BOARD ON SCIENCE EDUCATION

Conversations about Science Standards Series: Insights about Equity and Inclusion in Science Education

Dr. Alberto J. Rodriguez: Good morning

Bill Penuel (he/him/his): Good morning!

joannewitt: Good morning.

Candace Penrod: Hello from Salt Lake City!

Trish Shelton: Wonderful to see everyone!

Helen Quinn: Good Morning all!

Tia C. Madkins (she/hers) UT Austin: Morning!

Enrique/Henry: Good morning all! Great to see familiar names/faces and meet new ones

Aneesha Badrinarayan (she, hers): Good morning everyone!

Linda Cook: Good morning!

Matt Krehbiel: Good morning!

Stefanie Marshall: Good morning all!

Jennifer Self: Hi everyone! Great to be here.

Monica Fink: Good morning all

Rebecca Abbott (she/her): Good morning, glad to be here!

Ellen Ebert OSPI, WA: Good morning all!

Daniel Alcazar-Roman: Good morning everyone!

Amanda Morrison: Good morning!

Amy Stephens: Slido: https://app.sli.do/event/8mSSnu5LA7FoFzaN6KKMso

Bill Penuel (he/him/his): Link to spot in report: https://nap.nationalacademies.org/read/26215/chapter/3?term=equity#22

Heidi Schweingruber: If you have questions for the presenters, please enter them in Slido. If they are short, clarification questions, we will try to ask them after the individual presentation. Most questions will be taken up after all of the presenters and the discussants speak.

Dr. Alberto J. Rodriguez: Great job, Tia :)

Bill Penuel (he/him/his): Go Tia!

Mary Starr (she/her) MMSLN, MI: Thanks, Tia!

Tiffany Neill: Thank you, Tia!

Trish Shelton: Thank you Tia!

Martina G. Efeyini, she/her: Thanks Tia

Erika Shugart, NSTA: Thank you - very helpful additional information.

Kelsie (she/her): Thank you Tia!

Tia C. Madkins (she/hers) UT Austin: Thank you, everyone! Excited to be here learning with and from everyone!

Christa Haverly, she.her.hers: Thanks Tia for a great presentation!

Heidi Schweingruber: We are happy to take 1 or 2 clarification questions after the presentation. Please enter them in Slido.

Tia C. Madkins (she/hers) UT Austin: Here is Danny's brilliant paper with Alejandra: https://educate.bankstreet.edu/cgi/viewcontent.cgi?article=1473&context=occasional-paper-series

Tia C. Madkins (she/hers) UT Austin: https://doi.org/10.1002/sce.21546

Erika Shugart, NSTA: Tia - thank you so much for the links to references!

Tia C. Madkins (she/hers) UT Austin: You are most welcome!

Bill Penuel (he/him/his): Thanks, Danny, for an amazing presentation, reminding us that social, political, and historical contexts are part and parcel of the phenomena we study

Tia C. Madkins (she/hers) UT Austin: Incredible and important work, Danny! Thank you!

Danny Edelson (he) BSCS: Wow. Thank you.

Dr. Alberto J. Rodriguez: Nicely articulated, Danny

Rebecca Abbott (she/her): Such a powerful analysis, thank you.

Mary Starr (she/her) MMSLN, MI: Thanks for the very interesting presentation!

Kelsie (she/her): This work is such important, thank you for sharing!

Christa Haverly, she.her.hers: Super interesting analysis! Would love to see this analysis applied to standards for younger kids too.

Martina G. Efeyini, she/her: yes important work

Martina G. Efeyini, she/her: looking forward to connection teen voice matters

Heidi Schweingruber: Please also enter questions that might apply across the presentations or go beyond them. We will have time for Q&A after the 2 discussants offer their reflections.

Dr. Alberto J. Rodriguez: Well done

Bill Penuel (he/him/his): ¬°Gracias, Henry, por su ponencia importante about translanguaging as a liberatory framework! These are powerful examples in action

Kelsie (she/her): I really appreciate the deep examples of disrupting hegemonic ways of communicating science ideas/expertise. Thank you!

Enrique/Henry: Gracias, Bill and Alberto

Tia C. Madkins (she/hers) UT Austin: Link to Enrique's fabulous article with Maria Gonzalez-Howard that he referenced: https://onlinelibrary.wiley.com/doi/10.1002/tea.21684

Tia C. Madkins (she/hers) UT Austin: Amazing presentation, Enrique! Thank you!

