Scientific Organizations

U.S. National Commission on Mathematics Instruction

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May 2, 2025

NATIONAL ACADEMIES Sciences Engineering Medicine

CBMS

COMMUNICATION

AMS AMERICAN MATHEMATICAL SOCIETY

NOTICES OF THE AMS

VOLUME 65, NUMBER 8

International Collaboration through the Volunteer Lecturer Program

NATIONAL ACADEMIES

BISO

About

The Board on International Scientific Organizations (BISO) is a component of the Academies' division of Policy and Global Affairs. ***The mission of BISO is to strengthen science for the benefit of society through U.S. leadership, collaboration, and representation in international scientific organizations and initiatives***. BISO also provides information about these international scientific organizations and initiatives to the leadership of the Academies, and other organizations.

NATIONAL ACADEMIES Sciences Engineering Medicine

Board on International Scientific Organizations
U.S. National Commission on Mathematics Instruction

ABOUT USNC/MI

The **US National Commission on Mathematics Instruction** (USNC/MI) is one of a number of US committees that comprise the part of the **Board of International Scientific Organizations** at the **National Academy of Sciences**. In the case of **USNC/MI**, we are the adhering body to the **International Commission on Mathematical Instruction** (ICMI) which fosters efforts to improve the quality of mathematics teaching and learning worldwide.

For additional information about USNC/MI search: USNC/MI or visit:
https://www.nationalacademies.org/our-work/us-national-commission-on-mathematics-instruction-usnc-mi

Twitter: @NASEM_BISO

NATIONAL ACADEMIES Sciences Engineering Medicine

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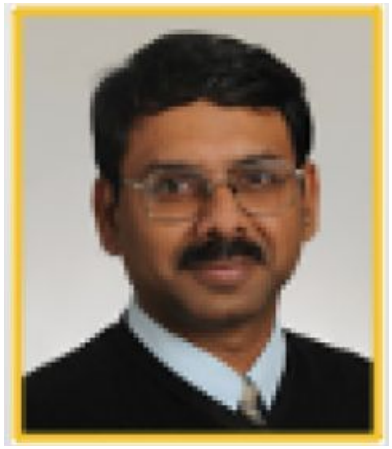

Padhu Seshaiyer,
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George Mason University

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Georgia State University

Trena Wilkerson
Baylor University

Jinfa Cai
University of Delaware

Judit Moschkovich
University of California, Santa Cruz

- Dr. Ana Ferreras

  Senior Program Officer at the U.S. National Academies of Sciences, Engineering, and Medicine

Board on International Scientific Organizations

U.S. National Commission on Mathematics Instruction

NATIONAL ACADEMIES Sciences Engineering Medicine

May 17-18, 2024 Annual Meeting

- Invited Speakers
  - Gates Foundation
  - IES
  - DS4 Everyone
  - CBMS
  - Utah State Department of Education
  - NSF

NATIONAL ACADEMIES Sciences Engineering Medicine

Board on International Scientific Organizations
U.S. National Commission on Mathematics Instruction

Agenda

May 17, 2024
Annual Meeting

Session A: **Global Mathematics Education Community of Practice**



Session B: **Role of Math Education Community in Data Science Education**



NATIONAL ACADEMIES Sciences Engineering Medicine

Board on International Scientific Organizations

U.S. National Commission on Mathematics Instruction

ICME-15

- Resolutions for the GA
- U.S. Reception
- U.S.- Australia Educators Summit
- ICME Presentations

15th International Congress on Mathematical Education

7-14 July 2024 • ICC Sydney, Australia

Come and be counted

ICMI EXECUTIVE COMMITTEE

L'Enseignement Mathématique….

COMMISSION INTERNATIONALE DE L'ENSEIGNEMENT MATHEMATIQUE

(THE INTERNATIONAL COMMISSION ON MATHEMATICAL INSTRUCTION)

RENEWAL OF THE ICMI EXECUTIVE COMMITTEE

The General Assembly of ICMI took place just before the opening of ICM-15 in Sydney (Australia) on July 7, 2024. One of the main issues was the election of the new ICMI Executive Committee by the ICMI country representatives (58 of them voted).

This new committee will be in service from January 1, 2025 for 4 years, it is composed of:

President:	Merrilyn GOOS	(Australia)
Secretary-General:	Jean-Luc DORIER	(Switzerland)
VicePpresidents :	Jinfa CAI	(U.S.A.)
	Betina DUARTE	(Argentina)
Members-at-large:	Mercy KAZIMA	(Malawi)
	Nùria PLANAS	(Spain)
	Susanne PREDIGER	(Germany)
	Ramaswamy RAMANUJAM	(India)
	Cristina SABENA	(Italy)

Partnerships for **R**esearch and **I**nnovations in **M**athematics **E**ducation

