

Breakthrough in Brain Research: Learning Languages Without Stress

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Winner of the Outstanding Professor Award from San Jose State University,
founded before the Civil War in 1857 as the oldest public university in California.
SJSU has 30,000 students and a faculty of 1,800 Ph.Ds.

When I told a colleague recently that it is now possible, with our advanced understanding of the brain, to acquire a foreign language fast and without stress, he replied, " My experience in school tells me otherwise."

That cynicism is understandable since the track record of foreign language instruction is only about five success stories for every 100 students enrolled. Most of us recognize the features in the traditional school curriculum:

Please listen and repeat after me.

Let's analyze this sentence to point out the grammar rule for the day.

Open your books and complete the exercise on page 25.

Memorize this list of vocabulary.

Open your books to page 63 and translate the first paragraph.

Let's practice putting the appropriate direct object in the correct place in this sentence.

Only about five percent of all students who start the study of a second language in a traditional program continue on to achieve fluency in speaking, reading and writing. Ninety-five percent of all those students with good intentions say, "I give up." And then they jump to the harmful conclusion: "I guess I am no good at foreign languages." This may be the reason that thirty states have now discontinued the study of a second language in high school as a "required course."

Parents would like to have their children acquire another language or two especially since America now seems to be competing with everyone else in the world for jobs. But, from their own experience in school, parents feel that the effort in traditional classes is a "waste of time." Better to invest time in something useful such as small appliance repair or ballroom dancing.

This is a kind of imaginary national dyslexia about foreign languages which I observed listening to an American tourist say to an Italian street vendor in Rome, "Now don't expect me to speak to you in Italian. I'm an American and you know how poor we are in foreign languages."

Erase the word "method" from your vocabulary

While the traditional curriculum with slow-motion learning still dominates education, there are no "methods" in foreign language education. There are no "methods" in foreign language education or any anything else in education including history, science and mathematics. A method implied a formula and formula implied science. All a myth!

Teaching is an art, not a science. Teachers are artists, not scientists. And, “teaching” may be the highest art form because it is a one-person Broadway show on a stark stage with only one prop, a chalkboard. No music. No orchestra. No special lighting. No backup singers. No show girls. No comics. No writers. No producers. No directors. No stage crew..

The audience is the students, and a teacher will attempt to hold the attention of the audience for one, two or three hours. That’s an eternity in any other art form such as “live” theater, movies, television or radio. Most celebrities would not have the courage to stand up and hold your attention all by themselves for an hour or more.

Everyone thinks they can teach

Everyone thinks they can teach. All you do is stand up and talk, right? I can do that! It is like being a therapist. All you do is listen and nod your head. I can do that! Anyone can do that!

It’s like being a manager. Everyone thinks they can be a manager. All you do is boss people around. I can do that! (Incidentally, the first woman to become an admiral in the United States Navy was interviewed on 60 Minutes and made this observation: “You manage things. You don’t manage people. You lead people.”)

If you think back on instructors who inspired you or managers who motivated you – they can be counted on one hand. Teaching, counseling and management require talent like playing a musical instrument or singing an aria or excelling in a sport.

Instead of “methods,” a teacher has a “box of tools”

There is no method, no mechanical procedure that will shoo anyone along to success in teaching. Although teaching is not a science, science offers us many powerful tools with this caveat. One tool will not work for all tasks. Ask any fine woodworker. A power router will not drill holes, saw wood, pound nails or strip off layers of paint. A power router will only make patterns in wood.

So, a talented teacher has a box of tools. My model here is Dr. Richard P. Feynman, the Nobel prize-winning physicist who explained his secret of success in solving problems this way: “I simply reached in and rummaged through my box of mathematical tools to find something that might work to solve a specific problem.”

Now, where do we start?

My revolutionary discovery about language learning in the last half of the 20th century is: For high-speed learning of languages, comprehension must come first before one acquires skill in speaking, reading and writing. Everyone thinks they understand this principle. They reason, “Oh, yeah. Comprehension is the few seconds after someone speaks. You comprehend what they said and then it is your turn to talk.” Nope! That’s not it!

What is comprehension anyway?

First, this concept is not obvious. If it were, then we would not have courses in college called, Conversational Spanish, Conversational Italian, or Conversational Chinese. The spectacular finding during my 20 years of research in the late 20th century is that talking is the last step in the language learning process. Comprehension is the first step. When talking appears, language learning has already taken place. And talking cannot be taught. It cannot be produced on cue for most people. It will appear spontaneously when one is ready.

