



Thoughts from Linda:

The Power of Language
*How the Codes We Use to Think, Speak,
and Live Transform Our Minds*

Viorica Marian
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“To learn a language is to have one more window from which to look at the world,” says a Chinese proverb. This book, written by Viorica Marian, reveals the latest research which makes a strong case for learning multiple languages. It is full of scientific data from fMRI (functional magnetic resonance imaging), which informs how our brains work in certain circumstances. It will leave you wishing you knew many languages, or perhaps, if you already do speak multiple languages, better understanding and appreciating the ‘power’ you have because of this accomplishment.

Viorica Marian was born in Moldova into a family of public health physicians as her mother was an epidemiologist, and her father taught at the medical university there. She came to The US originally as part of a high school study abroad program and returned soon thereafter to attend college. She studied at the University of Alaska in Anchorage, where she obtained a Bachelor’s degree in Psychology. She earned her Master’s in Cognitive and Developmental Psychology from Emory University and a Ph.D. from Cornell, where she was the mentee of Ulric Neisser, generally thought of as the “father of cognitive psychology.”

Today, she is a Professor of Communication Sciences and Disorders and Psychology at Northwestern University, where she directs the university’s Bilingualism and Psycholinguistics Research Lab. She is a native Romanian speaker and is fluent in Russian and English. Her research has included many other languages, including American Sign Language, Cantonese, Dutch, French, German, Japanese, Mandarin, Polish, Spanish, Thai, and Ukrainian. She wrote the book in English.

This is a current book and uses the latest science to explain language itself in all its various aspects. She makes a strong argument for a multilingual world from various frames. The benefits of multilingualism include such things as:

- Enhancement of our brain's executive function—our ability to focus on the things that matter and ignore the things that do not
- Stronger creative thinking abilities and task orientation
- Greater critical reasoning skills development
- Delay of Alzheimer's and other types of dementia by four to six years
- Enhanced ability to make decisions under stress
- Changing the way we perceive the world, including what we pay attention to and what we do not, as well as what we can recall

As she explains, while you may think you speak only one language, in fact, your mind accommodates multiple codes of communication. Some people speak Spanish, some Japanese. Some speak poetry; some are fluent in math. The big point is that the human brain is built to use multiple codes of which language represents one type, and specifically, using more languages opens doors to creativity, brain health, and cognitive control.

Language is an invaluable tool for organizing, processing, and structuring information, thereby unleashing radical advancement. It turns out that every new language we speak shapes how we extract and interpret information. It alters what we remember, how we perceive ourselves and the world around us, how we feel, the insights we have, the decisions we make, and the actions we take.

As she notes, "The multilingual mind is a paragon of this marvel of the universe, and it provides a wondrous and surprising new view of human cognition...The connection between language and thought and the multilingual mind can be, at a minimum, a propeller that advances humanity to new heights, and at a maximum, the key to its survival."

Current research suggests people can learn another language at any age, with almost immediate benefits. She shares the good news with us that earlier research which indicated that one could get 'too old' to learn another language, was flawed. Based on data from the US State Department, she reveals that the number of hours an English-native speaker needs to learn another language ranges from 600 to 2200, depending on the language. For example, it should take about 600 hours to learn Spanish, while it could take 88 weeks to learn Japanese.

The book is organized into two parts, 1. SELF, and 2. SOCIETY reflecting her research into the individual's relationships with language and history in Part One and the larger macro frame, which is covered in Part Two. There are 11 chapters with titles including Mind Boggling, The Parallel-Processing Super-Organism, The Word Made Flesh, Words of Change, Found in Translation, The Codes of Our Minds, and The Future of Science and Technology.

Her field is Psycholinguistics, which focuses on the relationship between the mind and language. She takes us on her journey from her curious linguistic childhood when she wondered why Russians refer to bridges as "he" and see them as being masculine in traits, and on the other hand, Germans refer to bridges as "she" and see them in the feminine gender. She notes that English uses the term "it" for a bridge, while she says, in her native Romanian, there is a "trippy property...where a bridge is masculine if there is only one but is feminine if there are two or more." This curiosity led her down a path that brought her to the United States, where she ultimately became a citizen of this country and focused her life on researching the power of language itself.

She has an enlightening section on a commonly observed but little-understood practice: translating both the written word and real-time interpretations. She tells interesting stories of great successes and errors in interpretation and translation, many with significant consequences, such as the correspondence between the Allies and the Japanese at the end of WWII and with the NASA Mars Climate Orbiter.