Board on International Scientific Organizations

U.S. National Commission on Mathematics Instruction

US Reception
July 12, 2024

AMS American Mathematical Society

COMAP Consortium for Mathematics and Its Applications

Board on International Scientific Organizations
U.S. National Commission for Mathematics Instruction
National Academy of Sciences

siam Society for Industrial and Applied Mathematics

NCTM National Council of Teachers of Mathematics

CBMS

The U.S. National Commission for Mathematics Instruction invites you to the U.S. Reception at ICME-15

When: *Friday, July 12, 2024 from 7:00-9:30 p.m.*
Where: *Gallery One & Two at Crowne Plaza Sydney Darling Harbour,*
58 Bathurst Street, Sydney, New South Wales 2000
Australia
Tel: + 61-2-90630100

RSVP is encouraged (biso@nas.edu), bring this non-transferrable invitation with you, and do not forget to bring your business cards. Select one of the three areas of your specialization:

- *Curriculum/Teaching & Learning*
- *Teacher Preparation/Professional Development*
- *Use of Technology*

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CBMS

PRIME – Organizing Committee

UTS
UNIVERSITY OF TECHNOLOGY, SYDNEY

QUT Queensland University of Technology

GEORGE MASON UNIVERSITY

VANDERBILT UNIVERSITY

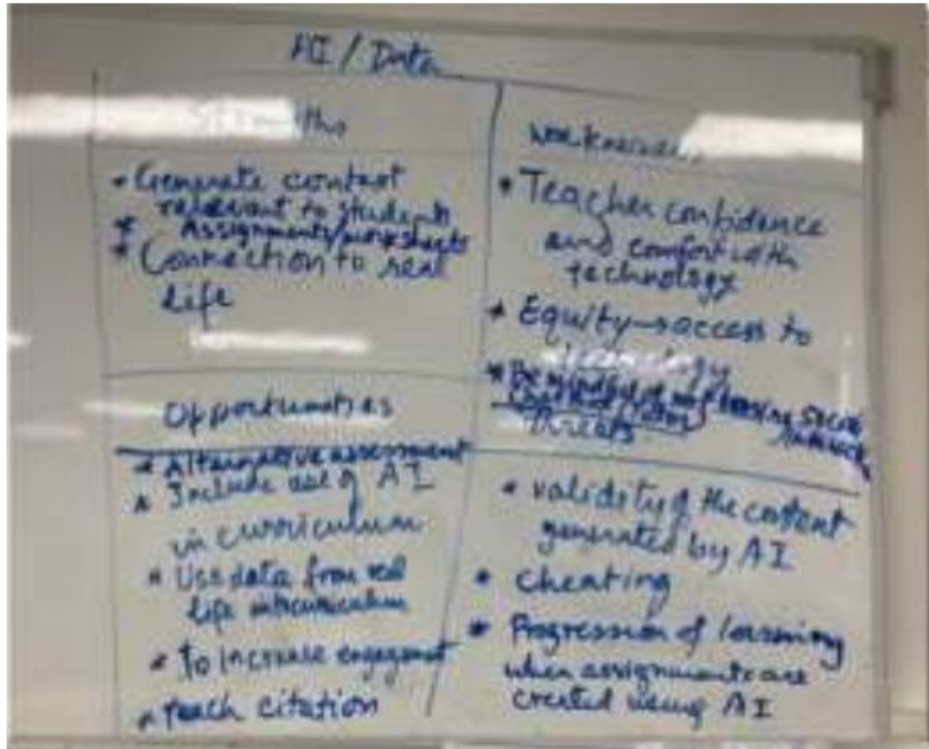
Board on International Scientific Organizations
U.S. National Commission on Mathematics Instruction

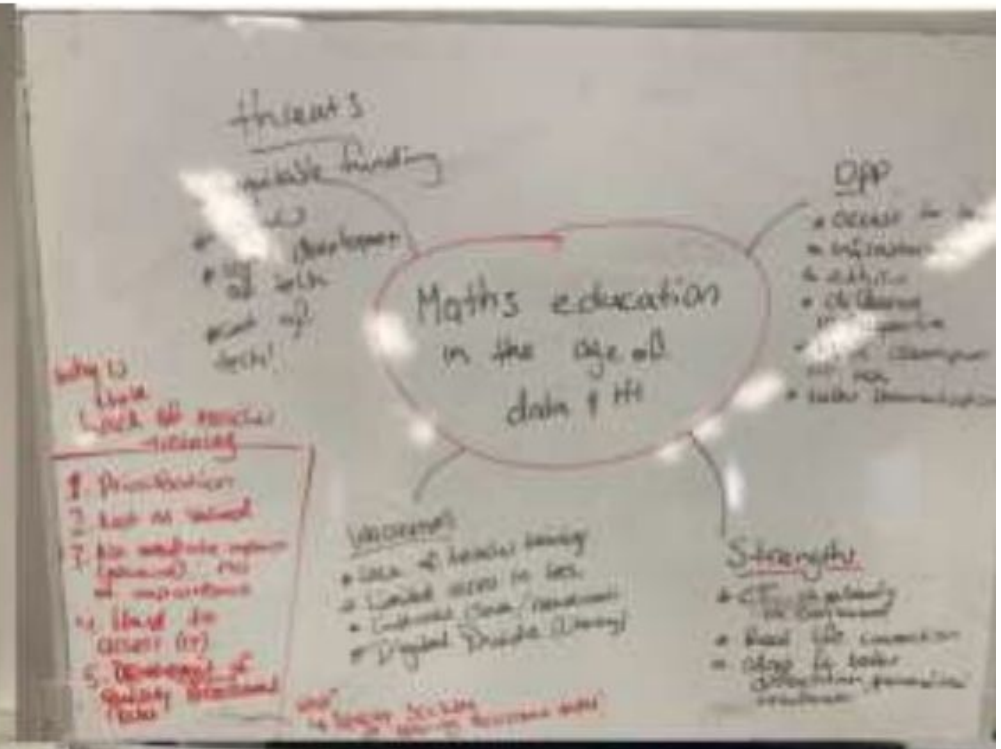
aamt
Australian Association of Mathematics Teachers Inc.