Daniel Morales-Doyle: Thank you Tia and Enrique! Really brilliant work, honored to be part of the panel. And thank you, Tia, for sharing links in real time!

Christa Haverly, she.her.hers: Great presentation Enrique!! Thank you!

Bill Penuel (he/him/his): Other examples here: Suarez, E. (2020). “Estoy Explorando Science”: Emergent bilingual students problematizing electrical phenomena through translanguaging. Science Education. https://doi.org/10.1002/sce.21588

Tia C. Madkins (she/hers) UT Austin: A joy and honor to present alongside each of you!

Daniel Morales-Doyle: Trying to take up the practice from Tia to share as Stefanie mentions. I’m not as fast though. Here is some of Alexis Patterson-Williams’s awesome work she mentioned: https://doi.org/10.1080/00405841.2019.1626616

Bill Penuel (he/him/his): Also: Patterson, A. D., Athanases, S. Z., Higgs, J., & Martinez, D. C. (2020). Developing an inner witness to notice for equity in the fleeting moments of talk for content learning. Equity & Excellence in Education, 53(4), 504-517. https://doi.org/10.1080/10665684.2020.1791282

Kelsie (she/her): Thank you all for sharing these references <3

Tia C. Madkins (she/hers) UT Austin: An open access piece by Dr. Patterson Williams & Terrance Burgess focused on equity: https://onlinelibrary.wiley.com/doi/full/10.1002/sce.21721

Amanda Morrison: Thank you all for sharing the articles!

Mary Starr (she/her) MMSLN, MI: Thanks Tia - sharing that in a previous session about the Brilliance and Strengths report from last fall, Dr. Burgess had a great presentation about equity and elementary science. https://www.nationalacademies.org/event/09-15-2022/enhancing-science-and-engineering-in-prekindergarten-through-fifth-grade-public-event-washington-dc

Enrique/Henry: +1

Tia C. Madkins (she/hers) UT Austin: NASEM Report on Preschool to Gr. 5: https://nap.nationalacademies.org/read/26215/chapter/2

Daniel Morales-Doyle: Thank you Stefanie and Alberto for really brilliant syntheses and powerful questions and points of emphasis!

Bill Penuel (he/him/his): Thanks for your great commentary, Stefanie and Alberto.

Tia C. Madkins (she/hers) UT Austin: Thank you, Stefanie and Alberto!

Tia C. Madkins (she/hers) UT Austin: Brilliant commentaries!

Dr. Alberto J. Rodriguez: Thanks everyone

Stefanie Marshall: Thanks all— appreciate the opportunity.

Enrique/Henry: Thank you, Tia, for saying that! I love how the conversation keeps opening up dimensions of the work that are complimentary

Tia C. Madkins (she/hers) UT Austin: Absolutely!

Tia C. Madkins (she/hers) UT Austin: Incremental changes and fast-paced changes are essential. Great point, Danny!

Tia C. Madkins (she/hers) UT Austin: One of Stefanie’s brilliant pieces on culturally responsive school leadership, which is critical for engaging this work in science classrooms: https://www.emerald.com/insight/content/doi/10.1108/JEA-01-2018-0018/full/html

Bill Penuel (he/him/his): Related to state leadership, a few of us on this call are part of this research-practice partnership focused on equity: https://cosss.wildapricot.org/ACESSE

Tia C. Madkins (she/hers) UT Austin: Thank you, Bill! Great work!

Bill Penuel (he/him/his): Thanks, Tia (on behalf of a few here who are part of that work)!

Tia C. Madkins (she/hers) UT Austin: For the articles that are not open access, feel free to email to get a copy!

Amy Stephens: We will get to hear a bit about the ACESSE work when we come back after our break (before small groups). I hope that you will all join us for that

Dr. Alberto J. Rodriguez: Good argument, Stephanie

Stefanie Marshall: Thanks, Alberto.

Danny Edelson (he) BSCS: Force choice questions are a trap! Dispute the premise.

Tia C. Madkins (she/hers) UT Austin: Community for sure!

Daniel Morales-Doyle: I agree too!

Daniel Morales-Doyle: This is a question for me about how change happens--the change we want always happens from the bottom up--grassroots rather than top down.

Tia C. Madkins (she/hers) UT Austin: Indeed, Danny!

Enrique/Henry: ^^^ oof, yeah, Danny, for sure!