The principle is obvious in infants.

There is no case in recorded history where an infant in any culture has spoken before months of listening to their caretakers give directions. Infants are silent, except for babbling, and they signal understanding with a physical action. For example, "Smile for grandpa!" Give me your hand when we cross the street!"

My stunning discovery, verified by other researchers, is that this principle is the secret of language acquisition at any age. The statistical results are huge when I explored, in controlled experiments, what I call, the **Total Physical Response** (now known worldwide as **TPR**), with children and adults learning Spanish, French, German, and Japanese.

The procedure is simple

I took what caretakers do with infants and brought it into the classroom. You can think of it as language-body conversations. The instructor utters a direction in Chinese, Arabic, or Spanish and the student is silent just like infants. And like the infant, the student, of all ages including adults, signals understanding with an appropriate physical response. For example, "Point to the chalkboard. Walk to the chalkboard and write your name."

It may take an infant several years to make the transition from language-body conversations into speaking, but we can compress the time into a couple of weeks for students in the classroom. The reason: The infant is limited to primitive physical responses such as smiling, touching, reaching, grasping, and walking. In comparison, children and adults have hundreds of complex physical movements we can utilize such as directing in Chinese, "Walk over to the pretty girl on your left, bow, and dance with her." "Pick up this book, run to the window, open it and throw the book out of the window." Notice the complexity of grammatical structure in those sentences. Students of all ages, including senior citizens, can internalize that complex grammar in a few minutes with language-body conversations.

Notice also, even with limited vocabulary, infants at the age of four or five become fluent speakers of their native language. High-level abstractions are not necessary to achieve fluency in another language. That, too, is not obvious. As infants mature, they increase their vocabulary into higher and higher levels of abstraction. Simply using the language everyday expands the level of abstraction. A mistake textbook writers make is attempting to start the learning of Chinese, for example, with high level abstractions such as, "Hello. My name is Jim. What is your name? Are you a student? What are you studying?"

Three reasons why it is critical that comprehension be the first skill acquired by language students

- ***Throughout recorded history***

In any language and in any culture, there is no record of infants speaking before they comprehend a huge chunk of the target language. Infants are silent for at least one year while they internalize a map of the target language. During this silent one year period, infants internalize a blueprint of phonology, grammar and semantics before they utter anything intelligible such as "Mommy" or "Daddy." They achieve this stunning mapping that I call "language-body" conversations (which is the essence of a technique I call the **Total Physical Response**, known world wide as **TPR**).

Notice that caretakers utter directions such as, “Look at me!” “Look at me!” and the baby turns her head in the direction of the voice. “She is looking at me!” “She is looking at me!” As the baby develops, the directions become more and more complex such as: “ Pick up your spoon!” “Don’t spit up on your bib!” Don’t make a fist when I’m trying to put on your coat!” “Take your toy and put it on the bed in your room!” The child is silent but responds with an appropriate physical action. The “silent period” is essential preparation for the appearance of speech.

• ***Locations in the brain***

The second reason for Comprehension First is the brain. Comprehension and speaking are located in different parts of the brain. Comprehension is in *Wernicke’s Area* which is in the temporal lobe while speaking is in *Broca’s Area* located in the left frontal lobe.

If Wernicke’s Area is damaged, the patient can speak but may not be able to understand what people are saying. If Broca’s Area is injured, one may understand but be unable to speak. If still another area of the brain is injured, there is apraxia – a person forgets to do ordinary things such as how to brush one’s teeth.

• ***If comprehension is important, then why not...***

If comprehension is important, then why not translate? Translation sounds simple, but it does not work very well. The reason: The student enrolls in a foreign language class with the intention of acquiring that language. Even though students have good intentions and want to learn, when they hear a translation, their brain is working against them. This is brain antagonistic instruction.

Before I explain why, please remember, research also shows that our brain is *quite independent of us*. It knows the answer to a question a half second or more before we do. Now here is what is happening in the student’s brain when you translate: All thirty people in the room know that this is a “chair,” this is a “table,” and this is a “door.” Only one person, the instructor, asserts (without proof) that this is a “kursi,” this is “taula,” and this is a “bob.”