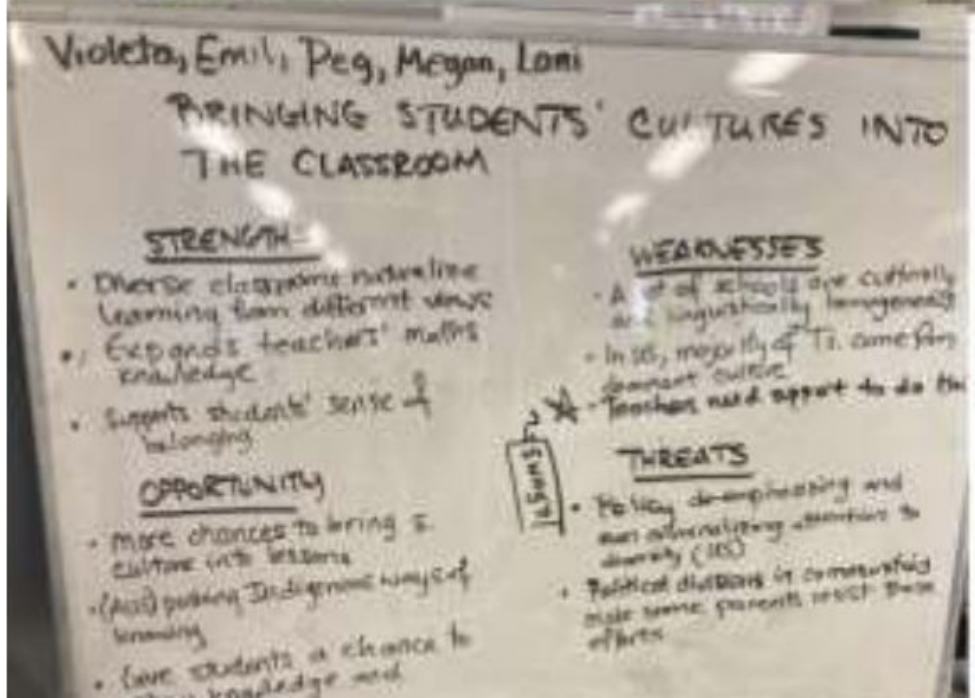
NCTM
NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