Mary Starr (she/her) MMSLN, MI: Alberto has mentioned this a few times and I didn't see it in the chat: https://www.carnegie.org/our-work/article/thirteen-ways-improve-science-education-us/

Mary Starr (she/her) MMSLN, MI: Also: https://media.carnegie.org/filer_public/81/31/81315c4d-4fb3-4fd0-a20e-865531aac9e4/science_landscape_report_013123.pdf

Enrique/Henry: More scientists should be reading Sylvia Wynter and Sandra Harding :)

Dr. Alberto J. Rodriguez: Yes— the recent report from Horizon Research recommends to get more parents involved in the implementation of inquiry-based science standards https://www.carnegie.org/publications/k12-science-education-in-the-united-states-a-landscape-study-for-improving-the-field/

Bill Penuel (he/him/his): A related resource to one Tia just shared about neighborhood walks comes from Learning in Places: http://learninginplaces.org/for-families/sharing-places-neighborhood-walk/

Tia C. Madkins (she/hers) UT Austin: This is a really big question

Tia C. Madkins (she/hers) UT Austin: And yes, I was actually reviewing the 2015 piece this morning.

Daniel Morales-Doyle: Great resources here and ^ yes, Enrique (about Sylvia Winter and Sandra Harding and lots of other STS scholars)!

Mary Starr (she/her) MMSLN, MI: MMSLN has been working with teachers in three locations throughout Michigan neighborhood walks with Learning in Places (through an NSF grant) and that work has been very rich. I would strongly suggest it for teachers and leaders.

Tia C. Madkins (she/hers) UT Austin: https://onlinelibrary.wiley.com/doi/10.1002/tea.21232

Tia C. Madkins (she/hers) UT Austin: A clear, explicit connection between culturally responsive teaching practices and assessments

Enrique/Henry: ^ yes Tia!

Dr. Alberto J. Rodriguez: This is the paper Enrique mentioned https://www.researchgate.net/publication/275057266_What_about_a_Dimension_of_Engagement_Equity_and_Diversity_Practices_A_Critique_of_the_Next_Generation_Science_Standards#fullTextFileContent

Matt Krehbiel: I also think I heard a number of people say earlier that building the community was an important next step toward better standards.

Heidi Schweingruber: +1 Matt

Tiffany Neill: Thank you, to the panelists this morning. Thought-provoking presentations and relevant to our conversations today.

Greg Kelly: Thank you all!

Dr. Alberto J. Rodriguez: Great questions—thanks everyone!

Amelia Wenk Gotwals (she/her/hers): Thank you, everyone!

Daniel Alcazar-Roman: Thank you all!!

Aneesha Badrinarayan (she, hers): This was such a meaningful conversation, thank you all!

Amanda Morrison: This was fantastic and so informative. Thank you all!

Daniel Morales-Doyle: Great to be in dialogue with you all!

Bill Penuel (he/him/his): Thanks, all. Great conversation!

Stefanie Marshall: Thank you all!

Christa Haverly, she.her.hers: Thanks everyone!

Bill Penuel (he/him/his): Hey Michele, Hey Andre!

Andre DeLeon, NV (he, him): Hi Bill! Hi Michele!

Michele Snyder: Hello Everyone

Enrique/Henry: Talk about developing the next generation, Kelsie :)

Tia C. Madkins (she/hers) UT Austin: Welcome back!

Sharon Cates: Yea Cubers!

Daniel Morales-Doyle: Thank you Andre! Such important points about the need to understand the history of schools as intentional engines of inequity. It is NOT an accidental problem or one we can tinker our way out of.

Tia C. Madkins (she/hers) UT Austin: +1

Enrique/Henry: +1

Tia C. Madkins (she/hers) UT Austin: Inequity by design

Daniel Alcazar-Roman: Thanks, Andre!

Tia C. Madkins (she/hers) UT Austin: Yes, thank you, Andre!

Daniel Alcazar-Roman: Thanks for sharing, Michele!

Tia C. Madkins (she/hers) UT Austin: Thank you, Michele!

Tia C. Madkins (she/hers) UT Austin: Love that! Adding the layer of social justice is critical

Dr. Alberto J. Rodriguez: Great step forward to have social justice/ equity as key component of effective instructional materials

Andre DeLeon, NV (he, him): Yay Tiffany!

Erika Shugart, NSTA: Congrats on the new role, Tiffany!

Enrique/Henry: Thank you Andre and Michelle for those reflections.

