



NEW MEXICO  
**Education Speaker Series**

*Connecting Challenges with Ideas & Strategies*

– NOTES –

## **Session III: Early Childhood: The Science Behind and Importance of Early Brain Development**

August 9, 2018, Thornburg Campus

This is the first 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.

### **Opening:**

Allan Oliver, Thornburg Foundation. Allan framed his opening remarks around the context of the recent Yazzie/Martinez New Mexico state lawsuit.

### **Moderating:**

Jennifer Duran-Sallee. Before introducing keynote speaker, Amelia Bachleda, Jennifer spoke about the importance of brain science in relationship to our current policy opportunity in New Mexico.

### **National expert:**

Amelia Bachleda, University of Washington, Institute for Learning & Brain Sciences, which studies early childhood brain development and education. Amelia works as a mediator between researchers and those who develop programs that implement the work.

**Childhood experiences impact us as adults.** Amelia shared a game using projected sounds from her computer. Attendees were asked to identify both same and dissimilar sounds from different languages to illustrate that babies hear all sounds. Amelia then went on to explain that babies refine what they hear based on the language they grow up with. As adults, we can’t discriminate among sounds in a language we don’t know, but babies can. This demonstrated the genius of children. Babies’ brains are extremely good at learning new languages and hard for adults.

**Brain growth happens at a very early age and develops rapidly.** By the age of five, children's brains are about 92% of their adult size, but that doesn't mean full development. We are born with all of the neurons we need, but the connections need to be built. Over the first, three years there are about one million connections per second. The numbers and strengths of connections are shaped by experiences.

**Brains develop by building and "pruning" connections.** During this section of Bachleda's talk, attendees played a game sorting cards that depicted brain development, in their proper order, from newborn through age 6. The cards revealed development and pruning of connections. Children's brains are designed to learn from everything all of the time. They then prune away connections that are not used or needed. The result is a thriving brain, a result of biology and experience—both nature and nurture. The brain forms connections that allow children to survive and thrive in their environment.

**Experience shapes brain development, including language development.** Bachleda presented a graph showing differences between English and Japanese language babies in distinguishing between "ra" and "la" (distinct in English, but not in Japanese). She illustrated with studies using brain imaging. She also pointed out the importance of speaking to very young children as their brains get ready to produce sounds as they are listening to them. Brains of babies who are learning two languages develop different connections than monolingual babies, including in the prefrontal cortex that governs executive functioning skills such as: paying attention; organizing, planning and prioritizing; starting tasks and staying focused to completion; understanding different points of view; regulating emotions; and self-monitoring. Bilingual babies have more activities in the prefrontal cortex, and this may strengthen executive function. An exercise to demonstrate executive functioning was presented. It consisted of touching body parts in response to incorrect directions (i.e., touch head when told to touch toes).

**Social context, relationships, and interactions support brain development.** The brain is primed to learn different skills at different times through to young adulthood. Humans are born wanting to interact and social context is very powerful. Most children imitate facial expressions within a few hours of birth. Touch is an early form of communicating, interacting, and babies' brains are organizing to receive and respond to touch, both being touched and touching others. In addition, children watch and learn all of the time from the interactions of adults.

**Incorporating what we know into an instructional environment.** Bachleda presented a study, conducted in Spain, which took place over 18 weeks with children from seven to 33 months old. In the study, tutors developed a one-hour-a-day English immersion course. They utilized proven techniques that research shows support brain development—"Parentese" (a combination of baby and adult talk), play-based instruction, taking turns—and compared this group with a group without intervention. Those in the treatment group showed a five-times-greater increase in English vocalizations, across all socio-economic groups.

**Local expert:**

Anna Marie Garcia, Early Childhood Director, LANL Foundation. Anna Marie spoke about rapid infant learning occurring in the context of social interactions. A school-ready child is one that has been nurtured and welcomed into a family, culture, and community.

The early childhood system in New Mexico is full of treasures, legislators, and agencies, educators and tribal leaders and funders who care deeply and provide support and resources. She emphasized that New Mexico children are everybody's children. She then told a story about her experience of losing her child in a store and being helped and supported by a group of other shoppers.

Anna Marie talked about the diversity of New Mexico in myriad ways—science, farming, artists, languages, and cultures. People raise concerns about standardized and narrow statistics used to measure success and intelligence in New Mexico.

Children are born ready to learn. Do we have ready parents, communities, and schools? She fears not. She asked the attendees to imagine what a thriving child looks like. Then imagine a thriving family, a thriving community, a thriving state. She wondered aloud if we are giving children and parents the skills they need to succeed. How to we begin? She assured everyone that we have the treasures to begin the process of understanding the problems we face.

Her overall message was: don't give up on our state.

**Questions and Discussion:**

**What advice do you have for working with policymakers and others who make policy about learning and assessment to make them developmentally appropriate?** Amelia answered that many voices are needed at the table with a representation of a variety of different communities.

**Is there developmentally appropriate training for assessors?** Amelia responded that Washington State does multiple assessments of all kindergartners. It is important for us to understand why we are testing and for each particular test. Also, use stories as well as quantitative assessments.

**How can we as a state help parents develop knowledge of early brain development and use that knowledge to support their children?** Amelia stressed the importance of making it accessible and meaningful to families. When marketing to families, help parents learn about the role of toxic stress and Adverse Childhood Experiences (ACE). Also, help heal parents. The information on brain development is not complicated and it's easy to understand.

**How to get public policy based on the research?** Amelia gave an example of giving a tour of her Washington institute to the executive of King County. He had an "aha" moment and was able to develop a policy with funding to devoted early learning. However, she cautioned that policies need to be tailored to particular counties.

**What does the brain look like for children with high ACEs, and how can we support them?** One long-term study looking at Romanian orphanages deprived of social interaction shows some brain differences. Brains are designed to thrive and survive in that dangerous environment, but that is not what they need to do well in schools. We need to help them

grow and rewire their brains so that they can thrive and survive in school, rather than decide that they can't.

**Bilingual education. If brain research says it's so go, why don't we do it?** Amelia questioned if some places are moving in that direction. She emphasized "the earlier the better," to diminish confusion or language delay. Her studies have discovered that this is true even for children who have developmental delays. To accomplish this, there is a need for highly skilled teachers and models to develop bilingually. Anna Marie spoke about the LANL Foundation's work with the eight northern Pueblos. Almost all have emphasized the importance of learning their native language, with many children teaching the elders who've forgotten through lack of use.

**Are we doing enough in the first few years?** Anna Marie responded with an emphatic, "no." At this time, only six percent of families in Northern New Mexico are in home visiting programs. There is a need for creative, innovative ways to teach about home visiting that negate the incorrect view that it is too intrusive.

**Why doesn't practice follow research?** Adults need to learn, and that's really difficult. Coaching and mentoring for educators is needed.



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