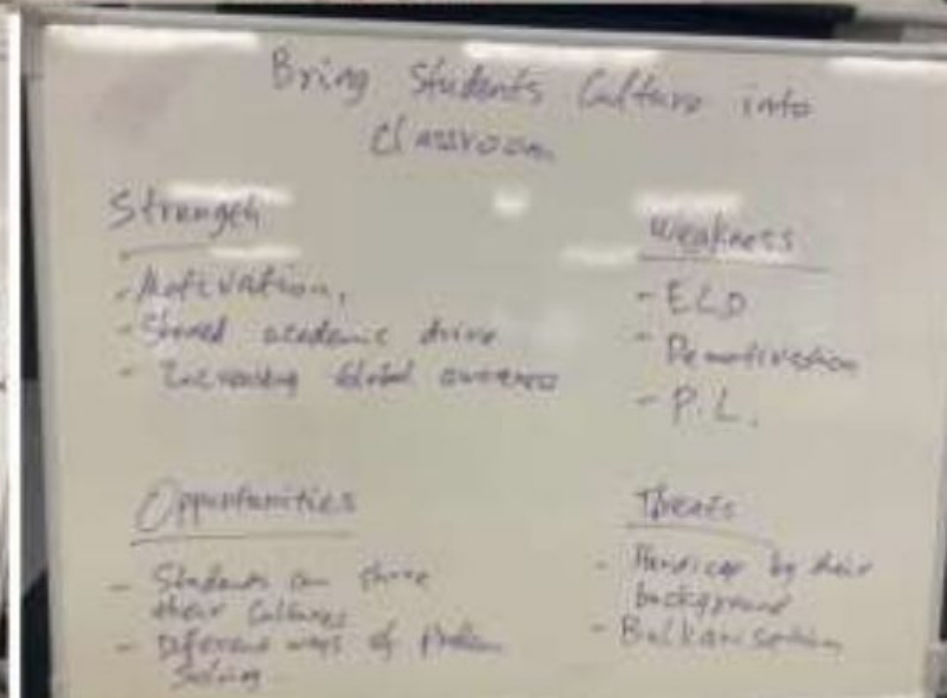
PRIME – Rationale

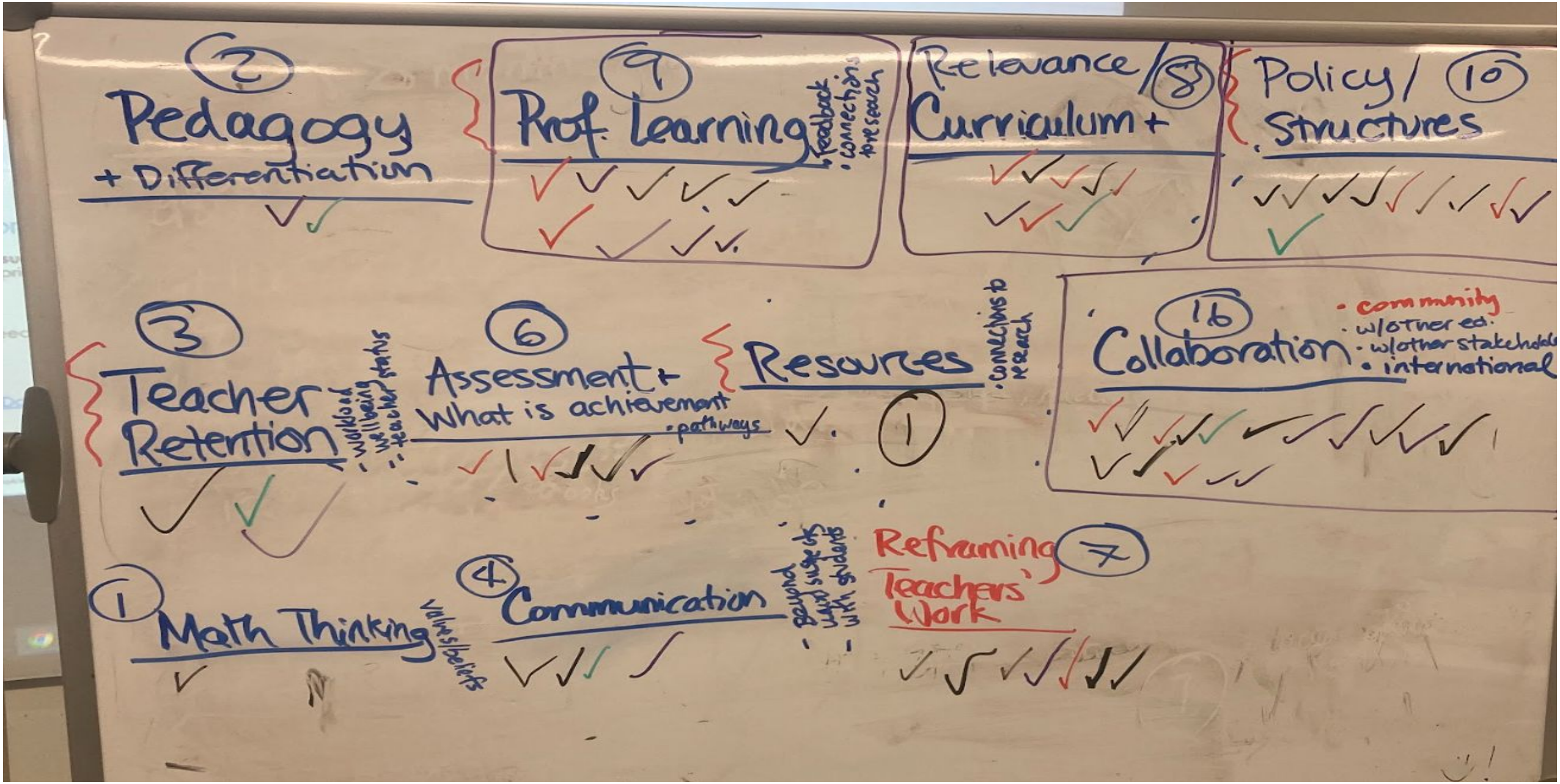
- To engage participants from both countries in cultural exchange around the challenges and possibilities they face as mathematics teacher leaders.
- To share approaches to instruction that aim to meaningfully acknowledge and incorporate Indigenous perspectives, knowledge, and ways of knowing into mathematics education.
- To exchange strategies for incorporating topics like data science, computational reasoning, and mathematical modeling in the K-12 curriculum.


