

13 Neuroscience-Based Tips for Teaching Vocabulary

Part Two: Tips 9-13

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Introduction



The English language has a myriad of rich lexical items. Depending on what dictionary you use as a source, the total number of words is said to be anywhere from 600,000 to 1,000,000. We must also remember we have over 10,000 idioms (Brenner, 2011). These lexical items help express our innermost feelings, simple and complex thoughts, and unique ideas. In a way, we could say that our minds are an intricate collection of words, and this web of lexical items defines who we are and how we interpret the world.

The more our students learn about this rich world of words, the better thinkers and writers they will become. The more words, phrases, and idioms our students know, the more they can express their ideas and develop in their academic careers and personal lives. How, then, can English language teachers (ELTs) effectively educate their students and help them acquire more of this rich world of lexical wonder?

A good place to start is to employ my 13 neuroscience-based teaching tips! In Part One of this series, I discussed eight neuroscience-based teaching tips that I have developed and found to be extraordinarily useful for my English language learners (ELLs). These included: (1) using physical exercise to stimulate the brain; (2) practicing mindfulness and meditation; (3) personalizing the

learning process; (4) actively defining the lexical items; (5) incorporating class-related and student experiences in the examples; (6) teaching vocabulary frequently and explicitly; (7) focusing on one term and one definition; and (8) reviewing the terms at carefully planned intervals. In Part Two, I will focus on the importance of (9) multisensory associations; (10) verbpathy; (11) emotions; (12) language play with vocabulary; and (13) mindful observations about nonverbal communication. In addition to discussing each of these, I will also provide activities and examples.

Teaching Tip # 9: The Colorful World of Multisensory Associations



Imagine a man who could “see sounds, hear colors, feel tastes, and taste shapes” (Ratey, 2002, p. 203). I am referring to S. V. Shereshevski. He had a particular neurological condition called synesthesia. Synesthesia is a brain condition whereby there is crisscrossing of senses. So, for example, some synesthetes such as Tania Camerino taste colors. In fact, she can tell you exactly what the color green tastes like (Carlsen, 2013). Then there is the great mathematician, Pythagoras (570 – 495 B.C.): He had number-personality synesthesia. He felt each number had a specific personality, and some numbers were attractive while others were not (Cytowic & Eagleman, 2011). Vincent Van Gogh possessed yet another kind of synesthesia. He had color-music synesthesia; this means Van Gogh saw musical notes as distinct colors.

A common trait that all synesthetes seem to share is a very powerful long-term memory (Cytowic & Eagleman, 2011; Ratey, 2002). Although the exact reason for this is still being studied, neuroscientists believe the synesthetes’ powerful faculty of recall is due to their natural employment of multisensory learning. This makes sense, as multisensory tools are being used to encode what they learn or experience. Furthermore, according to Medina (2009), “[e]xtra information given at the moment of learning makes learning better” (p. 209). This “extra information” helps create stronger synaptic connections between neurons; as a consequence, memory is greatly enhanced and strengthened.

This condition of synesthesia inspired me to use multisensory associations while teaching vocabulary, and my students’ response to the method has been overwhelmingly positive. They quickly realize how using different senses and their associations help both personalize and internalize the lexical items.

The implementation of multisensory associations is simple. While I teach a vocabulary word, phrase, or idiom, I ask the students to associate the lexical item we are studying with a sensory-association (Randolph, 2016). Depending on the item, I may use colors, smells, tastes, tactile sensations, or sounds. For example, if we are studying the tri-part phrasal verb “look up to,” I will ask, “What color do you see when you think about the meaning of this term?” I usually give the students a few moments to reflect on the association, but I also encourage them not to overthink the relationship. It is best if they respond to what color immediately comes to mind. When we studied “look up to” in the past, one student quickly responded, “Green! Actually, light green or apple green.” When I asked why she chose apple green, she explained that her favorite high school teacher often wore apple green colored dresses. My student admired her a great deal and felt the sensory association of “look up to” was “apple green.” This color-association helped to solidify the meaning and personal understanding of “look up to” in my student’s memory. Even months after we studied the term, my student would refer to that phrasal verb’s color association with a sense of nostalgia, and her mastery of how to use the term was evident in her written work.

In short, Teaching Tip # 9 suggests that teachers use as many of the senses as possible to help students acquire vocabulary. From years of teaching experience, colors and smells are the most effective. However, many students have also responded favorably to tactile sensations, tastes, and sounds.

Teaching Tip # 10: Verbpthy and the Visceral Response



For a reinforced immediate response to any term, I encourage ELTs to use “verbpthy.” This is a term I coined that is used in the vocabulary encoding process. The point of verbpthy is to make an “immediate, intuitive, and feeling-based connection” (Randolph, 2017, para. 3) with the vocabulary term the students are studying. That is, verbpthy promotes a very individualistic and personal relation to each term.

