

CLD CORNER—English Language Learners and Children from Poverty: Facilitating Change Using Brain-Based Learning Strategies and Tools

By: CLD Committee

*The CLD Corner was created in an effort to provide information and respond to questions on cultural and linguistic diversity. Questions are answered by members of the Texas Speech-Language-Hearing Association (TSHA) Cultural and Linguistic Diversity (CLD) Committee. Members for the 2015-2016 year include **Raúl Prezas**, PhD, CCC-SLP (co-chair); **Brittney Goodman Pettis**, MS, CCC-SLP (co-chair); **Amanda Ahmed**, MA, CCC-SLP; **Mary Bauman**, MS, CCC-SLP; **Phuong Lien Palafox**, MS, CCC-SLP; **Alisa Baron**, MA, CCC-SLP; **Judy Martinez Villarreal**, MS, CCC-SLP; **Mary Bauman**, MS, CCC-SLP; and **Ryann Akolkar**, BA, student Representative. Submit your questions to TSHA_CLD@gmail.com and look for responses from the CLD Committee on TSHA's website and in the Communicologist.*

Texas is home to a diverse and dynamic group of children. According to the Center for Public Policy Priorities (CPPP), non-Hispanic white children have not been the majority in Texas since 2002. At this time, one out of every third child in Texas lives with a parent born outside of the U.S. (CPPP, n.d.), and a language other than English is spoken in 34.2 percent of homes in Texas (ACS, 2010). As speech-language pathologists (SLPs) and audiologists practicing in Texas, we are faced with the tough but rewarding challenge of meeting the therapeutic needs of children and adults from culturally and linguistically diverse backgrounds. Another factor that has a direct relationship to communication skills of children in the U.S. is poverty, which also affects 25 percent of children in Texas (KidsCount, 2014) and disproportionately affects children from minority ethnic groups (CLD Committee, 2013). Given the variables that could be affecting learning for culturally and linguistically diverse children with hearing, speech, or language impairments, it is important to use all the strategies and tools in our arsenal to create the experiences and interventions that help clients meet their goals. As awareness of the interconnected nature of the brain and body working in concert increases and more research is published to show that movement can have a positive impact on the brain's ability to learn new information, incorporating physical movement into therapy sessions may be a critical strategy for the clinician to use in order to facilitate permanent brain changes to improve communication skills. Jensen (2013) describes that in the same way that exercise shapes up the muscles, heart, lungs, and bones, it also strengthens the basal ganglia, cerebellum, and corpus callosum—all critical areas of the brain. We know exercise fuels the brain with oxygen, but it also feeds it neurotrophins (high-nutrient chemical “packages”) to increase the number of connections between neurons. Most astonishingly, exercise is known to increase the baseline of new neuron growth.

One effective way to maximize our time with our clients and students is to utilize brain-based teaching strategies. These strategies, derived from research in the field of neuroscience conducted in the 1980s, are designed to deliberately engage the brain through teaching and creating experiences. We know that the traditional “teacher speaking, learners listening” lecture-type approach yields the lowest rate of retention. In fact, on average only 5 to 10 percent of new information was recalled 24 hours after using this approach (Jensen, 2013). The brain's capability to learn and make changes, or neuroplasticity, creates a positive prognosis for therapy services to support positive changes for our clients and students. Regardless of background experiences, influences of second language needs, and personality, all individuals are capable of learning. We acknowledge that all brains are unique; however, all brains have natural responses to certain events. Why is this so important to clinicians and service providers? We want to facilitate better communication for our clients and create lasting change during our therapy sessions. The strategies of brain-based learning, while effective for all children, are especially beneficial for children from culturally diverse backgrounds (Lombardi, 2008) and children from poverty (Jensen, 2013) who

demonstrate communication impairments. This article will describe how to use these brain-based learning strategies and methods in therapy sessions, provide practical ideas to help second language learners recall new information, and also provide some anecdotal information from clinicians on how this approach is affecting their clients.