AI / Data
Opportunities
• Generate content relevant to students
Assignments/worksheets
• Connection to real life
• Teacher confidence and comfort with technology
• Equity—access to
• validating the content generated by AI
• cheating
• Progression of learning when assignments are created using AI


Maths education in the age of data + AI
Opp
Strengths


Violeta, Emily, Peg, Megan, Lani
BRINGING STUDENTS' CULTURES INTO THE CLASSROOM
STRENGTH
• Diverse classroom naturalize learning from different views
• Expands teachers' maths knowledge
• Supports students' sense of belonging
OPPORTUNITY
• More chances to bring S. culture into lessons
• (Also) pushing Indigenous ways of knowing
• Gives students a chance to
WEAKNESSES
• A lot of schools are culturally and linguistically homogeneous
• In US, majority of Ts. come from dominant culture
• Teachers need support to do this
THREATS
• Policy deemphasizing and even criminalizing attention to diversity (US)
• Political divisions in community make some parents resist them efforts
In Summary


Bring Students Culture into Classroom
Strength
- Motivation,
- Shared academic drive
- Increasing global currency
Weakness
- ELD
- Demotivation
- P.L.
Opportunities
- Students can share their Cultures
- Different ways of Problem Solving
Threats
- Handicap by their background
- Balkanization


2
Pedagogy
+ Differentiation
9
Prof. Learning
• feedback
• connection to research
Relevance / Curriculum +
8
Policy / Structures
10
3
Teacher Retention
- workload
- well being
- teacher shortages
6
Assessment +
What is achievement
• pathways
Resources
• connections to research
1
16
Collaboration
• community
• w/ other ed.
• w/ other stakeholders
• international
1
Math Thinking
• skills/beliefs
4
Communication
• beyond subject silos
• with students
Reframing Teachers' Work
7

DataScience4 everyone

A NEW DISCIPLINE IN THE OLD DOMINION: DATA SCIENCE EDUCATION CLASSES, STANDARDS, AND PROFESSIONAL DEVELOPMENT IN VIRGINIA

State of The Field: Data Science and Data Literacy Education in US K-12

Gates Foundation

"We need to prepare our students for the workforce with the skills that are already in demand. We need to train our teachers on how to integrate data literacy into their lessons."

VA – First Organic Data Science Course

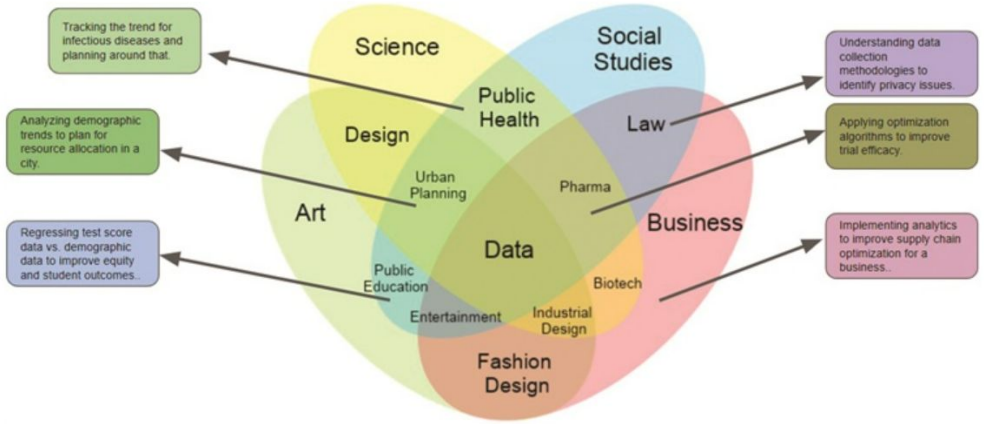
SIAM NEWS **APRIL 2022**

Students and Education | April 01, 2022

Print

Preparing Virginia's Students for New Post-secondary Pathways in Data Science

By Tina Mazzacane, Deborah Crawford, Lisa Bussian, Aanand Vasudevan, and Padmanabhan Seshaiyer

