Over chat...

Briefly name some your key project dissemination strategies
PERSISTENT PROBLEM

RESEARCH

PRACTICE

COMMUNITY
Knowledge Exchange (Translation)

Community is typically absent
Transformation is about relationships all the way down...

Community Guided Approaches to Research with Practice
Cultural Exchange, Collaboration & Infrastructuring (Solidarity)
Shift from stakeholder frame to accountability-to-whom frame
Resources for Developing & Managing Research-Practice Partnerships

http://researchandpractice.org/toolkit
http://learnDBIR.org/
Overview of Dissemination Approaches
by Dr. Jinfa Cai
Infrastructuring Implementation of the Vision for K-12 Science Education

The Framework & Standards were reviewed and refined by over 40,000 teachers, scientists, engineers, educational researchers, youth and other stakeholders in K-12 science ed.

Info Online: tinyurl.com/ScienceFramework & nextgenscience.org
Scientific literacy involves understanding global climate change and what people can do about it.

**What Is The Issue?**

All learners benefit from outdoor science investigations. For young learners, research shows...
Professional Learning Resources to Support NGSS / Framework Implementation

- Co-designed by practitioners & researchers
- Tested & refined over time
- Easily shareable—over social media, email, paper

---

Overview: How can we promote equity in science education?

**What Is The Issue?**

Equity should be prioritized as a central component in all educational improvement efforts. All students can and should learn complex science. However, achieving equity in science education is an ongoing challenge. Students from non-dominant communities often face “opportunity gaps” in their educational experience. Inclusive approaches to science instruction can expose youth as meaningful participants in science learning and recognize their science-related assets and those of their communities.

**WHY IT MATTERS TO YOU**

- Teachers need tools to implement instructional strategies to make a school learning environment more inclusive for all students.
- District staff and PD providers should integrate these equity and social justice into every teacher training course to educate current and future teachers.
- Key components of social justice include diversity in a democratic society.
- School leaders should provide a sustained focus on inclusive science instruction. Efforts should move to teachers and involve equitable opportunities for learners.

---

Focusing Science and Engineering Learning on Justice-Centered Phenomena across PK-12

**What Is The Issue?**

In the Framework vision for science education, students engage in active investigations to make sense of natural phenomena and analyze and build solutions to problems. Basing these investigations on justice-centered phenomena can be a powerful and rightful way to support science and engineering learning. Justice-centered investigations can open up important opportunities for students to engage in projects that support equity for communities and to see how the application of science and engineering are fundamentally intertwined with political and ethical questions, dimensions, and decisions.

**WHY IT MATTERS TO YOU**

- Teachers can help students engage in projects that address deep systems (e.g., climate change, poverty, politics, etc.)
- District staff & PD providers should help educators develop deeper science-based practices and create a culture to foster interdisciplinary conversations.
- School leaders can help teachers connect with justice-centered organizations to help organize class visits, field trips, student presentations, or other opportunities to support justice within the school walls.

---

Using science investigations to develop caring practices for social-ecological systems

**What Is The Issue?**

How can we be more present for other species at a time of ecological devastation? Developing deep commitments to the human and more-than-human inhabitants of ecosystems is crucial for cultivating students’ caring knowledge and practices within the escalating challenges of the climate crisis. More-than-humans are typically represented in STEM curricula as objects of observation or utility rather than dynamic beings with rights to act and be recognized. Educators should build interdependent, caring relationships with more-than-humans focused on shared thriving to promote ecological identities, deep STEM learning about local places, and responsibilities.

**WHY IT MATTERS TO YOU**

- Educators should seek opportunities for students to build relationships with more-than-humans by engaging with local ecosystems and support key aspects of environmental justice through local ecosystems.
- District staff & PD providers should help educators develop deeper science-based practices and create a culture to foster interdisciplinary conversations.
- School leaders should prioritize the education learning experience, space, and resources to engage learners in STEM field investigations.

