



NEW MEXICO
Education Speaker Series

Connecting Challenges with Ideas & Strategies

– NOTES –

Session VII: Ambitious Instruction: Innovative Practices for Engaged Learning

December 13, 2018, La Fonda

This is the seventh of a nine-month lunch series bringing together education and business leaders from around the state to learn from national and local experts about promising and best practices in education in high-performing systems. Participants will engage with each other on possible education reform in New Mexico. The group is using the report titled *No Time to Lose: How to Build a World-Class Education System State by State* created by the National Conference of State Legislatures as a guide.

Speakers:

Keynote: *Jal Mehta*, Associate Professor at Harvard Graduate School of Education

NM Context: *Dr. Peter Skelton*, Associate Professor and Extension Specialist at New Mexico State University

Moderator: *Ahlum Scarola*, Head Learner at Mandela International Magnet School

Mehta:

Rigor and Joy: Building a System That Serves All Learners

Mehta and his colleague, Sarah Fine, spent 700 hours observing classrooms. In only 20%, they observed students involved in deeper learning—analyzing, evaluating, and creating—promoting student engagement; the best predictor of graduation. In fact, average student engagement in the US drops from 75% in the 5th grade to 32% in the 11th grade. These observations reflect our low investment in teachers and students, yielding poor performance and low public confidence. This, in turn, leads to greater regulation and calcified teacher unions resulting in fewer talented people attracted to teaching. The current focus in the US on standards, assessments, accountability, and grading has put its education systems on a downward spiral. Other countries such as Finland, Singapore, and Canada have shown that investment in teachers and students can generate an upward spiral of improved student performance and public confidence, creating greater latitude for teachers that attracts very talented people into the profession.

Mehta discussed three exceptions to the rule: One example is when they observed high school students that were involved in complex, real-life problems that produced rigorous and joyous learning of knowledge, including skills required to be productive. The activities ranged from designing a high school for 2050, developing an ethnic studies program, and extracurricular programs such as theater, debate, and robotics. Students were offered

choices and they worked with other students. The activities were interdisciplinary and had clear ties to the real world. Students were having fun.

Mehta then spoke about what we can do to make the above exceptions the rule in our classrooms, where students are engaged and learning deeply. Schools and districts are using the portrait of the graduate to involve community members to define the knowledge and skills they want their students to have. Working with teachers, standards and curriculum need to be streamlined and focused on those key skills and areas of knowledge; opening up time and space for teachers to be innovative and for students to delve deeper in analyzing, being creative, and solving meaningful problems. Barriers for people interested in teaching must be removed while building more robust programs for preparing, inducting, and supporting teachers. Examples introduced were one-year residencies and ongoing professional development that models the type of innovative practices, and engaged learning, we want teachers to use in their own classrooms. We need to unlearn the old approaches to education. It won't be easy, but it is critical in order to break the old downward spiral and create a new upward spiral for teaching and learning.

Skelton:

Cultivating New Education Models

Skelton described the Youth Agricultural Science Center program from New Mexico State University, focusing on the partnership he has with the City of Las Vegas schools in New Mexico. The program provides inquiry-based, experiential learning that cuts across the core curriculum; engaging students in real-world agriculture, water, and energy problems. Students develop reasoning abilities in the context of learning scientific skills and knowledge. The program engages researchers into the field with students and involves community members and food growers; building a pipeline of students with agricultural literacy and competency. Students are engaged in the culture and work of their communities producing food that is brought back to the schools.

There are currently 11 centers across the State with 730 students – 94% Hispanic, 77% free or reduced lunch, and 69% below grade-level performance. In a couple years, the program is expected to reach 1,100 students. Research findings shows that science skill development is a key predictor of overall student performance. Soon, the program will expand to middle and elementary schools. The bottom line is that when you hear students say that learning is fun, you know you're making progress. The program gives students a sense of purpose, place, community, and builds intergenerational bonds.

What New Mexico can do:

- Use the portrait of a graduate, which captures what you would like graduates to know and be able to do, as a visioning tool, work backwards, and align to the vision.
- Invest in teacher preparation, induction, and support, including one-year residencies for new teachers and ongoing, engaging professional development.
- Remove college-level testing barriers to students interested in becoming teachers, making the pool of applicants more inclusive.
- Work with teachers to adjust standards and curriculum to focus only on essential knowledge and skills aligned with the portrait of a graduate, enabling innovative teaching that promotes deeper learning and greater student engagement.
- Move to a diverse set of assessments that foster the knowledge and skills envisioned for students and support innovative teaching and engaged learning.