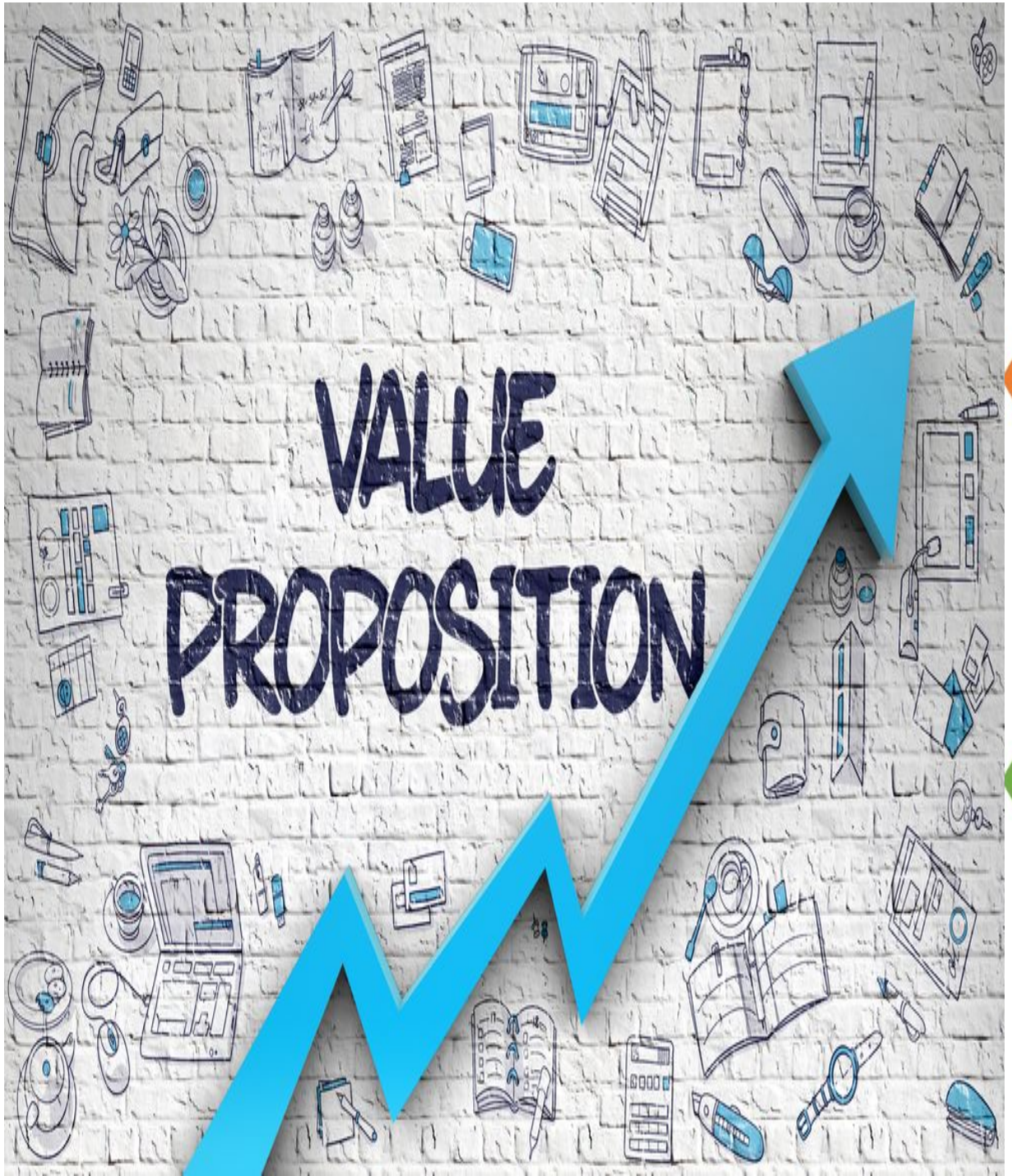


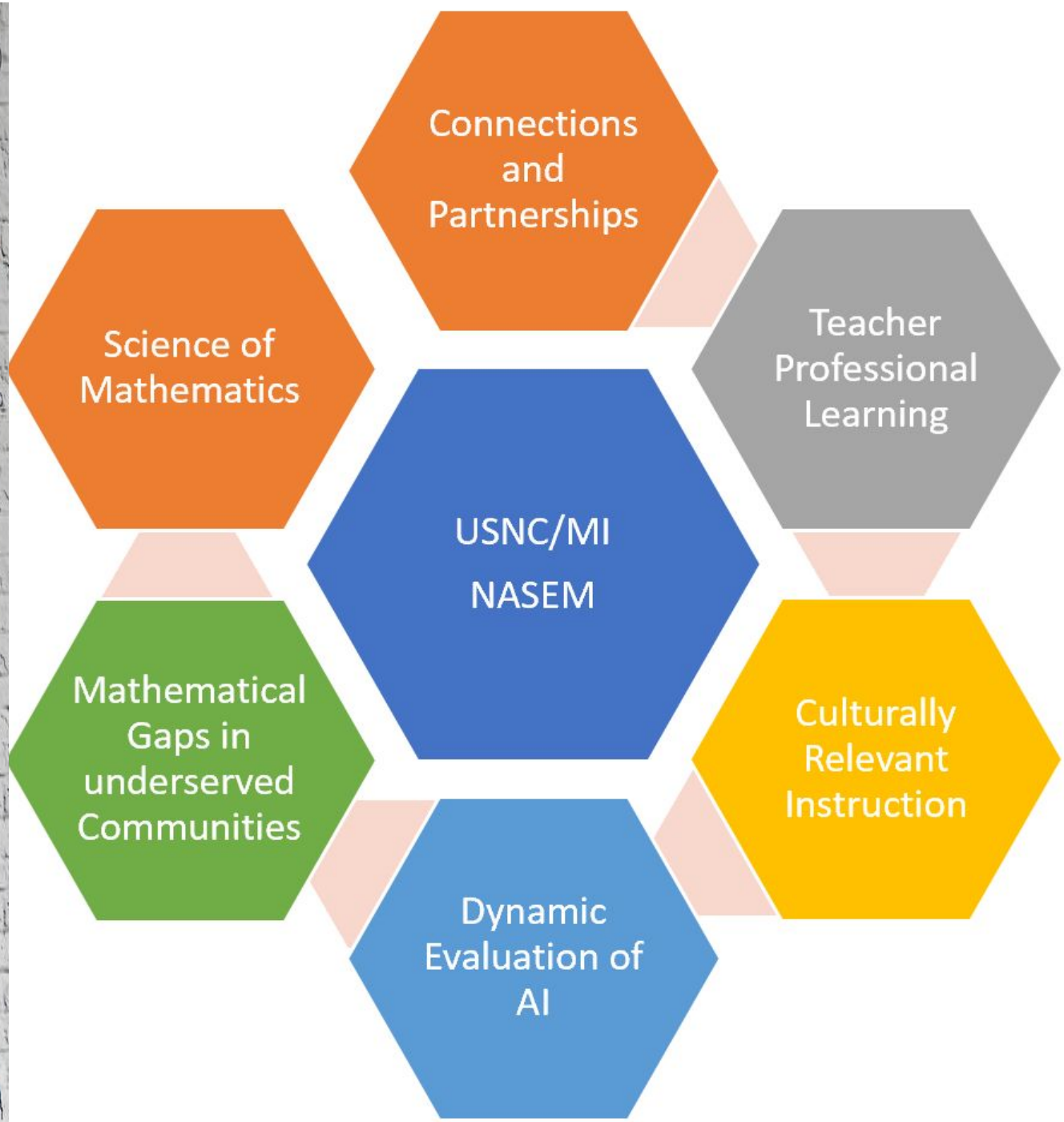
Teaching Data Science in High School: Enhancing Opportunities and Success

