

Math and Science Advisory Council Agenda  
March 6, 2014 10:00 PM – 12:00 PM Committee Meetings  
1:00PM-4:00PM General Meeting  
Southwest Indian Polytechnic Institute  
Albuquerque, NM

1. Call to Order

Malva called the meeting to order at 1:07.

2. Introduction of Members / guests (roll call)

Mr. Karl Agar II

Mr. Tomàs Atencio-  
Pacheco

Ms. Terri Nikole Baca

Dr. John Bellum

Ms. Selena Connealy

Ms. Patricia DiVasto

Ms. Karen Kinsman

Ms. Malva Knoll

Mr. Zachary Leonard

Dr. Nader Vadiee

Mr. Charles H. Walter

Dr. Alexei A. Pevtsov

Dr. Hy Tran

Absent: Ms. Phyllis Baca, Dr. Richard Sonnenfeld

NM PED: Lesley Galyas, Marcia Barton

Guests: Kim Johnson, Lisa Durkin, Ken Whiton, all from CESE

3. Approval of Agenda (Additions / Deletions)

Zach made a motion to approve the agenda with the correction of the wording of “STEM workshop” to “STEM Symposium.” Karen seconded the motion; motion was approved.

4. Approval of Minutes

Charlie made a motion to approve the minutes; John seconded the motion and the motion was approved.

5. PED Announcements (Lesley Galyas)

a. Legislative Session

Lesley reported on the STEM education bills that were considered at the 2014 NM Legislative Session. Both the House (HM19) and the Senate (SM 38) passed a memorial designating February 7-14 as STEM Education Week. The memorials are identical and have language urging the PED to consider adoption of NGSS and to set voluntary targets for improving STEM education. \$2 million for STEM education was passed in the general budget, with \$500,000 earmarked for STEM teacher professional development. A robotics program was funded, as well as \$2.5 million for CCSS teacher professional development.

b. STEM Symposium

The STEM Symposium is scheduled for June 6-7 in Albuquerque. There is space for 420 teachers to participate and receive a \$550 stipend. The NM Museum of Natural History and Science is hosting an open house for participants. Lesley is looking to business and industry to provide funding for lunch.

c. Other

PED is supporting 300 teachers to attend the Mid-School Math conference in March.

PED has hired a third party contractor to do a comparative analysis between NGSS and current NM State Standards. Lesley hopes this will be completed this school year so that teachers can review this work over the summer. The public phase of NGSS consideration will take place after the teacher review.

6. Guest Speaker CESE Kim Johnson

Kim Johnson made a presentation about the work of CESE.

7. MSAC Committee Reports

Each group made a presentation of the work that was accomplished at the committee meetings, see attached.

- a. Teacher Advocacy and PD Policy (Karl, Tomas, John, Richard, Karen, Zach, Phyllis)
- b. Strategic Planning (Pat, Hy, Alexei, Teri Nikole)
- c. NGSS Adoption and Implementation (Selena, Malva, Charles, Nader)

8. Old Business

9. New Business

- a. Discuss 2014 Legislative Report beginnings

Malva reminded each committee that their work will provide the basis for the 2014 Legislative Report. It was decided that MSAC would like to present the report to the PED Senior team sometime in September.

10. Schedule of Next Meeting

The date for the next meeting was not set; both June and July dates were discussed. Marcia will send out a Doodle poll to find the best dates.

11. Call to Adjourn

Selena made a motion to adjourn. Tomas seconded the motion and the meeting was adjourned at 4:05.

Respectfully submitted by Selena Connealy, MSAC Secretary.

Announcements:

Hy and Malva thanked Nader for arranging for MSAC to meet at SIPI. Hy thanked the APS Foundation for the food.

Karen announced that the Research Challenge is happening on March 21 at UNM and more judges are needed.