Enrique/Henry: And yay Tiffany

Tia C. Madkins (she/hers) UT Austin: Reshaping what Bill posted earlier: https://cosss.wildapricot.org/ACESSE

Tia C. Madkins (she/hers) UT Austin: Yes! Congrats, Tiffany!

Tia C. Madkins (she/hers) UT Austin: *resharing

Kelsie (she/her): We are excited to have you join our UW community and team!!

Bill Penuel (he/him/his): We are grateful to have her back on ACESSE!

Greg Kelly: Need to step away. Thank you for sharing and for the work you do in this area.

Sharon Cates: YES +1 for CCCs

Daniel Alcazar-Roman: Thank you and congratulations, Tiffany!

Katz, Jacqueline: The Library of Congress has been doing work with the CCCs recently. Trying to add context to this concepts! http://blogs.loc.gov/teachers/2023/01/concepts-across-the-sciences-energy-and-matter/

Danny Edelson (he) BSCS: Michele said that if they don't succeed in "checking the box of equity inclusion now", they could lose ground in AR over time. Could she clarify what she meant?

Enrique/Henry: +1

Tia C. Madkins (she/hers) UT Austin: Andre, if you have materials to share or a website we can reference for this criteria chart, please share. Would love to use in our courses, if it available for download/shareable!

Kelsie (she/her): Love the "+1+1+1" The CCCs can be a powerful tool to move science from a siloed apolitical endeavor into a powerful interdisciplinary and self-determined vehicle for transformation.

Anonymous: Standards are the fulcrum of change, but is not and cannot be the lever. The lever must be far longer and contains more segments.

Andre DeLeon, NV (he, him): Our core content area rubic can be found here, at about mid-page: https://doe.nv.gov/Standards_Instructional_Support/InstructionalMaterials/

Tia C. Madkins (she/hers) UT Austin: Thank you!

Andre DeLeon, NV (he, him): No problem Tia!

Bill Penuel (he/him/his): Oregon has also adopted materials specs with criteria for cultural relevance in science: https://www.oregon.gov/ode/educator-resources/teachingcontent/instructional-materials/Documents/OregonScienceIMAdoptionCriteria2022_FINAL.pdf

Tia C. Madkins (she/hers) UT Austin: Thank you! Saving the chat from today, for sure!

Daniel Morales-Doyle: Good point, Michele. One of my skepticisms about whether standards can be part of moves towards equity is the way they inevitably are entangled with punitive high stakes standardized assessment.

Dr. Alberto J. Rodriguez: Thank you for the candid response

Enrique/Henry: @Bill, interesting that the first criterion has to do with legal requirements — I guess it goes to show the importance of crafting policy that supports this kind of work

Tia C. Madkins (she/hers) UT Austin: ^^^

Bill Penuel (he/him/his): Indeed

Erika Shugart, NSTA: +1 to the difficulty in accessing research behind paywalls

Tia C. Madkins (she/hers) UT Austin: For some of the articles we shared earlier that are not open access, feel free to email for a copy!

Enrique/Henry: So you're telling me technical vocabulary can exclude folks and their sense-making? *shocked Pikachu meme*

Kelsie (she/her): jajaja

Tiffany Neill: Educative opportunities are really important. They help us understand the language

Amy Stephens: Short term/incremental changes; long term changes

Dr. Alberto J. Rodriguez: Nice magic trick, Danny

Anonymous: I know we spend a lot of time talking about elementary and should. Clearly they do not typically have the content knowledge or skill utilization for science. However, high school has a different issue in that culturally they do not think they need to change because they teach as they were taught. Just saying.

Ellen Ebert OSPI, WA: Thank you, Tiffany!

Ted Willard: I agree strongly with Anonymous about the issues with High School.

Kelsie (she/her): Anonymous, yes!

Aneesha Badrinarayan (she, hers): Agree Anonymous

Katz, Jacqueline: Agreed! It is also difficult to break out of the silos that have been built in the high school.

Ellen Ebert OSPI, WA: Agree, Anonymous.

Sharon Cates: Agreed Anonymous

Bill Penuel (he/him/his): We're making a dent in OpenSciEd w HS! We have learned a lot about breaking through

Dr. Alberto J. Rodriguez: Good point—I find there is more resistance to change at that level and science is perceived as canonical

Christa Haverly, she.her.hers: Also glad for the focus on elementary - there are a lot of structural barriers in the way of elementary teachers teaching science well

Tiffany Neill: Thank you, to group 2. It was a wonderful conversation.

