2017-18 ALN Event #1: Jim Pellegrino

10 a.m.—11 a.m. ALN Member discussion

Member-only session

1. *KDW introduced the goals and learning norms for the ALN*
2. *Jim Gullen engaged members in a dialogue around how members used ALN resources over the summer, re-introduced the vision of the ALN, then led a dialogue with Dr. Jim Pellegrino that set the stage for our Lunch and Learn.*

   Key takeaways:

   - ALN comprises many individuals with diverse roles and responsibilities
   - ALN members are all using the resources to enrich their own work and extend the learning among their members and constituencies
   - Michigan is unique in its collaborative relationship with the Michigan Department of Education, who supports the ALN financially and participates in the learning.

3. *The Next Generation Science Standards and Us: Conversation with ALN members*

   What is one thing that you (think you) know about the NGSS?

   - Complicated and new approach
     - Based on 5E Model- Engage, Explore, Explain, Elaborate, Evaluate
     - More inquiry-based, students demonstrate knowledge; Starts from a phenomenon or question
     - Far more interdisciplinary and comprehensive- 3 dimensions and Engineering components
   - Attempt to provide consistent expectation on student learning on national basis
   - Will require more training at all levels
     - Some teachers have difficulty separating assessment from instruction
     - NGSS is requiring big mind shift for adults; i.e. “used to learn about but now have to figure out”

   What is one questions you have about the NGSS?

   - Will there be an “official” roll-out?
   - What will be the training structure?
   - What partnerships currently exist?
   - How will we know implementation level/alignment of current curricula with new standards?
   - Does a document exist that identifies the difference between the Next Generation Standards and the Michigan Science Standards?
   - Do we have policy recommendations to work on more time in curriculum? (Currently don’t have much at elementary level)

What is your biggest concern, if you have one, about the NGSS?

- Materials and resources: Will we be able to acquire enough to support new forms of instruction, requiring demonstration and performance?
- Training and support: What retraining support will we get for teachers, administration, community, parents?
- Relationship to STEM: Confusion about undefined STEM. NGSS=STEM? STEM=NGSS? "M" is getting lost in this. "STEM" is popular now, but is there really the will and support for this?
- Instruction questions:
    - Standards are interdisciplinary but taught in silos. How is science implemented in general?
    - Are we really going to teach math, literacy, etc. through NGSS? Can't they have value separately too?
    - How manageable/practical are these standards in terms of quantity?
    - How to help educators understand what the standards mean for instruction and to teach those (teach differently)
    - How does science look as an experience in classroom in contrast to learning in ELA classroom?
    - Will science only be taught at 3 grade levels?
- Assessment questions:
    - How to create 2-D assessment from 3-D expectations?
    - Could the MAEIA work (arts) inform the 2-D/3-D conversation/conflict
    - Nature of state testing is not amenable to implementation
- Evaluation: how do we inform/train administrators to know what to look for?
- Politics:
    - We hope they stay! Michigan adopted the standards but not the framework
    - "National" negative narrative about "imposed from above"

11:15-1:30 Lunch & Learn

Measuring what Matters: Opportunities and Challenges in Assessing Science Proficiency

With Dr. Jim Pellegrino

Dr. Pellegrino turned his focus on three broad areas:

1. Defining Competence to Achieve Coherence in Science Education
2. NGSS and Instructionally Supportive Assessment
3. From NGSS Performance Expectations to Assessments Designed for Classroom Use

Defining Competence to Achieve Coherence in Science Education

Key ideas:

New definition of competence found in the NRC Science Framework to put more focus on the critical ideas of science developed intentionally over time.

Framework's Goals for Teaching and Learning: *Knowledge in use*

- Coherent instruction
- Seamless blending of practices
- Performance expectations around key scientific practices

Two major features of the NGSS

- Built on progressions in the sophistication of student understanding
- Include a new architecture with a focus on performance expectations that draw from the intersections of disciplinary core ideas, science and engineering practices, and cross-cutting concepts.

Framework & NGSS forms the basis for aligning curriculum, instruction, and assessment. The goal is to create a system where assessment supports instruction, rather than undermines it.

NGSS and Instructionally Supportive Assessment

Key ideas

Dr. Pellegrino served on the Committee on the Assessment of K-12 Science Proficiency, where he contributed to a guide to assessments. The guide, ***Developing Assessments for the Next Generation Science Standards*** (NRC), contains several key messges:

1. Assessment tasks should allow students to engage in science practices, which poses significant design challenge
2. Students will need multiple and varied assessment opportunities to demonstrate their proficiencies with the NGSS performance expectations.
3. A system of assessments will be required and should include classroom assessment, monitoring (large-scale) assessments, and indicators of opportunity to learn.
4. Implementation should be gradual, systematic, and carefully prioritized, **beginning with classroom assessment** and moving to monitoring assessment.
5. Professional development, adequate support for teachers, and innovative applications of technology will be critical.