Since the brain will only store truth or facts in long-term memory, it erases the translation before students stand up to leave the room. Of course, the instructor is not telling lies, but the student’s brain perceives the information as “lies,” and the brain will not store “lies” in memory. Remember Mark Twain’s comment, “If you tell the truth, you don’t have to have a good memory.” The instructor is telling the truth, but the student’s brain automatically interprets the information as false or lies. That’s why translation is *brain antagonistic instruction* for most students.

My next recommendation: Doodling

“Doodling” is a strange idea! My inspiration is the clarinetist, Benny Goodman. I played the clarinet in our high school orchestra and when I listened to Benny recently on a CD, I was thunderstruck by the purity of every note. It was as if God was inside Benny guiding his fingers over the keys.

When Benny Goodman was once asked, “Benny, we notice that you doodle on the instrument everywhere you go, even to the rest room. Why do you do that?” Goodman answered, “Doodling is the difference between being ‘good’ and being ‘great.’”

I mentioned the Nobel laureate in physics, Dr. Richard P. Feynman. He was a doodler. He messed around with concepts that most people would consider too sacred to tinker with – such as trigonometry. Using a book borrowed from the library, Feynman studied trig on his own as a teenager because he wanted to be a scientist someday. But the names of trig functions printed in the textbook did not make sense to him. So he created his own names! It worked beautifully until

he earned a doctorate in physics and began working with other physicists who did not know what he was talking about. Whoa! Time to go back and memorize the textbook labels – which he did in a flash.

My recommendation: Encourage your students to doodle with the language. Working the daily assignments is not enough. Students need to play with the language like a toy. My model here is Dr. Sam Slick, former chairman of the Foreign Language Department at Southern Mississippi State University where I was invited to speak a few years ago.

At lunch, I asked Sam: “You are one of the few people who acquired your fluency in the Spanish language at school rather than home. How did you do it? What is your secret?” Here is what he confided: “I played with Spanish rather than merely worked at it. For example, when I drove to or from school, I would make up imaginary conversations in Spanish with imaginary friends. People passing me must have thought I was crazy muttering to myself, but it worked. Suddenly the entire language opened up to me. Before, the language was out there in front of me, and then one day, bang! It was suddenly inside me!”

I understand that we want our children to sound like a native speaker, but...

If we want students to play with the language, then interrupting them to correct pronunciation is counterproductive, especially for beginning students. We need to be as tolerant of mistakes as we are of infants acquiring their first language. Gradually, student pronunciation will shape itself in the direction of the native speaker.

However, the evidence* is clear-cut on this point: Students have the best chance of acquiring a near-native accent if the language experience starts early, before puberty. After puberty, almost everyone will have some accent, even if they live for fifty years in a country where the target language is spoken.

The first psychologist to win a Nobel Prize

Since Roger Sperry's Nobel prize-winning experiment with cats* showing that each hemisphere of the brain can think independently, 4,000 follow-up studies have been completed by researchers around the world. We have learned more about the remarkable differences between the right and left hemispheres in the past 50 years than we knew in the last 5,000 years. For example,

Our brain has its own intelligence and is moving information at lightning velocity, below our radar of awareness, back and forth from one hemisphere to the other.

Our brain knows the answer to a question one-half second or more before we do.

The left hemisphere is like a train that can travel on one track only while the right can have many trains on multiple tracks traveling simultaneously. The stunning implication for learning languages is this: Second language instruction on the left side of the brain in a traditional class is slow-motion learning because input from the instructor is evaluated by the student's brain as “lies” and therefore erased almost before the student stands up to leave the classroom.

But, playing to the right brain first with comprehension means that there is high-speed learning because (a) there is an absence of evaluation by the student's brain, and (b) the student can understand multiple languages simultaneously without one language interfering with the other. The reason: The right brain does not know the difference between English, Spanish, Arabic or Chinese. To the right brain, these are just patterns which are stored without editing until called upon by the left hemisphere (the site for talking and critical thinking).

For the first time in education, if we play the brain's game, static-free learning is possible. This means that without stress, children are now able to acquire in school, basic fluency simultaneously in multiple languages. For example, before children graduate from the 8th grade, they can acquire many languages with excellent pronunciation in each language. High school would then polish those linguistic skills to produce graduates fluent, for instance, in English, Chinese, and French, or English, Japanese and Arabic. Sound like science fiction? Not at all; it can be done. We now know how to do it!

*The evidence from brain research is reviewed in my book: **Learning Another Language Through Actions** (7th Ed.)

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