The purpose of verbpthy is to elicit an immediate feel for the lexical item; that is, the process creates an intimate “word-feeling.” As you may know, the original meaning of “verb” is “word;” and the meaning of “pathy” is “feeling.” This “word-feeling” of a term is meant to be, as above, an immediate, visceral response to a term based on each student’s personhood.

Here is where verbpthy is distinct from connotation. The connotation of a word, phrase, or idiom may be culturally influenced. This influence might be provoked by a local, regional, or

national perspective or way of viewing things. Verbpathy, on the other hand, is completely driven by each student's immediate personal response to a term. In addition, connotation is often referred to as being positive, negative, or neutral. Verbpathy, however, excludes any notion of a neutral feeling. I argue that, based on work in neuroscience (Graziano Breuning, 2016), there are no neutral feelings but only positive or negative ones. This clear positive or negative response to things, I believe, dates back to our ancestors and their determination to survive and their will to evolve over time.

The application of verbpathy is implemented after defining a term and identifying its part of speech. I simply ask the students, once they are aware of the term's meaning, if they get a positive or negative feeling from the term. I also ask why they feel the way they do. Our working example of "look up to" is always "positive" because it shows respect, admiration, and love. For instance, my student who associated the color "apple green" with "look up to" said the term was positive because she felt a "deep happiness in the heart" when recalling her former teacher. This feeling of reverence is indeed positive.

However, a term like "vegetarianism" might yield a mix of responses, depending on the students' perspectives or diets. Years ago, I had a Buddhist monk from Vietnam in a writing class. He felt the word "vegetarianism" was positive because of his belief system. All the other students felt the opposite; they said they had a negative verbpathy due to their love for meat. The different perspectives are welcome as long as they help each student develop an intimate understanding of and feeling for the term in question.

Teaching Tip # 11: Eliciting Emotion Associations



In her work, *Emotions, Learning, and the Brain*, Immordino-Yang (2016) writes that "[i]t is literally neurobiologically impossible to build memories, engage complex thoughts, or make meaningful decisions without emotion" (p. 18). In short, emotions are central to who and what we are. According to Immordino-Yang (2016), "emotions have evolved to keep us alive" (p. 18). So, despite the influence of Western philosophers, who have argued for centuries to cage our emotions and only employ logic and reason, the neuroscience and cognitive psychology communities are now urging us to use the emotions in all aspects of teaching and learning (Davidson & Begley, 2013; Jensen, 2008; Willis, 2006).

I have previously written that in order “[t]o learn English lexical items (e.g., single-word terms, phrases, and idioms), students need to forge immediate and emotionally charged connections with the words” (Randolph, 2017, para. 1). As teachers, we intuitively understand the power and effect of using emotions in the classroom. This has been instantiated on numerous occasions by watching students become involved in emotion-focused content.

Our ELLs’ need for emotion in vocabulary pedagogy is strikingly apparent in two surveys I conducted ($N=42$) (Randolph, 2013) and ($N=44$). In both cases, I asked my students how the use of emotions affected their interest in and acquisition of lexical items. All 86 students reported that using the emotions or using my emotion-associations was crucial for learning the terms. If there was no emotion-focused content, they claimed they would not learn the lexical items, at least not to the degree they were learning them when emotions were elicited. So, Teaching Tip # 11 stresses that teachers should use the emotions whenever possible.

My Head-to-Toe Method of Associations for Vocabulary Acquisition uses emotion associations regularly and it yields robust results. After we discuss the verbpathy of a term, I ask “What emotion/s do you associate with this term and why?” For example, if we take our term “look up to,” students have said that it represents “joy,” “warmth,” “love,” “excitement,” and “comfort.” One student said that the term creates a “beautiful connection between two people.”

When my students offer these emotion-association words, they also often explain about the people in their lives that they think of while experiencing these particular emotions. During these emotion-inspired moments in class, their brains are releasing powerful neurotransmitters that also aid in learning, memory, and attention. Moreover, by eliciting the emotions right after we identify the verbpathy, we are also positively reinforcing the impact of the encoding process.

To help bolster these emotion-based associations, I have the students write the emotion they associate with the term directly next to the term on the worksheet. I feel it is important to write these down as well as express them orally. I have also noticed that some students will write down the names of certain people associated with the emotion as added details related to the lexical item in question. This person-emotion response creates a very intricate web of associations in the learner’s mind and helps to solidify the term in their long-term memory.

Teaching Tip # 12: Language Play—The Natural Way of Learning



Language play is both natural and necessary for the language learner (Crystal, 1996). Like employing the emotions in vocabulary pedagogy, language play helps the students connect with language on a very concrete, creative, and personal level.

