

## **My Story:**

December 27, 1989, my then 12yr. old son, sustained a traumatic brain injury. Riding his bike, he collided with a van in an intersection on a little traveled street in Dallas. The impact sent him reeling head first into the pavement. Scooped up by first responders and rushed to the local hospital, he remained on life support for days and in a coma for a month. He had lost all functionality, including eating, speaking, moving, in essence the ability to live on his own or even the ability to communicate. In time, he was moved to a specialized pediatric care hospital staffed by the most amazing team of pediatric neuro-physicians and therapists imaginable.

My son is bilingual. English is his first language and Spanish is his second. One day, in a follow-up therapy session with two therapeutic aides, who only spoke Spanish, my son, in a post amnesic state, heard them speaking and flickered his eyes. They caught the movement and began full interactive treatment in Spanish which led to his recovery in English. He is now a grown man, 95% fully rehabilitated, works full time and is happily married.

In addition, my other four children are bilingual, however, Spanish is their first language and English which was acquired in school, is their second, as Spanish was the only language spoken at home.

I share this personal story with you, advocates, educators, parents, researchers, students and anyone involved in trying to understand the profound cognitive benefits of teaching and learning multiple languages, because learning languages goes beyond economics or politics, job promotion or even securing a job; *it changes lives forever.*

Since that experience, I, with many others, have pounded the pavement, working with researchers, linguists, teachers, administrators, parents and finally education neuroscientists to unravel the neural complexities and challenges of learning in general and of acquiring multiple languages specifically. Searching for the answer to the question, **how does the brain learn, acquire knowledge, process information, comprehend and think?**

Here is what we have discovered.

## **IT's ALL ABOUT LANGUAGE- THE GREAT EQUALIZER!**

### **EDUCATION NEUROSCIENCE: BUILDING MINDS AND CHANGING LIVES:**

Since 2005, there has been an explosion of scientific research specific to the teaching and learning of English and Dual Language Learners (EL's and DLL's). We no longer have to guess which instructional approach provides a solid foundation for the academic success of ELs and DLLs, pre-birth to adults. Researchers worldwide responded to the call to provide evidence-based instruction that works for diverse language learners. Joining this effort is a new team of experts, the education neuroscientists, who focused their research, using brain imaging or fMRI's, to determine how the brain learns,

processes information and thinks! In 2008, the new field of Education Neuroscience emerged, based on empirical findings related to how acquiring two or more languages increases reading achievement, expands cognitive capacity and enhances executive function. In fact, bilingual neuroscientists, reported, that individuals learning to read in more than one language attain higher academic success, than monolingual language learners. (1)

Recent education-neurologist discoveries are revealing, eye-opening, and impactful. What we often thought helpful, useful and 'best practice in language, dual language and literacy development has been cast aside and a new approach to educating language learners, as well as all students, is on the horizon.

Currently, the Education Neuroscience Foundation (ENF), working with neuroscientists, teachers, parents and students, is developing an instructional way forward that all educators can use in any educational setting. Empirical brain research informs our effort and provides a pathway for all learners to have equal access to equal educational opportunity and IT'S ALL ABOUT LANGUAGE-THE GREAT EQUALIZER!

### **PURPOSE:**

Over the next several months, in a series of upcoming articles, ENF will embark on a journey, with you, to reimagine and reinvent education. Our goal is to share current education neuroscience findings and instructional strategies proven to work for all learners, pre-birth to adult, in any setting.

The focus is on findings and strategies developed from the following seven ed-neuro categories: *Brain Architecture, Language, Culture, Social/Emotional Learning, Environment and Experiences.*

We will not cover all the information available nor the plethora of strategies we have developed. However, we hope the information shared throughout the articles, stimulates discussion, challenges our thinking and motivates us to begin to 'Teach the Way the Brain Learns'!

### Reference:

(1) Age of first bilingual language exposure as a new window into bilingual reading development. Kovelman I, Baker SA, Petitto LA *Biling (Camb Engl)*. 2008 Jul 1; 11(2):203-223.

*Where it all began:*



Leos Family, 1991



Leos Family, 2017