Neuroplasticity Principles in Aphasia Therapy

Neuroplasticity is how the ***brain changes, or adapts,*** as the result of an experience. Aphasia therapy promotes neuroplasticity and allows the brain to rewire and adapt to an injury by rebuilding neural connections. Kleim and Jones (2008) have outlined 10 Principles of Neuroplasticity that help to drive the brain to change. You can read about these 10 principles here (Neuroplasticity Principles). The information below discusses how a Speech Language Pathologist (SLP) can specifically ***use these principles to drive treatment planning and recommendations.***

USE IT AND IMPROVE IT

Pursue **self-driven therapy**...in other words, incorporate ways to ***make daily tasks therapeutic.***

Here are some of our suggestions:

- When you're making a cup of coffee or cooking dinner, or even watching your loved one cook dinner, try to talk about what you or the other person is doing. Describe the steps and use the vocabulary. Even try reading the nutritional information or ingredients on the items you're using in the kitchen.
- Go around the room and pick 10 items. Generate a verb for each item you chose.
- Pull up a picture in your camera roll and create 3-4 sentences describing what is happening, what the person is doing, what they're feeling, where it's taking place, etc.
- Hold yourself accountable and make sure you have at least 3 conversations with 3 different people during the day, whether it's on the phone, in person, or via a video conferencing chat.

SPECIFICITY

Address ***multiple modalities*** using the ***same task.*** For example, if we're implementing a task to improve word-finding capabilities, such as Semantic Feature Analysis (SFA), we would typically have the patient **VERBALLY** generate features (i.e. category, function, location etc.) related to the targeted item. Try having them **WRITE** the features instead, even if you need to provide them with orthographic (letter) cues or have them copy previously generated items if the written modality is particularly challenging for your patient. The task can also be implemented in reverse, which would target ***auditory processing*** in addition to lexical retrieval. For example, provide the patient with the features (i.e. fruit, yellow, monkey's eat them) and ask them to retrieve the targeted item (i.e. banana).

Try to make the task implemented in a therapy session ***similar to the functional, real-life activity*** you're targeting. For example, if you're trying to improve their ability to have a conversation on the telephone, have them role-play with you or a student, or someone else in the clinic and perform tasks on the phone. If you're working on improving your patients' ability to compose an email, have them construct an actual email during your session so you can observe the process they take, if they're able to log into their account and access/utilize the task buttons, how long it takes them, etc.

REPETITION MATTERS

However, it's also crucial to consider the type of repetition. It needs to be **smart** repetition. We always encourage our clients to **work from their memory** and discourage them from "mimicking" or "repeating" immediately after our model, or even worse, as we're still providing the model. Our patients do this because their phonological memory and buffer have been impacted by their Aphasia, and so they're afraid if they don't get that response out right away, it will be gone. So they "say it with us" or begin repeating the stimulus before we're even done. This is *ineffective* repetition. It needs to be ***smart practice*** and if we don't encourage our clients to work from their own memory, "wait until I'm finished, make sure you process what I'm saying, mentally rehearse it, and then give us the response," then they are likely ***not going to truly learn the behavior.***

SALIENCE MATTERS

If the task is not ***interesting*** to the patient, it will not only affect ***their engagement in therapy*** but also their overall **commitment and motivation to continue**. Using functionally relevant stimuli helps to create that personal, meaningful connection with what you're working on, and they immediately ***see value*** in what you're doing. Words, pictures, and reading materials can all be easily used to incorporate the world around the individual (i.e. family/friends, hobbies, restaurants, house and belongings, etc.).

In addition to making the task personally relevant, we believe it is just as crucial for the patient to understand the ***purpose of the task*** - they need to have a **connection** between the drilling of sounds and syllables and how it's going to help them communicate with their grandson. If you don't help them understand that connection and find value in the task, they may become less motivated, more easily frustrated, and will be less likely to make improvements.

TRANSFERENCE

Use a ***variety of techniques to target the same modality***. Keeps things fresh and interesting, while still working on the underlying deficit (i.e. semantics). We are more likely to achieve *generalization effects i*f you get at the underlying deficit from a variety of angles. It encourages and promotes clients to also learn new ways to approach the skill and troubleshoot what works for them and what does not.

INTERFERENCE:

Be careful to not introduce too many items or new sounds at one time. **Ensure stability** before introducing additional items. Make sure your client is working from their memory, and ideally, able to process AND produce the sounds without a model, or following a delayed model, before moving onto the next. When our clients become discouraged after noticing the sounds they mastered the previous week are more difficult this week because we've introduced new sounds, we encourage them to stay positive and that it is a sign that their brain is changing and adjusting to what they're learning. It's ok. ***It's normal...and it's a good thing.***