Explaining the difficulty of interpretation, she shares a great story about President Carter, who was giving a speech to a small Methodist college in Japan in 1981. He had a particular interpreter who was having great difficulty translating the message that President Carter wanted to deliver. Before this speech to the college, the individual had struggled to understand the Southern drawl of the President. Finally, he adopted a new strategy. President Carter opened with a joke. Then, the interpreter spoke to the crowd, and the audience immediately erupted into laughter. Surprised by the joke's success, Carter later asked the interpreter how he'd elicited such a reaction. The interpreter reluctantly admitted that he had said, "President Carter told a funny story. Everyone must laugh." Interpreting and translating pose their own unique challenges for our brains!

I appreciated her explanations of some of her and others' neuroscience research into how the brain works, how language is processed neurally, and how the brain is re-wiring itself by learning a new language. She notes that multiple studies now show that language spans a wide range of interacting regions of the brain, engaging

in parallel processing in the frontal, temporal, parietal, and occipital lobes as well as in the brain stem. She says that new methodologies “now provide data that (experts) did not have access to decades ago and show that the brain is not modular. A brain’s overall function and the intelligence it generates cannot be understood by studying modules independently. The massive parallel co-activation of multiple languages and its impact on other cognitive functions is yet another nail in the coffin of the modularity of mind...our capacity for language can be considered an emergent property of the whole brain working in concert.”

The book is peppered with interesting facts and stories of the latest experiments using modern medical and other research tools. Looking at language on our planet today, she notes that most of the world’s population is bilingual or multilingual. There are more than 7,000 languages spoken today, with the most common being English and Mandarin, with each having 1 billion speakers. These are followed, in order, by Hindi, Spanish, French, Arabic, Bengali, Russian, and Portuguese. Almost two-thirds of the population of Europe speak a minimum of two languages, and 25% speak three or more. In many countries, multiple languages are a matter of policy, as Canada, for example, has two official ones. South Africa has nine languages, while India has over 20 recognized by its Constitution. Today in the United States, over 20% of the population speak a language other than English at home, having doubled over the past forty years. In our larger cities, the estimate is that 50% of people speak multiple languages.

She goes into detailed explanations of the development of language and how we differentiate between sounds and letters. We know, for example, that ‘e’ is the most frequently used sound in the English language and can be spelled seven different ways, as you can count in the sentence: “He believed Caesar could see people seizing the seas.” The shortest English word is I, and the longest is the 45-lettered pneumonoultramicroscopicsilicovolcanoconiosis, which refers to a lung disease contracted from inhaling silica particles from a volcano. Both examples were used to illustrate what makes word learning challenging. She takes us back to the first known or ‘natural languages’ that have been developed over time, including the earliest uncovered written script of cuneiform, the wedge-shaped characters of Mesopotamia circa 3500 BCE. It is interesting to learn that the roots of modern writing, where a sound corresponds to a specific symbol, are generally traced to a proto-Sinaitic script that was developed between 1800 and 1500 BCE. The first alphabet that is linear and represents modern alphabets was that of the Phoenicians, developed circa 1050 to 150 BCE. That first alphabet had 22 letters, all of which were consonants, leaving the vowels as an implicit sound.

She notes that, in theory, the human body can create an unlimited number of sounds to use in a language and takes us on a journey of speech itself. For example, we learn that “consonants are determined by a combination of place of articulation (where in the vocal tract the tightening happens), manner of articulation (how narrow the constriction is, how the air is flowing, and where the tongue is), and voicing (whether and how the vocal folds are vibrating.)” Interestingly, she notes there are significant variations of consonants and vowels, with Hawaiian having 5 vowels and 8 consonants and Lithuanian having 12 vowels and 47 consonants.

She tackles artificial languages in a timely section, noting that, unlike natural human language, artificial languages are constructed based on formal logic and are used primarily for scientific, technological, or entertainment purposes. She takes us into the three types of artificial languages. First are computer languages like Python, Java, C, C++, and others. The second type includes special languages created for entertainment, like Na’vi (Avatar), High Valarian (Game of Thrones), and Klingon (Star Trek), for example. Thirdly, she explains research languages such as Brocanto, Laadan, and Colbertian (named for Steven Colbert.)

This is such an interesting book that it could be easy to get lost in its detail; however, she manages to pull the key themes throughout in a way that consistently drives home the main points. It is important for the planet for people to communicate better, and we are wired to connect linguistically. Our brains are uniquely adapted and adaptable to increasing levels of neural activity that are stimulated positively by learning and speaking multiple languages. There is a positive learning cycle that results.

In her brilliant concluding words, “The codes of the universe and our ability to learn them will, to a large extent, determine humanity’s future. Our languages have the power to transcend the limitations of both the human mind as we use it now and the artificial intelligence we currently have at our disposal. We may not know where languages and their evolution will take us, but one thing is certain: we cannot get far without them.”