By acknowledging that the purpose of the brain is to serve three functions (in order of importance: ensure the individual's survival, foster emotional needs, and allow cognitive learning), we also can admit that this brain hierarchy has a profound impact on the therapeutic process. After the primary purpose of keeping us alive, the brain takes care of our emotional needs, and then the individual's brain can engage in the cognitive tasks that result in learning new information. As speech-language pathologists, our role is to support the communicative needs of our students and clients. Before we can address the goals and objectives set forth by our evaluations, we need to make sure our clients and students feel safe and have their basic needs met. It is well established that persistent stress and fear impede learning and can cause changes in the architecture of the brains of children who are frequently exposed to situations of chronic stress (NSCDC, 2010). When the amygdala is activated in the brain due to fear, the pre-frontal lobe, a part of the brain dedicated to language, does not function as well. Creating an empathic-friendly environment that utilizes positive regard during speech and language sessions increases learning. The brain is a highly social organ. This correlates that the relationship you have with your client will have an impact on treatment. Supportive relationships stimulate affirmative emotions and, as a result, increase brain neuroplasticity. Taking the time to build rapport with those you support is key for the success of your therapy interventions.

Engaged brains are focused and energized. Pairing physical activity with new information is one way to boost the brain's focus and encode new information (Jensen, 2013). Physical activity supports increased levels of glucose and vital neurotransmitters such as serotonin, norepinephrine, and dopamine. The outcomes of these chemical changes impact cognitive learning and processing. Jensen (2005) described that the brain's center for movement, the cerebellum, is directly linked to the inner ear's semicircular canals, and the vestibular nuclei are an information-gathering and feedback source for movements. Impulses travel through nerve tracts back and forth from the cerebellum to the rest of the brain, including the visual system and the sensory cortex. The vestibular nuclei are closely modulated by the cerebellum and also activate the reticular activating system, near the top of the brain stem. This area is critical to our attentional system, because it regulates incoming sensory data. This interaction between the areas of the brain helps us keep our balance, turn thoughts into actions, and coordinate movements. Additionally, the relationships between movement and the visual system, movement and the language systems (Kim, Ugirbil, & Strick, 1994), movement and memory (Desmond, Gabrielli, Wagner, Ginier, & Glover, 1997), and movement and attention all suggest that there is a relationship with the cerebellum during mental processes such as predicting, sequencing, ordering, timing, and practicing or rehearsing a task before carrying it out (Jensen, 2005). Activating the related structures of the brain during therapy sessions helps encode learning and facilitates retention.

Implementing a brain-based learning approach in speech therapy sessions includes the following:

1. **Physically moving more.** Incorporating movement into therapy sessions can be easily done by employing gestures often. It is known that learning and memory increase measurable when gestures are involved (Cook et al., 2010; Stevanoni & Salmon, 2005), and the use of gestures has been shown to increase as vocabulary improves (Capone, 2007). Voluntary gross motor activities are the most conducive to learning.
2. **Engaging emotionally.** Paying attention to emotional states and facilitating positive social relationships are crucial to learning and brain change. Social conditions such as expected school behaviors and experiences become encoded through the sense of reward, acceptance, pain, pleasure, coherence, affinity, and stress. Targeted, planned, diverse social groups can help strengthen relationships and create pro-social conditions. By thinking about how the children in therapy groups are responding to each other and shaping these

experiences in a positive way, the clinician can set up situations in which emotional responses are supported and social ties are strengthened.

3. **Making learning personal.** When the clinician can make connections to the client's personal experiences, this helps to facilitate new learning. Also, by understanding the child's background and current levels of performance, the clinician is able to make connections to previous learning. It is valuable to create experiences that are memorable and help the student to vividly recall the concept that was being targeted. Using all five senses, adapting materials to the child's interests, using theme-based units, and participating in role-play activities are memorable ways to help connect what is taught in the speech room into their actual lives.
4. **Using more visual supports.** The human brain benefits from concrete representation of the content we are continuously processing. Visuals draw attention to important details and help organize the information that the brain is processing. Effective use of visual information can benefit students and clients in three important ways. It assists with analyzing and organizing information, creates connections to new knowledge, and allows the comparison of large amounts of information in order to think critically. Graphic organizers, use of gestures, and story maps are effective tools that can be used to provide visual support.
5. **Including music and rhythm activities.** Utilize music and chanting often to help recall information and provide a structure for movement. The brain pays better attention following an emotional response, and music is an effective conduit for connecting to our emotional selves. Music maximizes learning by serving as a carrier for content in a positive emotional way. For example, jazz chants, short phrases, and sentences that are set to music and rhythm can be an effective tool for English language learners in school environments. Flocabulary (www.flocabulary.com) is one example of a web-based learning program that uses educational hip-hop music to engage students. Music can also be used to energize or calm the brain to prepare for ideal learning.