- Provide larger blocks of time for interdisciplinary and varied instruction that meets the needs of students across the school year.
- Encourage the development of flexible, interconnected space for learning in our schools.
- Learn from, and grow, innovative practices, such as the NMSU Youth Agricultural Science Centers that provide project-based and experiential learning that engage students.

Methodology tips:

- Do *not* start with accountability.
- Leverage cultural and linguistic diversity to build inclusive community-based educational programs.
- Measure impacts on student engagement across K to 12.
- Distill unlearning of the old system to small, manageable concrete steps through local innovation, then spread the improvements.
- Leverage and engage the resources of local communities to meet student needs.

“Only one in five classrooms we observed pursued deeper learning - analyzing, evaluating, creating - which promotes student engagement,” Mehta.

“Student engagement is the best predictor of graduation. It drops from 75% in 5th grade to 32% in 11th grade. We’re going the wrong way,” Mehta.

“NMSU has 11 youth agricultural science centers around the state with 730 students, 94% Hispanic and 77% eligible for free or reduced lunch,” Skelton.

“When students say that learning is fun you know you’re making progress. Our program gives students a sense of purpose, place, community and builds intergenerational bonds,” Skelton.



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Appendix: Detailed Notes

Jal Mehta, Associate Professor at Harvard Graduate School of Education

- Having kids makes you think about the skills you want for them, the type of person that they will become, and the adults with whom they will interact;
 - I'm a researcher and a teacher
 - The favorite part of my job is where I learn whether what I've promoted actually works;
 - I look at the interaction of systems and the classroom
- Outline of presentation
 - Consider the nature of the choice facing us & learn a framework
 - Briefly examine the problems with schools
 - Consider examples of successful practice
 - Consider what kinds of policy supports and other changes that would make the positive exception the rule
- Marc Tucker: *America's Choice: High Skills or Low Wages* (1990)
 - His work underpins the *No Time to Lose* report from the National Conference of State Legislators: take the high road or the low road
 - High skills (high road): Invest in teachers and students, stronger student skills, stronger workforce, higher tax base, more funds for schools, higher performance
 - Low wages (low road): Low investment, high accountability, weak student skills, weak economy, low tax base, low funds, low performance
- Systems thinking and system dynamics developed at MIT (e.g., Peter Senge's work) to model a complex interactive world
 - Balancing loops return back to same equilibrium
 - Reinforcing loops create upward or downward spirals
 - New loops can be used to break old loops
 - Think about a systems view of the NM education systems: What type of loops are there? What type of loops do we need to break?
- In the US, we are in a downward spiral arising from being not selective in our teacher preparation programs and do not provide teachers strong support and professional development → poor performance → loss of public confidence → increased regulations and calcified teacher unions → fewer talented people being attracted to teaching
- We want the upward spiral demonstrated in Finland (1 in 8 who want to get to become a teacher), Singapore, Canada – well respected and trained teachers lead to better performance and higher confidence in the education system → more latitude for teachers → more talented people attracted to teaching
- Conducted with Sarah Fine research into deeper learning research by spending 700 hrs. in classrooms sorting the observed instruction by Bloom's Revised Taxonomy
 - Only one in five were in the upper three categories (analyzing, evaluating, creating vs. remembering, understanding, applying) → leading to reduced student engagement (75% engaged in 5th grade down to 32% in 11th grade)
 - The best predictor of graduation is student engagement; we're going the wrong way
- Why focus on engagement?
 - Fred Newmann quotes from early 1990's about the importance of student engagement – students must be psychologically engaged in learning
 - Need investment by students to achieve deeper learning
- Showed two videos and three examples of rigor and joy