**MSAC Committee Meeting: Teacher Advocacy and PD Policy  
March 6, 2014**

**Karl Agar, Tomas Atencio-Pacheco, John Bellum, Richard Sonnenfeld, Karen Kinsman,  
Zach Leonard, Phyllis Baca**

**Group 1 – Promoting Teacher Professional and Professional Development Working Group**

**Recommendations that came out of our March 6<sup>th</sup> discussion**

**Recommendations to the PED for how to allocate the \$500,000 for professional development**

1. Use some of the \$\$ for planning process.
2. Incorporate developing teacher leaders as part of the planning objectives
3. Some pilot schools as a subset of Regional hub model with metrics collected.
4. Leverage state funds to apply for other grant sources

**We discussed Possible Elements of a Strategic Professional Development Plan**

- Fund strategic planning for PD that utilizes best practices. Who would be members?
- Pilot schools for PLCs with principals, collect data
- Fund online STEM resource site
- Fund pilot regional hub and resource center
- Fund pilot leadership institute
- Collaborate with existing NM PD providers
- Identify existing PD streams
- Involve pre-service teacher preparation programs
- How can teacher leaders be developed and incentivized?
- Collaborate with Informal Science Education and NM Afterschool Alliance

**Goals for Group 1 - Promoting Teacher Professionalism**

**Goal 1:** Listen to the voices of teachers and advocate on their behalf

**Actions:**

- Develop a survey instrument
- Survey math and science teachers at the 2014 STEM Symposium June 6-7
- Compile results
- Make recommendations to the PED based on teacher feedback

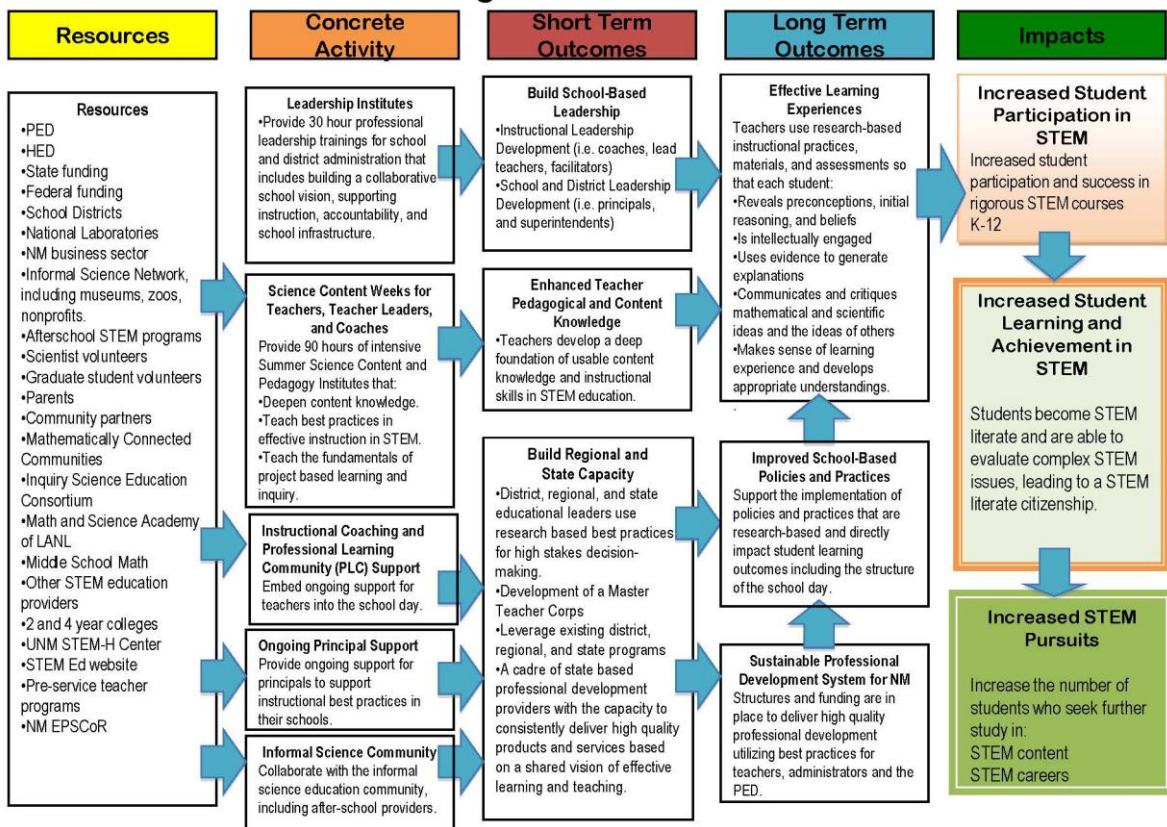
**Goal 2:** Build teacher and leadership capacity statewide

**Actions:**

- Finish development of the Theory of Change Model: *Policy Recommendations to Improve Student Learning Outcomes in New Mexico*
- Finish the accompanying white paper Titled: *Policy Recommendations to Improve Student Learning Outcomes in New Mexico*
- Set a date to present recommendations to the Secretary of Education
- Encourage collaborative PD efforts statewide

**Goal 3:** Guide the comprehensive professional development strategic planning direction to improve student learning outcomes in New Mexico.