Strategies for Brain-Engagement

Before Interventions

- Review previous session.
- Explicitly talk about the client's or student's goals at every session. "*You work* (introduce a gesture such as clapping) [clap, clap], *you work* [clap, clap], *you work on telling stories!*"
- Check in with how the student is feeling.
- Tap into the child's or adult's prior knowledge regarding the day's theme or speech and language objective.
- Incorporate the child's interests.

During Interventions

- Incorporate movement
- Incorporate music
- Jazz chants, educational rap
- Utilize positive environment (to decrease stressors)
- Create visual organizers

After Interventions

- Review day's activities
- Foreshadow next session

Therapist's Notes on Results Seen Using These Strategies

When I began implementing brain-based learning in speech, I saw such a difference in carryover of language skills from session to session with my hearing-impaired students. Almost all of my students go home every day to families who do not sign. So, depending on their degree of hearing and their access to amplification at home, the majority of my students go home and communicate very little with their parents or siblings. Needless to say, their vocabulary and receptive/expressive language skills are very impacted. I've spent the year trying different strategies. I have a homemade hopscotch board taped to my floor that we almost always use at the end of the session, and we use it in a variety of ways, but they're always required to practice the skill targeted in therapy. For example, my third graders have been working on vocabulary so they toss the stone and answer whichever question it lands on before they jump. It might be using it in a sentence or giving the definition or clapping out syllables, but regardless of the task, they are eager to work so they can play. With my 3- and 4-year-olds, if we're working on vocabulary and making requests, we change our signs to match adjectives so we sign "little" with very small movements and a change in suprasegmentals like pitch or duration. We always combine sign language, verbal speech, and visuals, but without brain-based strategies, it takes more repetitions and more exposure for concepts to stick. My students love making up songs, playing toss while we review the day's session, and especially when they get to jump for answer choices. Even the ones who are profoundly Deaf and don't have working cochlear implants will dance and sign along with us.

-Emily Lambert, MS, CCC-SLP, Britain Elementary, Irving ISD, Irving Regional Day School Program for the Deaf

It's 9:28 a.m., and I am quickly walking toward the first grade hallway to pick up my four students for my next therapy group. I have one student working on his initial /r/ sound, two students working on answering questions and story retell, and my last student is a child who stutters. The students line up, and we walk down the hall together. "Okay, friends, why do you come to speech again?" Quickly, one child raises her hand. I nod, and she starts to rhythmically rap her goals: "I-work (clap, clap), I-work (clap, clap). I-work-on-tell-ing-stor-ies!" As she happily states her speech and language goals, her peers clap in beat to her chant. The other three students tell me their goals, and we arrive in the classroom. We sit down, and I pull out my phone and begin playing hip-hop beats. All four pairs of hands start to move to the motivating beat, heads start to move up and down and side to side, and shoulders begin to shimmy. On the designated beat, all four students start the story grammar rap, "C-C-C-Char-ac-ters-are-the-peo-ple-in-a-stor-y-in-a-stor-yyy!" The most beautiful part is that just two sessions ago, these students did not know their goals, and they did not know the parts of a story. By adding movement, music, and continual connections to their experiences, I am able to get the most out of my speech therapy. The best part for me? I get to chart their awesome progress, and my students are having a blast while working on their goals. It's a win-win for sure."

-Phuong Lien Palafox, MS, CCC-SLP, Bilingualistics

Currently, I work for a charter school targeting kids in K-12. I have been using the "rapping" technique for a few months now, and I have noticed a huge difference in my scholars' participation and confidence during therapy. Generally, the younger kiddos respond better to the rapping and singing, but my cognitively lower kids in secondary benefit from these as well. We use the "I work, I work, I work on my (targeted goal)" or whatever they are working on to start our session. This helps us begin therapy with a clear focus as to what they should be working on. Learning these songs has so many benefits. First, they will remember what they worked on in therapy that day and will eventually carry it over into all settings. Second, they will be singing these raps during all hours of the day, so you know their parents, siblings, and other students are listening and will be asking what they are all about! We have discovered a new way of learning! The key to this technique is to be creative and to not be afraid of being silly. Our kiddos love to see us laugh and smile, and it makes therapy fun and easy!

-Alden Mileger, B.S., SLP-A, Uplift Education

Resources

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