Anonymous: No doubt @Bill.

Anonymous: Agree @Alberto

Dr. Alberto J. Rodriguez: Nicely summary— Tiffany

Ted Willard: And there is also a culture in High School science of teachers feeling they are experts that do not need to pay attention to ideas from national curriculum experts

Sharon Cates: Thank you TIffany that was a great summary.

Tiffany Neill: TY Dr. Rodriguez and Sharon.

Enrique/Henry: + 1 Christa — while HS may suffer from ossification, PK-5 is constantly under-estimated because it's not "Real science," which often ends up sending the message to PK-5 teachers that they don't know what they're doing. So, I welcome the opportunity to work at different parts of the system, without prioritizing one over the other

Sharon Cates: ...or in high school we are preparing them for college so that have to be able to sit through a lecture and absorb information.

Katz, Jacqueline: @Sharon-As a high school teacher, I hear this argument a lot!

Tiffany Neill: I also think using terms like community-based provides some individuals with a deeper understanding of the efforts being made.

Ted Willard: I have been thinking about the phrase "meeting the needs of all students" as a way to get at the meaning of "equity" without using a term that unfortunately has become controversial.

Daniel Morales-Doyle: @ Sharon and Jacqueline - I've heard this a lot too- as if tolerance for boredom and disengagement is a skill we should be developing.

Anonymous: We had 150 college freshmen instructors come to a meeting during NGSS to discuss college readiness. We also had about 75 high school teachers. It was fascinating the difference in what the two thought. At the end of the day, the college folks basically had consensus that they just assume students know zero science and have to start over. A bit depressing.

Ellen Ebert OSPI, WA: I remember that meeting, Anonymous.

Bill Penuel (he/him/his): I am not sure that works, @Ted. I have heard educators use that phrase to avoid the work of addressing specific needs, histories of students from groups owed an education debt. There are a lot of limits to "for all" discourse. I know that is complicated in today's political environment, but want to point that we need richer frames of equity and justice, such as those in the preK-5 report.

Anonymous: @Ted, friendly amendment. for EACH student.

Anonymous: Good points Bill.

Tia C. Madkins (she/hers) UT Austin: +1 Bill

Ted Willard: For the record, I think the need to change is silly. I am just focused on the idea that getting the ideas put in place is more important than a particular term.

Ted Willard: and both friendly and unfriendly amendments are welcome.

Daniel Morales-Doyle: The same thing can get tricky when we talk about community-based approaches in some contexts. Community-based is a term I use a lot, but sometimes that framing can prevent confronting some of the ways in which the community is itself implicated in the problem. One idea in our group was to try to be better and more specific about always saying what we mean rather than falling back on buzz words (especially because those are the ones that get taken up as political devices). This is a point that I'm taking to heart.

Tiffany Neill: +1 Daniel. That, I'm truly a fan of.

Enrique/Henry: #NoMoreEuphemisms

Kelsie (she/her): I have to hop to another meeting but THANK YOU everyone who presented and who are sharing their thinking/experiences. You all have given me a lot to ruminate on.

Katz, Jacqueline: YES! The buzzwords can definitely "de-motivate" a room of teachers!

Matt Krehbiel: This definitely surfaced my not-so-underlying panic regarding the current and escalating science teacher shortage and the potential for that to undermine progress toward equitable science education. Perhaps this will be an opportunity to address issues of lack of diversity is the K-12 science teaching field and to bring in people that don't have to undo prior learning, but it needs action immediately on multiple levels.

Daniel Morales-Doyle: The need for a constant and heterogeneous flow of classroom examples was another point that came up in our session.

Dr. Alberto J. Rodriguez: Yes—Michele—the teacher shortage is going to aggravate all of these issues. Here, in Houston, districts started to bring teachers from other countries, and they are encountering all sorts of cultural/institutional barriers

Tiffany Neill: +1 Matt

Ted Willard: I am the point Matt that I have anxieties about how many anxieties I have. :-) :-)

Michele Snyder: + Alberto, this is happening in Arkansas as well. teachers if they are in the classrooms have no training in teaching students from non-dominant cultures

Anonymous: Matt is so right. We should all be worried about our teacher workforce.

Sharon Cates: A local high school has no physics teacher, which I know is not uncommon, but they do have physics classes.

Bill Penuel (he/him/his): Related to @Michele and @Alberto's points, I should know, but am wondering where the best accounts of this phenomenon in STEM ed are (in reports, papers)?