### Theory of Change Model – Professional Development through a Regional Hub Model



**MSAC Committee Meeting: Committee on Research and Strategic Planning**  
**March 6, 2014**  
**Alexei Pevtsov, Patricia DiVasto, Hy Tran, Terri Nikole Baca**

**Strategy for 4-8<sup>th</sup> grade( improving STEM outcomes through systemic action)**

**STUDENT TESTING:** We need to determine whether we are measuring student outcomes in STEM correctly.

1. We should request a presentation from the statistical bureau at PED on how they are handling SBA transition to PARCC, how that is being used in teacher evaluation
2. Psychometrics (the science of doing test statistics) strategy recommendation: greater education to the public on the psychometrics of the testing.
3. Reasons for an assessment
  - i. Have you delivered content you need?
  - ii. Has the student understood what they need to learn or do we need to teach it differently?
4. Based on these, which are the “high consequence” tests, and how many of them do we really need?

**INSTRUCTIONAL STRATEGIES:** Instructional strategies should be examined to reflect current students’ learning needs.

1. Our students have psychological barriers, and we need to eliminate developed fear of math and science which often originates in students struggling (gradual psychological barrier)
2. Rigor of classes has dropped because of focus on hitting graduation requirements, focus on teaching to the test
3. Learning math in isolation for the sake of math without knowing how to apply it to other subjects, we need a more integrated/cross-disciplinary approach.

**CONTINUOUS IMPROVEMENT:** Develop a statewide, continuous improvement model to achieve better education outcomes.

1. Pull things that we already do, and make it work in a continuous improvement framework
2. Do within the PDSA (Plan. Do. Study. Act) framework

**Strategy for NGSS Plan**

**COMMON CORE/NGSS STRATEGY:** Identify where and how current Common Core structure already supports science; this will enable an easier transition with NGSS implementation. Use Common Core and NGSS emphasis on Career and College Readiness (CCR) to bring CCR to the forefront of student achievement in STEM.

1. Common Core math has an emphasis on statistics, data measuring and plotting which is directly related to science.
4. We see science through ELA, which is doing more nonfiction reading and can be used to support science.
5. Working more with citing evidence and focusing on complex text- both good for science

### **Strategy for Funding and Grant Opportunities**

WORK WITH PED TO SECURE APPROPRIATION FOR MSAC ACTIVITIES: How do we ensure some funding to sustain MSAC activities?

1. Administratively (Lesley, other PED staff?): Secretary authorizes funding for MSAC from PED general budget
2. Legislative Appropriation (whole group): work with legislature to secure an appropriation to PED specifically for MSAC

We need to Invite Secretary to MSAC meeting. Perhaps our next meeting should be at PED in Santa Fe to make it convenient for her. This would be a good time to deliver a proposal of MSAC activities that need funding.

**MSAC Committee Meeting: NGSS Adoption Implementation**  
**March 6, 2014**  
**Selena Connealy, Malva Knoll, Charles Walter, Nader Vadiie**

The New Mexico State Senate and House unanimously passed Memorials (SM 38, HM 19) which state:

BE IT FURTHER RESOLVED that the public education department be requested to develop a plan for consideration and possible adoption of the next-generation science standards and report to the legislature by fall 2014 its intentions regarding potential implementation as well as roll-out of the common core state standards in mathematics.

MSAC supports these Legislative Memorials.

**Key Messages about NGSS**

1. NGSS prepares *all* New Mexican students for STEM career and college readiness, for the economic well-being of New Mexico, and to be scientifically literate citizens by changing the way we teach and learn science to contribute to the democratic process.
2. Let's do it right! Let's take five years to provide the resources to build awareness, engage stakeholders, support teachers and administrators, provide professional development, adopt curricula, and invest in instructional materials
3. NGSS will require research-based, sustained professional development for teachers and administrators. Strong educational leadership is critical to successful implementation of the NGSS and integration of NGSS with the Common Core State Standards.
4. Through integration of the *Science and Engineering* practices of NGSS, teachers will build on the content already present in the New Mexico State Science Standards to give all students equal opportunities for STEM success.