Instructional Practice

Room 1

Strengths

What resources do we have?

- Local/ National learning opportunities
- Teacher Associations (NSTA, NSELA, etc)
- XXX

What is working well?

- Ownership of learning to kids
- Storyline building?
- Key Instructional Practices for 3D learning (district -wide) Teachers being open and vulnerable and actively engaging and experimenting
- Sharing challenges and what's working

Weaknesses

What resources/tools are we lacking?

- Teachers do not have easy access to high leverage instructional practices in 3D classroom
- Need quick and easy bite size nuggets of "how to" to support shifts in practice
- Student input and student voice
- Students lack wanting to go deeper
- Engaging ALL students
- Teacher comfort with modeling curiosity, the science concepts, implementation of science/engineering practices, letting go of control

What improvements are needed?

- Definition of coherence?
- Ability to identify and leverage expertise and experience of students
- Students to have a higher level of curiosity (heightened, deepened, and broadened) expand thought process

Opportunities

What are the most immediate needs?

- Videos of best instructional practices in action to discuss and learn
- Peer teaching for engagement and student input on what they are feeling
- Ways for students to connect emotionally and physically with science phenomena

Room 2

Strengths

What resources do we have?

- Capacity building within systems is happening.
- Working with principals, admins, instructional leaders — helping them see the vision for science education.
- Materials like Amplify,, OpenSciEd etc…, STEM Teaching Tools, Released Reports, Science Collective Gatherings
- All of us - plus others in our communities including STEM professionals

What is working well?

- Programs like NGSX- PL for K-12 teachers. Phenomenon- based storyline experience uncovering practices/talk.
- Increased awareness of locally-relevant phenomenon-based learning and problems.
- Attention to working with whole systems

Weaknesses

What resources/tools are we lacking?

- Cohesive curricular resources
- Funding resources
- Time

What improvements are needed?

- Rebuild structures so teachers have time for PL and to work with peers on improving instruction
- Increase supports within systems at all levels
- Developing cultures that break down silos and embrace the vulnerability of learning something new.

Opportunities

What are the most immediate needs?

- HQIM at all levels
- HQPL at all levels
- Elementary Science Access
- Educational Staffing

Room 3

Strengths

What resources do we have?

- National Level PL (NGSX, GRC, NSTA, etc)
- Free resources- Ambitious Science Teaching, STEMTeachingTools, Videos
- PL Materials from OpenSciEd

What is working well?

- Early adopters sharing experiences
- National level collaborations
- More consortia forming

Weaknesses

What resources/tools are we lacking?

- PL that is plug & play for teachers (asynchronous)
- Videos of instruction/exemplars

What improvements are needed?

- Therapy to help with accepting changes
- Systems to consider kids holistically, not just scores
- Balancing the instructional time

Opportunities

What are the most immediate needs?

- Get community more excited about science
- Helping students with evidence-based thinking (not just for science)
- Differentiated PL to help support teachers move along, and give flexibility for scheduling of PL

Room 4

Strengths

What resources do we have?

- OpenSciEd
- Ambitious Science Teaching
- UW has bank of videos they can share (email Jessica Thompson jjthomps@uw.edu)

What is working well?

- PL embedded in HQIM
- Creating pathways for educators to share (like NGSSChat)

Weaknesses

What resources/tools are we lacking?

- Resources for expanding PL and scaling
  - People to train
  - money
- Resources not tied to a curriculum
- Materials that clearly align to respective state standards
- Hard to do good PL work when it has to be grounded in HQIM (weak at elementary and high school)

What improvements are needed?

- Shifting from perception of one IM to instructional shifts
- Shifting perceptions of those making decisions
- Need educators on the same page/common vision
- How to get admin on board
- Opportunities to understand and see what it looks like at different levels of practices

Opportunities

What are the most immediate needs?

- Some video banks exists (great for changing practice) would be great to expand
- Long-term Sustained PL to create safe spaces for learning
- Opportunities to develop a common vision & for teachers to discuss what they are seeing (videos)

General notes:

Coherence - meaning of it depends upon context and wants and needs of a system. How different components do not fight against each other, are aligned, moving together. WRT Instructional practice - practices aligned to vision. Tension in supporting educators when there are multiple initiatives. Initiatives across districts need to cohere. Student frame - coherent to the student. If you don't know what you don't know, hard to convey vision and that can impact coherence. Challenging when there are different interpretations/impressions of what implementation looks like.

Room 5

Strengths

What resources do we have?

- Open Ed and Open Sci Ed Resources
- Ambitious Science Teaching and the shared understandings about what sensemaking is and what generative talk looks like
- STEM Teaching tools
- Passionate people in the community that have spent a lot of time and energy thinking about the vision of what we want instruction to look like

What is working well?

- Collaborations between the many educational players in and out of school, informal and formal educators
- We know a lot about the power of teachers analyzing artifacts from teacher practice

Weaknesses

What resources/tools are we lacking?

- Sustainable form of ongoing learning not the initial workshop, but more consistent over years.
- Teacher time, how can we be more innovative so that teachers use time differently to greater effect.
- Teachers feel like they can never leave the novice zone because with so much systemic change teachers don't teach the same thing/way twice.