Christa Haverly, she.her.hers: @Michele - what's a good outlet for sharing 'snapshots' of what's working well that you and your colleagues would see?

Stefanie Marshall: Thanks, Tia!

Dr. Alberto J. Rodriguez: @MS-what is frustrating is that we know so much already about how to address these challenges, but we don't have access to the table where people are making all the decisions

Tiffany Neill: I'd argue at the state level that's what we focus on @Danny

Ted Willard: What I would suggest Alberto is to analyze why you are not at the table. Those obstacles usually exist for a reason (not always a good reason) and may be a way to figure out ways to get to the table.

Michele Snyder: @ Christa, school leaders visiting schools doing STEM teaching and learning are meaningful practice focused "snapshots"

Danny Edelson (he) BSCS: @Tiffany, but states rarely have resources to fund research.

Tiffany Neill: We have access to a good amount of research, including our state level data and national research. I know we spend a fair amount of time gathering those materials prior to a standards revision to inform it at the state level. Perhaps we are talking about different research though.

Dr. Alberto J. Rodriguez: @Ted —we need better collaboration between universities and school districts. . .

Heidi Schweingruber: +1 Alberto

Ted Willard: @Alberto, I agree 100%

Ted Willard: I do not think that the system currently has the capacity to handle a major revision to standards. And given that standards are by definition political documents, I do not think a major revision would result into an improvement to what most people on this call would want.

Tia C. Madkins (she/hers) UT Austin: There is so much work to do!

Ted Willard: We will not run out of things to do

Enrique/Henry: Absolutely. I think as a field we also learned from the failures of CCSS and realized where we could (not) push

Tia C. Madkins (she/hers) UT Austin: Absolutely

Sharon Cates: It took 10 years to get 48 states to Framework based standards. There are several states that are just beginning to implement them. In some ways they need more time, in other ways they definitely need an update.

Ted Willard: +1 Sharon

Anonymous: +1 Sharon

Sharon Cates: Ted I feel like we were just talking about this last week...

Ted Willard: Because we were :-)

Tia C. Madkins (she/hers) UT Austin: Such a good point, Tiffany!

Heidi Schweingruber: BOSE is thinking about developing a new kind of "practitioner guide" that would provide some implementation advice and examples about how to center equity and justice in implementing the Framework and NGSS. This would draw on research in BOSE reports, new research, and the kinds of examples of practice shared today.

Michele Snyder: Agreed Tiffany

Tia C. Madkins (she/hers) UT Austin: That would be such a useful guide, Heidi!

Sharon Cates: ++++++++Tiffany

Tia C. Madkins (she/hers) UT Austin: Could be used in courses, as well

Enrique/Henry: That sounds like a great idea, Heidi! Resourcing folks for pushing beyond the good foundation that's there

Andre DeLeon, NV (he, him): This has been great! My email is adeleon@doe.nv.gov

Bill Penuel (he/him/his): (That is Stefanie and me on that committee)

Dr. Alberto J. Rodriguez: Awesome conversation—thank you!

Erika Shugart, NSTA: Wonderful session

Michele Snyder: Thank you everyone! Michele.Snyder@ade.arkansas.gov

Enrique/Henry: Thank you all for this thoughtful and thought-provoking conversation

Elizabeth Mulkerrin, NSTA President: Thank you for a great discussion

Tia C. Madkins (she/hers) UT Austin: See y'all at NSTA, AERA, or NARST!

Tiffany Neill: Thank you, everyone. neill.tiffany@outlook.com love to connect.

Katz, Jacqueline: Thank you!

Ellen Ebert OSPI, WA: Thank you all!

Aneesha Badrinarayan (she, hers): Thanks all!

Matt Krehbiel: Until next time!

Erika Shugart, NSTA: I look forward to meeting up with many of you at the NSTA meeting

Tia C. Madkins (she/hers) UT Austin: Thank you, everyone!

Sharon Cates: Thank you everyone

Tia C. Madkins (she/hers) UT Austin: Lovely to be in community with y'all today!

Christa Haverly, she.her.hers: Thank you all! Great conversations

Sam Shaw (he/him): Thank you!

Mary Starr (she/her) MMSLN, MI: Thanks

Amy Stephens: Thank you!

Stefanie Marshall: Thank you!

Sharon Cates: Looking forward to seeing people in Atlanta at NSTA