VL2 New Lens

NSF Science of Learning Center
Visual Language and Visual Learning, VL2
Gallaudet University

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PEN = NSF/VL2 & Gallaudet’s new PhD in Educational Neuroscience degree program
What the Science Reveals

• Diversity is a Biological Imperative
• Differences can equal processing advantages that all individuals could have had, but were lost in development without specific experience
Neuroplasticity of Learning

Scientific Breakthroughs

Breakthrough Translation

First Interactive Bilingual English-ASL Literacy Apps
Timing, Visual Plasticity, & Beliefs

Science of Learning

Children with early exposure to a visual language show processing *advantages*... visual attention, eye-tracking, vocabulary, reading, spatial processing, and social self-regulation *not seen in hearing children*

Parents & Grandparents

Foster hearing children's visual attention and visual learning

Policymakers

Create policy that makes visual language available to deaf visual learners in early life

Controversies

Low-level visual processing / spatial processing as being relatively stable and not vulnerable to critical periods... (Also relevance to impact of "screen time")

Back to Research

The creation of NEW Learning Tools based on the research...
Problem: Babies with Minimal Language input
6-12 months: Rhythmic contrasts – Phonetic
(6-12 months Sensitive Period
Innovative Solutions: Robot Avatar+Thermal
(i) “Ready to Learn” (Language interactions only when child is emotionally engaged and attentive)
(ii) Socially interactive & Socially Contingent conversations with Babies
Timing, Bilingualism, & Beliefs

Science of Learning

Early bilingual language exposure affords Language & Reading advantages to each language, over age-matched monolingual children.

Language advantages are life enduring.

Advantages are to All Bilinguals

ASL + Spoken

Parents, Grandparents

Foster EARLY bilingual education

Policy

Create policy that makes visual language available to deaf visual learners in early life, in addition to spoken language.

Parents must be perfect language users

Don’t expose a child to 2 languages too early

Let one language get established first, then introduce the other

Hold back

Bilingualism harms Language Delay Language Confusion

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Science of Learning

All human brains create an abstract level of language organization, “Phonology.” Even in Visual Languages without sound

Hearing - Early exposure to language patterns
Deaf - Early exposure to language patterns

Parents, Grandparents
Rhyming, Read, Segment, Sign, Language Play, Laugh & Love!

Policymakers
• foster creation of innovative learning tools
• create policy that educates public, medical profession
For published research articles see Laura-Ann Petitto’s Website at Petitto.net

Brain & Language Laboratory for Neuroimaging

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