Why focus on assessment in the classroom?

- Instruction that is aligned with the framework and NGSS will naturally provide many opportunities for teachers to observe and record evidence of students' learning.
- Student activities that reflect such learning include developing and refining models; generating, discussing, and analyzing data; engaging in both spoken and written explanations and argumentation; and reflecting on their own understanding.
- Such opportunities are the basis for the deployment of assessments of three-dimensional science learning.

From NGSS Performance Expectations to Assessments Designed for Classroom Use

Key ideas

How do we asses toward the performance expectations?

> Dr. Pelligrino described the NGSA Project, in which he is involved, to meet the challenge of creating assessments that integrate the three dimensions of the NGSS and help teachers assess students' progress toward achievement the performance expectations.

Project's overall goals:

1. Construct a comprehensive design model, using an evidence-centered design (ECD) approach, to guide the development of tasks aligned with the NGSS performance expectations
2. Develop and test technology-based assessment items and rubrics related to these performance expectations,
3. Develop guidelines and materials for teachers to use these assessments in the classroom for diagnostic and formative purposes.

   Visit the NGSA Online Portal at http://nextgenscienceassessment.org/ for more details

Assessment design as an evidence-centered design process

Dr. Pellegrino outlined in great detail (with examples) a six-step "grand design process" for designing assessments through domain analysis, domain modeling, and the creation of tasks and rubrics built to align to learning performances.

Summary

Some key takeaway points & implications for task design & alignment for state assessments from *Developing Assessments for the Next Generation Science Standards*

Performance Expectations

- Provide clear targets to be achieved ***by the end*** of instruction
- In classrooms, assessment tasks **should be integrated** with instruction and used formatively to help students build toward science proficiency – ***but how?***

Our(who is OUR) solution – Learning Performances

- Integrate aspects of all 3 dimensions of a given performance expectation
- Function in relation to other LPs to identify "what it takes" to make progress toward meeting a performance expectation (or set)
- Provides guidance to assessment designers for creating instructionally supportive tasks

Report's main messages

1. Assessment tasks should allow students to engage in science practices in the context of disciplinary core ideas and crosscutting concepts. This poses a significant design challenge.
2. Students will need multiple and varied assessment opportunities to demonstrate their proficiencies with the NGSS performance expectations.
3. Build a coherent system of assessments – three system components
   - **(a) classroom; (b) state level monitoring; (c) opportunity to learn**
4. Implementation should be gradual, systematic, and carefully prioritized, beginning with classroom assessment and moving to monitoring assessment.
5. Professional development, adequate support for teachers, and innovative applications of technology will be critical.

1:45-3:00 pm

Afternoon Dialogue Session

Table Discussion around three questions:

1. What was one good assessment practice that was discussed in the presentation?
2. What can we learn from assessing the NGSS that can be used in assessing other content?
3. Are there potential challenges if we try to use some of the assessment techniques from the presentation in other content areas?

Group discussion debrief

Participants self-selected into three groups:

1. Those who work to influence policy
2. Those who influence practice
3. Other

The groups were then asked to discuss three questions. The compiled answers from all three groups are listed below.

What is a key learning that you will take away from today?

- Processes and Implication influence others to think differently
- A lot of education about NGSS and assessing needs to happen with decision makers
- A collaborative approach required (MAEIA could serve as a model for how might this work)
- Ongoing process is needed to deepen the work (ELA/integration samples)
- Looking for evidence instead of simple answers
- RX: Focus on classroom first

What question to you still have about assessment after today's presentation?

- How do we lessen amount of assessment that is used for accountability?
- How do we achieve more autonomy and still meet necessary accountability demands?
- When at LEA can I hope to see NGSS implemented by my district teachers?
- How to shift teacher identity from teaching concepts to processes, practicing "scientist," or other "professional"
- How to get buy-in from multiple groups of stakeholders
- How can teachers be supported to make change

What action step will you take based on what you learned today?

- Start with a viable example that caused change
- Eliminate the blame: Can we identify one entity to lead change?
- Try to influence conflicting educational policy that creates barriers (e.g. state assessment of science 2x in K-12)
- Identify quality measures for teachers to use in education evaluation
- Look for/create video samples of what this looks like for students and teachers
- Develop a platform for the message beyond ALN (e.g. take to organizations' conferences)
- Collaboratively design- GELN/MAISA/SAT/Task force