- Students engaged in real world, complex problems, such as competitive design of a high school in 2050 including cost estimates with final proposals to a team of outside architects who also act as mentors and coaches
- Develop the projects so that students would actually learn the concepts so they could apply them
- Using learning (math, English, design, teamwork) to solve problems
- The quality of the work went through the ceiling because the students cared and wanted to impress the architects
- Spent 6 weeks on the project at the end of the school year
- Applying the project-based learning was the most effective way to prepare for tests
- Architects' judgment counts for 40% of the final project; teacher has developed a rubric to evaluate the student projects
- Audience response to video
 - Teacher's ability to identify learning happening in so many ways in a team setting
 - Students owned the learning
 - Students had fresh ideas
 - Real world problems engaged the students and the challenge to present your work to others outside the classroom – opens up learning
 - Happy to see them enjoying talking to one another in the class room
 - Cognition is always situational; cognition is also connective; the ecology of independent learning
 - Did the teacher give the students any constraints that flow down from federal and state government? Jal was not sure
 - Authentic audience, design with constraints, expert feedback, integration across disciplines, building collaboration and presentation skills
- Video II (Example 2)
 - Ethnic studies program in Tucson turned around performance
 - Students prior to the program disliked school in a very raw way
 - Deci and Ryan work on fundamental human needs: competence, autonomy, relatedness
 - Scholars depict US schools as “subtractive schooling” (taking away what students bring to school, especially students of color)
 - Creating spaces where students can express full selves and identities will enable better work
 - Good teachers integrate notions of equity through everything they do
- Example 3
 - Research on deeper learning found that in contrast to core academic classrooms there were extracurricular spaces where students were expected to be creative, e.g., theater, debate, robotics
 - Interviewed students as to what they liked: purposeful arc toward public performance, choice, community/family, interdependent roles (as many roles as there were people), apprenticeship learning, whole game at junior level (analogy to sports, e.g., T-ball, or Broadway) – motivating
- Pernicious myth (some truth to it): basics before “deeper learning”
 - Reproduces inequities by race and class and yields more “Waiting for Godot”
 - Best teachers moved back and forth between an authentic task and needed skill building
 - Gave example of an English teacher in a high-poverty school: students read a Ta-Nehisi Coates NY Times article, “In Defense of a Loaded Word”: Day 1 - annotate and decipher, Day 2 - debate, examine the “form” of the article, and Day 3 - write an

- argument based on the essay and the use of form (Ta-Nehisi Coates did not use the standard 5 paragraph form) – teaching students to think
- Why don't we have more classrooms like this?
 - State/district/parental expectations, existing curriculum, (charters don't necessarily use their flexibility), inertia, lack of support for ambitious teaching coupled with weak teacher preparation and infrastructure, cultural conceptions of what it means to teach
 - What can we do?
 - Portrait of a graduate: visioning tool, what would you like your graduate to know and be able to do?; work backwards and align to the vision
 - Gave examples from Mississippi, Alabama, and Ohio
 - What policy levers exist to support this?
 - Don't start with accountability
 - Symmetry between teacher and student learning (much teacher professional development is poor and does not engage teachers!)
 - Residencies (at least one year)
 - More time for teacher induction and planning
 - Break loops of implicit bias
 - Communities and networks of practice, across schools
 - Academies for principals
 - Standards – critical place to make a difference
 - Key principle: less is more
 - 5 key topics and skills per grade/subject area– developed in concert with teachers and diverse representation from the community (British Columbia's power standards)
 - Aligned standards that govern teacher preparation
 - Curriculum aligned to standards
 - More depth, less breadth
 - Curriculum supports for young, less experienced teachers
 - More flexibility for older/more experienced teachers
 - Incorporate culturally relevant pedagogy
 - Assessments
 - Do not let the tail wag the dog: align with vision of teaching and learning
 - Many options (on demand performance tasks, interim and external assessments as in international baccalaureate programs), student portfolios, school inspectorates as in the UK
 - Time
 - Longer blocks, more interdisciplinary and varied across the year with the needs of learning
 - Build on assets
 - Rural schools have dense social capital
 - Farming and the environment
 - The arts, oral histories, documentaries
 - Ethnic and linguistic diversity huge asset – cross-cultural
 - Space
 - If we want learning to be dynamic, flexible, and interconnected, space needs to be dynamic, flexible and interconnected:
 - More community involvement and friendly