In our native language, we play with pronunciation, vocabulary, meaning, and grammar. This often results in language discovery, creative poetry, new jokes, and funny rhyming schemes. But most important, it helps us become familiar with and feel our language on realms which go beyond mere grammar and syntax.

Teaching Tip # 12, then, encourages teachers to get their students involved with language play and find unique connections with the vocabulary. A fruitful activity that blends vocabulary, writing, observation, and creative thinking skills is my “Word-Person/Place Journals.” In these journals, students record brief passages about people or places they observe where the person or place epitomizes or closely represents the meaning of lexical items we have studied in class.

I first introduce these “creative observations” as a speaking activity, and I also use them as a warm-up activity before our main focus of the lesson. Then, in the third or fourth week of the semester, I have the students begin to write the creative observations in their journals. As with all activities, it is best to provide the students with a model. The following is an entry I wrote based on an observation I made outside our classroom.

Mr. Juxtapose – Mr. Compare & Contrast

The head custodian was sitting on his tool cart and chatting with a fellow worker. Then, he stood up with an excited look on this face. His eyebrows began to rise and fall as he spoke, and he became even more animated and started shifting his left hand up and lowering his right. He then raised his right hand and lowered his left. It was apparent he was comparing and contrasting something. And this is how he got the name, Mr. Juxtapose. He even started shifting his legs and feet, putting his weight on his left foot and then on his right. He really was a living, breathing example of the word, “juxtapose.”

These journals are a wonderful way to play with the vocabulary terms because they inspire ELLs to use their creativity and find connections, patterns, and relationships between words and life. These lexical items and life connections also help to transform abstract terms into tangible ones. A great many of the terms our ELLs study are abstract, and this is what makes them difficult to acquire. However, if they can personalize and internalize them (see Teaching Tip # 3), a clear and lasting understanding will follow.

Teaching Tip # 13: Mindful Observations & Nonverbal Communication

Teaching Tip # 13 focuses on raising awareness by mindfully observing nonverbal communication as it pertains to vocabulary acquisition and use. This innate strategy of observing as a way to learn literally starts hours after birth, for studies have shown we “learn by imitating” (Iacoboni, 2009, p. 48). As children, we pick up on vocabulary, intonation, syntax, language play, and nonverbal communication. And because learning by observing and imitating is such a natural part of our development—due, in part, to our complex mirror neuron system (Iacoboni, 2009)—I feel it is important to remind my students that it is equally significant to do it while they study English.

To this end, I have implemented “Nonverbal Communication Journals” in all of my classes. In these journals, students record their language-based observations in brief statements (see below) and then we discuss in class how they can potentially employ what they have learned.

Before starting this activity, which can run a whole semester, it is best to discuss the main types of nonverbal communication so that the students are aware of what to look for as they launch into this project. The main types of nonverbal communication include gestures, facial expressions, body movement, posture, eye contact, touch, space (i.e., proxemics), and voice (i.e., intonation, tone, and stress).

Below are two examples of student observations of nonverbal communication related to gestures, facial expressions, and voice that were recorded in their journals.

word: *“really”-used to express surprise or doubt*

observation: A man I was watching in the cafeteria watched his friend and then said, “Really?” As he did, he tilted his head to the right and his chin moved closer to his chest. His eyebrows also arched up when he said the word! His actions and the word he used looked like he doubted his friend.

words/phrase: *“Let’s try!” & “Let’s see.”-said with excitement and curiosity*

observation: A classmate in our study group stressed or emphasized the word “try” as she said, “Let’s try!” I hardly heard “let’s.” She also raised her shoulders and smiled. When she used, “Let’s see,” she wrinkled her forehead and looked at my paper. Again, I heard “see” clearly, but not “let’s.” Maybe there is a rule to stress the important word.

As we can see, students become very aware of the “native-like” uses of words and phrases and their accompaniment of gestures, facial expressions, and intonation. So, the more they make these mindful observations, the more natural looking and sounding they will become when they use English on their own. If our ELLs can turn this activity into a daily habit, they will get a very authentic feel of how to use vocabulary and the nonverbal communication elements that correspond to those terms. Of course, each native-user of English has his or her own habits and mannerisms, but there are also many “standard” nonverbal ways to communicate as well. And these are picked up on rather quickly when being a mindful observer.



Concluding Remarks

This two-part series has focused on 13 different neuroscience-based teaching tips that I’ve developed. The aim here has been to help ELTs and their ELLs raise awareness about unique ways to acquire vocabulary so that the terms are eventually transferred to their long-term memory and also learned in fun and effective ways. Ratey (2010) states that “[y]our life changes when you have a working knowledge of your brain” (p. 6). I believe the more we become aware of various discoveries in neuroscience and their possible application to language instruction, the better our lessons and methods will become. Thus, I encourage ELTs to use the ideas I have suggested and develop their own techniques in order to enhance instruction and learning for decades to come.

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