NCTM® | NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

VIRGINIA DATA SCIENCE

Mathematics Standards of Learning for Virginia Public Schools 2023 Data Science, URL: https://www.doe.virginia.gov/home/showpublisheddocument/48981/638297753335570000


VALUE
PROPOSITION


Connections and Partnerships
Science of Mathematics
Teacher Professional Learning
USNC/MI
NASEM
Mathematical Gaps in underserved Communities
Culturally Relevant Instruction
Dynamic Evaluation of AI

Enhancing our stakeholder Connections and building Partnerships

- Ensure engagement with statewide departments of education, superintendent organizations, and other key educational bodies to align efforts and maximize impact.

Developing effective practices in Teacher Professional Learning

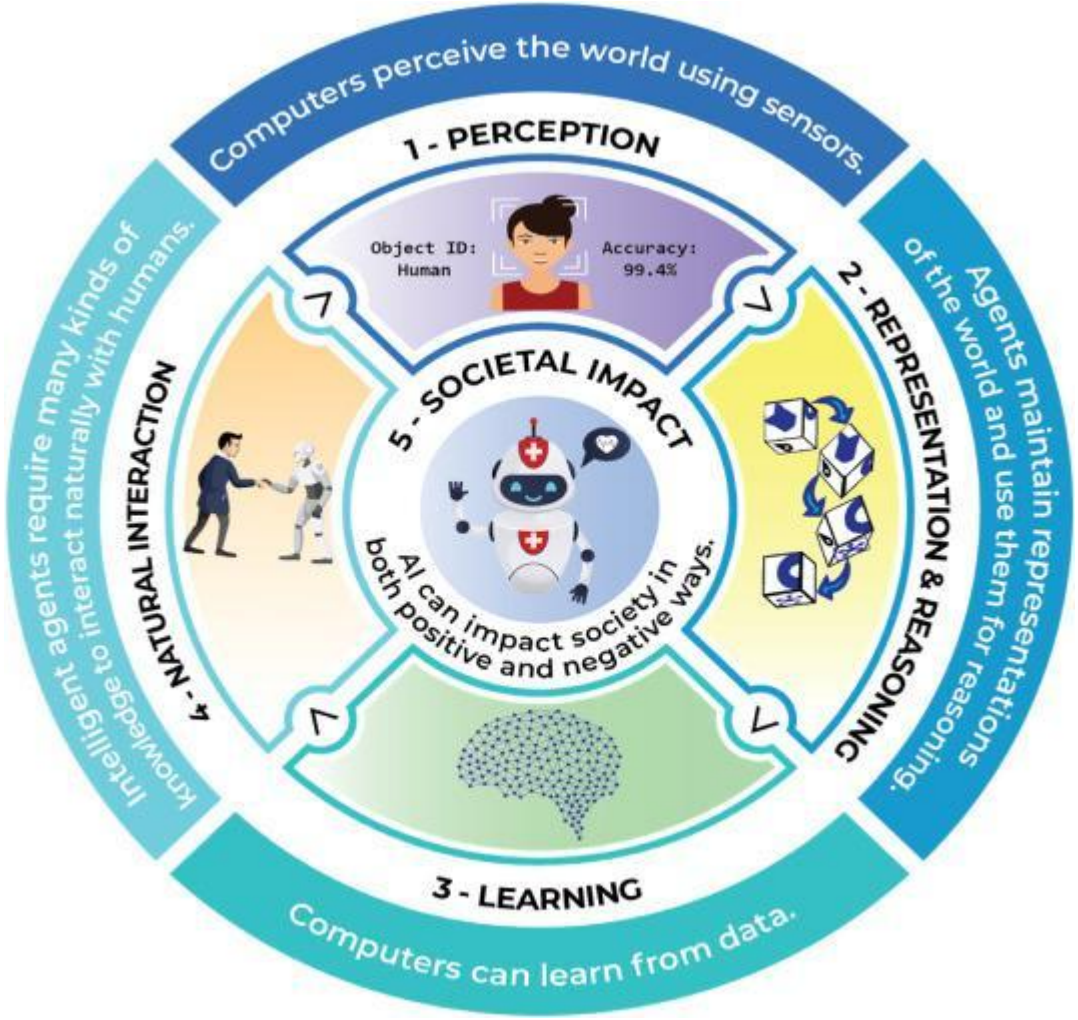
- Develop comprehensive professional learning programs for teachers that incorporate best practices in mathematics education, ensuring that teachers are well-equipped to deliver high-quality instruction.