- Equalize support for out of school and summer time; extracurricular offerings, camps, offer credits for out of school learning time
- Linked to lower crime, higher grades, fewer teen pregnancies
- Contrasted 20th century theory of action with one for the 21st century because the industrial model failed
- 20th century theory of action:
 - If we set standards, create tests that measure them, and impose accountability for those who fail to improve, and grade schools on an A to F scales,
 - Then all schools will improve to meet the standard
 - The theory has clearly failed based on results from PISA, NAEP, teacher morale and turnover, student disengagement, with worse results in poor schools and districts
- 21st century theory of action:
 - If
 - In concert with our teachers, we think our standards to focus only on essential knowledge and skills,
 - And we build a culture and a set of structure that supports teacher learning and adaptation,
 - And we connect students experiences and aspirations to their formal schooling,
 - And we break down some of the silos between self and subject, subject and subject, subject and the world,
 - Then
 - Students will experience challenging, purposeful and meaningful educations,
 - Student truancy will go down, retention will go up, performance will go up,
 - Teachers will want to stay in such schools,
 - And our system will be a sustainable and growing one over the years.
- Will need to break down some of the silos
 - The hard part is unlearning past practice: changing mindsets and roles; less hierarchy; districts and state officials from control and compliance to empowering

Dr. Peter Skelton, Associate Professor and Extension Specialist at New Mexico State University

- Youth agricultural science center at NMSU
 - My background is not traditional – sustainability science in agriculture
 - Partnership between Las Vegas City Schools and NMSU
- Story about day we were going out to harvest potatoes
 - It was okay for the students to get their hands dirty (teacher was worried the students didn't have gloves)
- Two principal audiences: students and food growers – community-based program
 - Have 11 science centers around the State
 - Worked to get researchers out to the field and to help teach youth
- Why have a school-based agricultural science center?
 - New science delivery models; agricultural literacy, meeting the needs of underserved communities and minority populations; engaging students in science and math
- Guide programs by agriculture, energy, and water → agriscience, use their greenhouse, and integrate across the core curriculum → cultural relevance, e.g., acequias
- Link agriscience with literacy and numeracy

- 730 students currently in the program (should grow to 1100 in a couple years) – 94% Hispanic, 77% free or reduced lunch, 69% below grade-level performance
- Conceptual framework
 - Science comprehension: reasoning abilities, science skills, science knowledge: inquiry-based and experiential learning
- Variety of programs tie to drought, bark beetles, and other real work issues in NM
- Do experiments in the greenhouse to allow year-round work
- Engage with local food systems and growers
- Do a lot of farm to school – plant, insect identification, food safety, get food they harvest into the schools
- Also do traditional extension programs – 4-H, county extension agents, summer enrichment, field trips; preservice teaching opportunities
- LANL Foundation funding helped me start my programs years ago
- Networks – NMSU, partnerships, state agencies, non-profits, other HED institutions, volunteers
- Enhance student’s production-based agricultural competency
- Key research findings
 - Science skill development key predictor of student performance
 - Expanding to K-12 beyond just high school
- When can get students to say that learning is fun you know you’re making progress: gives students sense of purpose, place, community and builds intergenerational bonds

Discussion

- Ahlum - What did you used to think good teaching was? What do you think good teaching is now? (after hearing the presentations)
- Jenny – we know what good teaching looks like; how do we shift the society to have interactive classrooms
 - Jal – you need to distill the necessary unlearning to smaller steps, e.g., the design of a new school when a you have a bond election; he had a year of meetings on redesigning a new school; when it’s concrete it’s more manageable; our system is open to local innovation which can spread; identify a core problem and a solution and do it
- Frustrated by social amnesia when we had project-based learning in 1990’s, we forget, and then we have relearn
- In 1897, John Dewey outlined the student needs to be as socially situated
- Interests from text books and others drive us to forget what works
 - Jal – your observation is correct; mentioned study in 1893 about active-learning by J M Rice; debate and theater are very old traditions (thousands of years); economic imperatives are different from 1960’s for academic skills; the essence of learning is not that different but the needs for the economy are
- You talked about the downward spiral we’re in with teaching profession and student performance, how do you break that from systems perspective?
 - Jal – standards on teacher licensure (don’t make the bar at age 20 or 21 – discriminatory) – cast the net broadly, welcome more, give support, move toward tenured teachers with National Board certifications – more support and accountability
 - In the short run deal with the shortages and build stronger pathways
- School also has to be good place for teachers and for students – what are the supports and barriers for engaged learning?

- Jal – agree; in NYC and other places built principal academies – help them be instructional leaders; there are fewer principals than teachers, so easier to make changes – create supportive professional learning communities and have leadership coaches
- Please comment of the nature of the teacher profession – it’s history
 - Jal – over 100 years ago in the US it was decided that teaching was simple work that could be done by women before they became married and pregnant; then train men to be administrators; Harvard did this – we focused on training male administrators; teaching is much more complicated; over time as we strengthen teachers we can thin out the number of administrators