What improvements are needed?

- There is a lot of dissonance between where preparation and practice collide in teacher preparation and early teacher support.
- We know a lot about the power of teachers analyzing artifacts from teacher practice, we have stopped doing this just when it might be most useful as it was replaced by analysis of test scores. We should focus closer to practice if we are going to shift practice.

Opportunities

What are the most immediate needs?

- How do we talk to administrators and surface the need for teachers to consider their practice in a supported group.
- Give teachers great vetted materials that they can then use to facilitate learning.
- Science needs to be at the table in Elementary. Science needs to be seen as worth teaching and principals need to recognize the worth of science. Needs to come from an administrative voice and position. Yes and … Science is a context for learning ELA and math. Getting in the door, we get more bang for the buck with science teaching in Elementary.

Room 6

Strengths

What resources do we have?

- Cultural pedagogies expansion to add to cognitive based pedagogies; broader instructional resources (STEM Teaching Tools)
- Framework is expandable and flexible which is an asset as we work in multiple contexts.
- OER resources have provided access and models for what science teaching and learning can look like.

What is working well?

- When teachers are provided time for Professional learning, we have good models and teachers buy-in to the work.
- Supporting teachers make adjustments to instructional materials so they are relevant to their students.
- XXX

Weaknesses

What resources/tools are we lacking?

- Time is limited in K-12 setting and there is much to accomplish.
- Time devoted to professional learning
- The politicization of equity by certain group.
- The view that the dimensions and components of NGSS cannot be adjusted or reorganized.
- Lack of high school instructional materials/confusion between rigor and more math.

What improvements are needed?

- XXX
- XXX
- XXX

Opportunities

What are the most immediate needs?

- Much work has been done since the publication of the framework that can be applauded and build-on - equity in particular.
- Conversations are similar across multiple countries: global collaborations are an opportunity.
- High School can benefit from lessons learned in the K-8 setting.

Room 7

Strengths

What resources do we have?

- STEM Tool Resources (developed by professional organizations)
- In house developed curriculum (editability, based on district needs)
- Professional Organizations

What is working well?

- States are starting to show more interest and focus on STEM
- Collaboration among regional groups to develop an infrastructure for science education

Weaknesses

What resources/tools are we lacking?

- Vendor Produced products that are ready for immediate implementation
- In house developed curriculum (limited resources/knowledge base)
- Implementation

What improvements are needed?

- Support for rural portions of local control states
- Building capacity for teachers to reflect and network on how to implement effectively
- Professional learning (Lesson Study)
- Gaining support from Administrators and key stakeholders
- Funding available for PD and resources (state)

Opportunities

What are the most immediate needs?

- Continued conversations allowing more voices to be heard through digital platforms in order to share in common struggles and solutions
- Common messaging from leadership to stakeholders moving forward
- Sharing examples of what is working well (district highlights)
- COVID-real time historical movement science in action; Daily data application for students; how science works (new data/information daily) to develop new understanding

Summary Slide

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- Materials like Amplify,, OpenSciEd etc…, STEM Teaching Tools, Released Reports, Science Collective Gatherings
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- All of us - plus others in our communities including STEM professionals

What is working well?

- Collaboration among regional groups to develop an infrastructure for science education
- Increased awareness of locally-relevant phenomenon-based learning and problems.
- When teachers are provided time for Professional learning, we have good models and teachers buy-in to the work.

Weaknesses

What resources/tools are we lacking?

- Time is limited in K-12 setting and there is much to accomplish.
- Time devoted to professional learning
- Implementation
- Funding

What improvements are needed?

- Need educators on the same page/common vision
- Gaining support from Administrators and key stakeholders
- Increase supports within systems at all levels

Opportunities

What are the most immediate needs?

- Much work has been done since the publication of the framework that can be applauded and build-on - equity in particular.
- Continued conversations allowing more voices to be heard through digital platforms in order to share in common struggles and solutions
- Common messaging from leadership to stakeholders moving forward
- Opportunities to develop a common vision & for teachers to discuss what they are seeing (videos)

Major Themes

1. ***Available resources*** - OER resources have provided access and models for what science teaching and learning can look like.
2. ***Tension*** between needing broad resources and need local/situational resources to support instructional practices.
3. Importance for ***care and support for teachers*** in this moment in time when the profession is particularly challenging.
4. ***Collaboration*** is essential for this work and we see examples of that, like this meeting, but we continue to need more and bring in additional voices.

Urgent and Important

- ***Systems and infrastructure.*** We need to elevate science to the forefront and develop a shared vision across schools, districts and state level and different stakeholders.
- ***Time.*** We need to provide time for teachers and other stakeholders to engage in professional learning as a community to support these shifts. Teachers and leaders have been ***"re-noviced"*** and they need time for these shifts.
- ***Equity.*** We need to keep equity at the center to continue to push on what equitable science instruction looks like (e.g. not focused on pre-teaching scientific/academic language but rather hearing and supporting the brilliance that youth bring to the classroom)

Summarizing Thoughts

“But like in this, we were the ones who came up with it. So we were able to understand… We had similar ideas or different ideas. So we were able to come up with this one model that we could ALL understand. Because WE came up with it.”

- OpenSciEd Middle School Student