Demystifying Mathematics and making it more Culturally relevant

- Promote a positive and engaging view of mathematics, highlighting its relevance and applications in everyday life and various careers

Evaluating the impact of AI in Mathematics Education

- With the advent of AI, this committee will continue to explore how AI can be effectively integrated into mathematics education to enhance learning and provide personalized educational experiences.

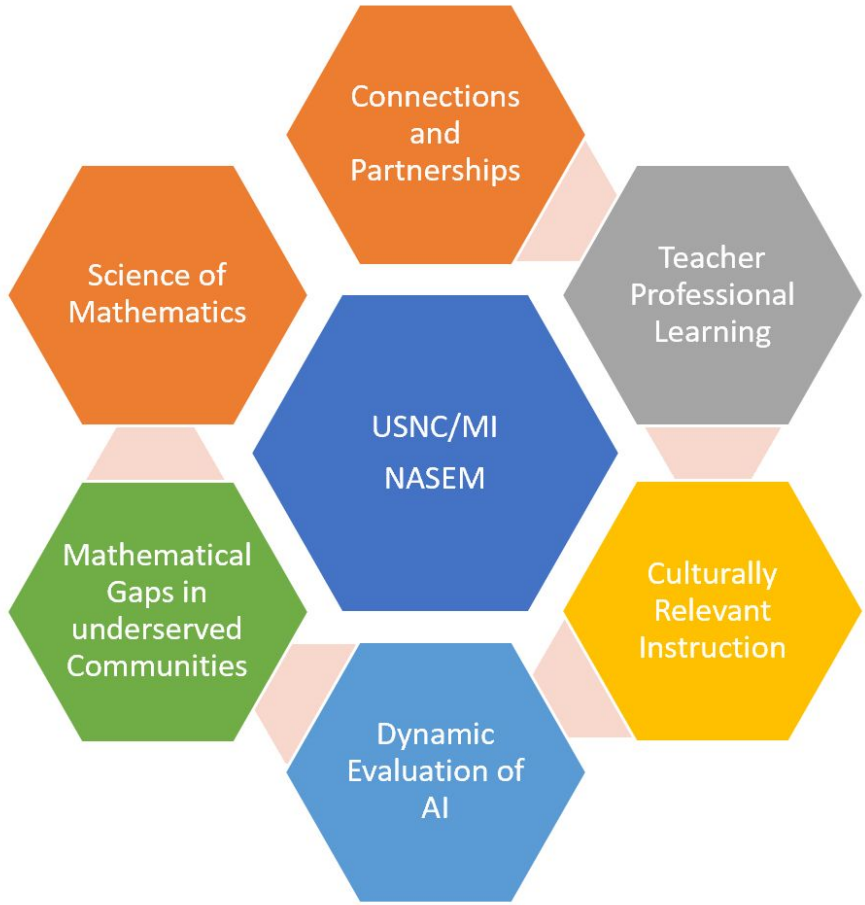


Addressing Assessment Gaps and Supporting Underserved Communities

- Utilize data from national exams such as the National Assessment of Educational Progress (NAEP) and the global Programme for International Student Assessment (PISA) that provide important information about student academic achievement and learning experiences in various subjects to identify and address gaps in mathematics education, particularly in underserved communities.

Discovering the Science of Mathematics

- The Science of Math is a movement focused on using objective evidence about how students learn math to make educational decisions and to inform policy and practice.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Global Mathematics Education Community of Practice
The Role of Math Education Community in Data Science Education

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Come and be counted

ICM 2026
PHILADELPHIA
International Congress of Mathematicians

Partnerships for **R**esearch & **I**nnovations in **M**athematics **E**ducation (PRIME).