

Immersion is Critical in the Middle School Years

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Editor's Note: Camilla Modesitt, Development Director at [Denver Language School](#), shares the reasons why it is critical for students to continue their language immersion experience in middle school.

By guest blogger Camilla Modesitt

Unless you are me trying to learn piano, the widely accepted proposition is that the longer you do something, the better you will be at it.

Why then, are so many language immersion schools in the United States only K-5? Why don't these schools extend through the middle years and beyond? Indeed, it seems like most of these programs end just when true language learning is beginning to take root.

Practice Makes Perfect

The 10,000-hour rule popularized by Malcolm Gladwell in his 2008 book [Outliers](#), has become a benchmark for expertise. Calculating hours alone, in an early total immersion model, where students are 90 percent in the target language in grades K-2, 80 percent in the target language in grades 3-5, and 50 percent in the target language in grades 6-8, this results in students spending about 7,500 hours in the target language in grades K-8. This gets close to the 10,000 hours but not all the way there.

If students stop in 5th grade, they only have about 5,500 hours under their belt and a matching vocabulary to boot.

Building a Better Brain

I recognize, though, that we can't all be experts at everything, and time is valuable. But even if we put the 10,000-hour rule aside, there's a much more compelling reason to keep language immersion going through the middle school years, and that reason is neuroscience.

At birth, the human brain contains approximately 100 billion neurons (aka brain cells). This number is considered an overproduction or "burst," because many of these neurons will go unused. But the

assurance this overproduction provides is that there will be plenty of brain cells to go around and, subsequently, the owner of that brain will be capable of adapting to any environment.



Neurons are the only cells in the body that do not touch. To talk to each other, they rely on two things: chemicals called neurotransmitters, and synapses, which are connections built to bridge the gap between the cells. Neurotransmitters travel along the synapses, like an information highway. Through this complex process, connections are made, information between cells is shared, and, as a result, skills are formed. Synapses are created through necessity—one brain cell needs to talk to another, so a synapse will form. As long as the conversation between the connected cells continues, the synapses stay active. Conversely, unused synapses die off in a process known as synaptic pruning. Not wholly bad, synaptic pruning enhances the brain's functioning and makes the brain more efficient.

It's because of all these neurons and the forming synapses that children are often referred to as "sponges" and can seemingly learn *anything*. It's also why language immersion programs starting at kindergarten or earlier work so beautifully; with unlimited ability to create synapses, children can learn to speak ANY language. Think about it—if you are born to English-speaking parents in Japan, your brain doesn't say, "I can only speak English"; rather, your brain is prepared to speak any language—including Japanese. Moreover, your brain will learn Japanese accents and nuances with no issue. You will sound like a native Japanese speaker—not like a native English speaker who learned Japanese as a second language.

All this—the plasticity of a young child's brain, the overwhelming opportunity, and the ability to learn language—is widely accepted in immersion education. But another important development is often overlooked—a second surge of neuronal growth (neurons, dendrites, and synapses) occurs just before puberty. As overproduction takes place (or the earlier referenced "burst"), the brain selectively strengthens neuron pathways, while the unused ones are eliminated. Indeed, the brain is busy

rewiring itself from the onset of puberty until approximately 24 years old, especially in the prefrontal cortex. If students aren't learning language during these middle school years, the second language that they learned is pruned because it's not being used.

Once past puberty, language is considered stable in the brain and the effects of attrition can reverse themselves if you are re-immersed. But before puberty, and before that second surge of neuronal growth, children can lose a language simply because of synaptic pruning.

Let's Have A Conversation

What's more, it's during these middle school years that language skills, both in the target language and native tongue, begin to take on a different purpose. It is in middle school where students learn metaphors, slang, and different ways of speaking. They are more interested in having conversations and manipulating language in new and complex ways (think arguments and debates). Additionally, in their coursework, students are encountering more problem solving and "what-if" scenarios, and these challenges require higher level, more sophisticated language skills. When they stop their target language learning in 5th grade, they are limiting their ability to enjoy a richer vocabulary and have more meaningful conversations.

Executive Functions What's Your Function?

Finally, there has been quite a bit of attention paid to the frontal lobe and executive functioning benefits of second-language acquisition. People who learn a second language from a young age have better problem-solving and critical-thinking skills, as well as more perseverance and follow through because their frontal lobe is constantly being put to work. But the frontal lobe is the part of the brain that is actually still developing during adolescence, so it's important to have second-language learning happening during this time. Again, back to the idea of pruning—without immersion during the adolescent years, the frontal lobe will do most of its development without the benefit of a second language.

Use it or Lose it

So, what are the conclusions here? To keep fluency, to increase retention, and to enjoy the myriad benefits that come with learning a target language, language immersion programs really need to go through the 8th grade at least. Indeed, the Center for Advanced Research on Language Acquisition recommends 3 hours a day in the target language in middle school. Let's all do our part to advocate for meaningful language immersion in the middle school years.