

Module 4, Week 16

The Hands of Time:

How Attention Molds Learning & Behavior

Check-in:

How has your sensory experience of your singing, or other things, changed?

How have any mindset shifts you've experienced affected your aesthetic expectations or desires of singing - yours or your clients'?

Our clients' experiences

We need to be aware that our clients do not understand that their singing experience is unique to them. They do, however, also tend to imagine that their *challenges* are unique to them.

A fundamental fact of brains is that they *interpret* sensory information. Without this awareness, we don't understand that we can change that interpretation.

Your changing experience indicates that you had a hand in altering your experience. *You chose a behavior that created a neural response that changed your behavior.*

Selective Attention is Our Superpower

When we choose to focus on something our brains suppress other sensory information. As you listen to my voice your brain suppresses other signals so that you can attend to my voice. When you attend to a thing, your brain amplifies those neural signals, suppresses neural noise, and strengthens the neural connections.

The things that inform and affect attention at the neurological level are:

- Quality
- Duration
- Frequency

We apply this as we ask for the 10-second practice sessions.

Asking them to find 10 seconds where they're really paying attention, we're hitting on quality and frequency. If they do that for a week, their brain is changing, which changes their experience of that behavior.

Practice

If we can convince our clients that these bite-sized practice sessions will produce organic change, they may engage in a form of practice.

Further, we can be clear about their agency in the process. What they put in, they will get out.

Video

Neuroplasticity

- **If** the singer is **not** getting the outcome they desire, the neural pathways for singing they've been habitually accessing must be changed.
- Brain is not fixed; changes dynamically throughout lives.
- Every time you repeat a thought, feeling, or action, you strengthen the "road." The "road" that gets used less becomes weaker.
- With repeated and directed attention toward your desired change you can "rewire" your brain.

NeuroVocal teaches singers to steer

changes in their brains and be guided by those changes as they occur.

Singers can create and strengthen neural connections for phonation that they do not perceive as singing. This allows them to create and strengthen neural connections for singing.

- Changes in behavior create changes in the brain that create changes in behavior
- Experience builds motor memories, and can change them
- The creation and strengthening of neural connections is called neuroplasticity
- Selective attention contributes to neuroplasticity

Experience builds motor memories

- Each singer has neural pathways for motor control of their voices that are well established.
- These react to the stimuli they have built over time.

Story of Anna

- She loves to sing, has sung all her life, and focuses on the sounds that she's making.
- She's 18 and has spent thousands of hours teaching her brain to predict the sensory information she expects from her singing.
- Ana gets to sing with a band that practices twice a week and plays out twice a month.
- After a short time, Ana starts to lose her voice after rehearsals.

Why?

- The sensory data she's *taught her brain* to predict for is **not** the sensory data she's receiving in the rehearsals.
- The sensory data she's used to is **not** something she's ever been aware of. Her internal experience is the only experience she knows.
- She assumes that everyone experiences their singing in the same way.
- She doesn't know that she can alter the way her brain perceives her singing in order to create more sustainable and enjoyable singing.
- **She doesn't realize that she has a hand in creating her own experience of her singing.**

Why ask the brain to change?

- Singers who are dissatisfied with their singing, or who are experiencing limiting or even damaging vocal behavior, probably want to make changes.
- Some, or all, of the changes they need to create are at the level of neural connections.
- Each singer has a very specific motor memory for singing that is unique to them. If they are dissatisfied with their singing, they need to change the predictions (neuroplasticity) their brains are making for how singing both feels and sounds.

Selective Attention

- Attention spotlight is *selective attention*. It's the ways your brain
 - selects what information to attend to
 - amplifies the neural signals
 - strengthens those connections.
- Selective attention allows your brain to strengthen the representation of a selected thing, while squashing others. When you choose to focus on how phonation feels to you in your body, there's a whole lot of other sensory data that you are NOT paying attention to.
- Neuroplasticity is required to build or alter motor memory. It's stimulated by
 - quality of attention
 - Duration of attention
 - Frequency of attention

Repetition combined with attention over time stimulates neuroplasticity and strengthens neural connections.

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Selective attention is both developmental and practiced.

Choosing which of the many stimuli you're experiencing at any given time isn't always easy. Typically, adults (older than 26, both neurodivergent or neurotypical) with a fully mature prefrontal cortex find it easier to practice selective attention or employ strategies that help with selective attention.

Changes in environment or routine can interfere with your client's ability to apply selective attention. Be aware of any (or how many) new things you're introducing.

For neurodiverse clients, anyone under 26, or any client facing challenges on a given day, the coach can assist the client's selective attention:

- Routine

- Limiting time spent on any one activity
- Being aware of and limiting visual distractions
- Being aware of and limiting aural distractions
- Experimenting with both seated and standing positions
- Offering tactile stimulation or fidgets.
- Suggesting the client close their eyes.
- Suggesting the client try rocking (front/back or side/side)
- Alternating attention, and/or activity switching
- More...exploring is a good thing!

Alternating attention is something we use every day. When we're switching between reading the recipe and preparing the ingredients, for example, we're alternating attention.

- Alternating attention can develop other cognitive skills necessary to sharing music in groups or performance.
- Use alternating attention as a learning strategy. With young singers, for instance, **instead of** spending 6 minutes each on 3 exercises, do them for 3 minutes and loop back around for a second go at each.

Selelctive attention creates cognitive load. If your client is having a hard time paying attention, it may mean that their brain is tired.

Divided attention is mostly a myth. We may imagine we're "multi-tasking" but in fact, we're switching our attention very quickly. Research has shown that divided attention diminishes the quality of attention and experience when attending to a task, as well as creating (or exacerbating) both cognitive and physical fatigue.

NeuroVocal
a groundbreaking approach to singing

Dedicating attention to building a motor skill can afford the singer to release that skill to “auto-pilot” and thus attend to other things.

One of the many catch-22s in the business of creatively is that you can't express inspiration without skill, but if you are too wrapped up in the professionalism of skill you obviate the surrender to accident that is essential to inspiration.

from Free Play by Steven Nachmanovitch