---

STEMteachingtools.org

@STEMteachtools (Twitter)

facebook.com/STEMTeachingTools
Meaningful Phenomena

Multi-Generational Learning

Centering Racial Justice

Cultural Pedagogies

Place-Based Learning & Ecological Caring

Supporting Diverse Sense-Making

Disrupting Ableism

Goal: Equitable Science & Engineering Learning

Bell, J of Science Teacher Ed, 2019
Uses for STEM Teaching Tools

- In PD events: Vision overviews, topic-focused explorations, in direct support of project work
- By individual teachers refining their practice
- By PLCs, PLNs (e.g., on Twitter), science departments, projects engaged in implementation
- With principals, state STEM groups, assessment design teams, and informal science organizations
- In pre-service science methods courses & graduate seminars
- By organizations messaging about Framework / NGSS through newsletters, sites, email…
- To communicate with parents about science ed
How to Identify and Develop Practice Briefs

About This Tool

Purpose: To provide a “how to” document for identifying and authoring practice briefs that can be used to support practitioners and researchers in their educational improvement activities.

Audience: Members of a partnership responsible for authoring and/or editing resource collections related to the work.

When to Use: When a partnership is developing insights and approaches that are ready to be more broadly shared with educational practitioners.

http://tinyurl.com/PracticeBrief
Thoughts on using social media to improve education as a researcher

Philip Bell, Learning Sciences & Human Development
Share Quality Resources Routinely

A4) Here are some specific ways to overlap instruction with the cultural lives of students & their communities... #NGSSchat
stemteachingtools.org/brief/31
stemteachingtools.org/brief/58
stemteachingtools.org/pd/sessionc
stemteachingtools.org/tgs/Culture

Philip Bell 😇 6+ft 😇
@philipbell

RLS RT/SHARE/ADAPT #NGSSchat & #SciEd!

Supporting Students’ Science Learning during COVID-19 School Closures – New Languages

These resources from @CSSSupervisors are now available in English, Korean, Chuukese, Spanish & Arabic (w/ others in process).
stemteachingtools.org/news/2020/guid...

Philip Bell 😇 6+ft 😇
@philipbell

Replying to @sbottasullivan @AmbScienceTeach and 4 others

In addition to cultural/funds of K work, it is useful to trace current #SciEd instruction back to ANCHORED INSTRUCTION & COGNITIVE APPRENTICESHIP—anchoring phenom, learner agency, making thinking visible, scaffolding talk & tasks
instructionaldesign.org/theories/ancho...

12:56 PM · Feb 20, 2021 · Twitter Web App

Philip Bell 😇 6+ft 😇
@philipbell

PLS RT #NGSSchat—Here are links to all slides & resources from my #NSTA19 sessions
Assessment twitter.com/philipbell/st...
Teacher Resources twitter.com/philipbell/st...
Equity&Justice twitter.com/philipbell/st...
Family STEAM twitter.com/philipbell/st...
Diverse Sense-Making

Mar 26, 2020 · Twitter Web App

Indigenous Ways of Knowing and Science Teaching

Indigenous Ways of Knowing and Science Teaching

12:56 PM · Feb 20, 2021 · Twitter Web App
Tap into communication channels of other orgs by building relationships.
In our @AcesseProject, we are building out #OER professional learning pathways that help people understand the overlaps & distinctions between those forms of cultural pedagogy in #SciEd. Would love your input / feedback as we get further into it. This is the draft framework...

The academy is not paradise. But learning paradise can be created. The classroom, while remains a location of possibility. In that field we have the opportunity to labor for freedom for ourselves and our comrades, an openness of mind allows us to face reality even as we collectively move beyond boundaries, to transgress. To the practice of freedom.
Engage in public pedagogy

Philip Bell (@philipbell) • Feb 6
We need to design for emergence of partial recuperation across multiple timescales. Building on Haraway’s model of the CAMILLE STORIES, the group explored how to frame SPECULATIVE, multi-generational stories of PARTIAL FLOURISHING through COMPANION-SPECIES KNOTTINGS. #UWClimateEd

Philip Bell (@philipbell) • Feb 6
In Session 6 of #UWClimateEd, we will keep exploring speculative ethics in ECOLOGICAL THINKING & CARING from critical, Black feminist perspectives & wrap up discussing BRAIDING SWEETGRASS.

Philip Bell (@philipbell) • Feb 6
Links to these readings & media are on the #UWClimateEd website: sites.google.com/uw.edu/Climate...
Over chat...

What questions do you have about project dissemination?
Break out rooms: Explore your dissemination questions & post an insight to our Jamboard