

Language Immersion

Selected Articles

Why Immersion?

The ACIE Newsletter, February 2001, Vol. 4, No. 2

By Julie Sweitzer, Parent, Park Spanish Immersion School, St. Louis Park, Minnesota

The answer seems so obvious now, but six years ago the concept seemed too radical to consider seriously. Sending my baby off in the care of strangers and trusting them to teach her reading, writing, and arithmetic in English was difficult enough. Surely asking her to learn from people who spoke in a language neither she nor her parents understood was an unnecessary complication. Fortunately we decided to explore language immersion before rejecting it, and in doing so completely changed our minds, and our children's futures.

Now that we are in our fifth year (and second child) of immersion schooling, answering the question Why immersion? has become easy. At an ACIE workshop with other immersion parents, as well as in other conversations, I have learned that we all had similar reasons. Perhaps sharing my top seven reasons will encourage other parents to fully explore immersion for their children.

1. **Children of today will need to be bilingual to be successful in the global society and economy of their adulthood.** Today two languages are useful - tomorrow they will be required, and a third language will be desired.
2. **Childhood is the best time to develop an appreciation and understanding of diverse cultures, peoples, and perspectives in the world.** Preschoolers are aware of differences, but harmful prejudices develop during the elementary school ages. Consistent positive exposure and interaction are the best prevention.
3. **An optimal time to learn languages is prior to age twelve.** Research on brain development in recent decades supports this claim, with wide discussion in the popular media. Our brains are wired to produce all sounds, but if we don't learn to make certain sounds, we can lose that ability. (Some of us use this as a convenient excuse for our difficulty in learning another language as an adult, but it isn't a barrier - just a reason to start young.)
4. **Children learn language by listening and repeating, and don't have any fear of a "foreign" language.** This was one of those clic! moments for me, when I realized that immersion teachers taught the immersion language in the very same manner children already learn English - by speaking and repeating in context. It is very natural for children. My children attended a university preschool where many of the children spoke a different language at home, yet even the newest children participated fully, understood, and quickly spoke in

English. Again, there is research to support this concept, and schools recruiting students should make copies available, but it is a common-sense explanation as well.

5. **Academic skills are actually enhanced.** Studies consistently show that immersion students do as well as or better than comparable non-immersion students in English language skills, math, science, and social studies. If you've studied another language, you know that those classes taught you much of what you know about English grammar. Increasingly, research has also demonstrated connections between math, music, and language skills.
6. **Children are guaranteed to be challenged.** Immersion learning takes extra effort from children (and parents) in that reading and writing skills need to be practiced in two languages. I was surprised to learn that programming for gifted children can be difficult in the early years, when their minds work faster than their developed vocabulary in the new language. A successful immersion program provides both gifted and special education assistance to meet the needs of all students.
7. **Parents will be involved.** In most districts, parents have to choose to send their child to an immersion school. I expected, and it is true, that the parent community would be supportive of the school, the children, and each other. Involved parents are one of the most critical elements of a successful educational program.

So how did we learn these things, and how can you share them with others? I went to an open house, before our school even existed. Copies of many research summaries were provided, and I read them all. I talked to parents in other immersion programs, who reinforced the research by confirming that their children's skill levels were age-appropriate in all subjects. Most importantly, I watched the teachers who would be opening our school demonstrate a lesson in Spanish with a group of English-speaking kindergartners. The kids participated and responded, even with an audience. Those "strangers" to whom I was going to entrust my child were no longer strangers, and were obviously skilled. Suddenly it was clear what our decision would be. My heart followed where my head had led, and as Robert Frost first said in *The Road Not Taken*, "I took the road less traveled by, and that has made all the difference."

Homework in an Immersion Classroom: Parental Friend or Foe?

The ACIE Newsletter, December 1999, Vol. 3, No. 1

Adapted from materials developed by Lezley Lewis, Jacksonville Independent School District, Jacksonville, Texas

Editor's note: *This article was adapted from handouts prepared for parents whose children are in a two-way (English-Spanish) immersion program. However, the parents of children in one-way immersion programs (where native English speakers are taught in a second language) often express concerns about their inability to help with homework in a language they don't speak. The work that Lezley Lewis has done in her district is applicable to all immersion settings.*

HOMEWORK IS NEVER NEW LEARNING

The intent of homework is to provide the practice to strengthen and reinforce the learning begun in the classroom. In an immersion classroom, homework provides an excellent opportunity for the parent to support and participate in the second language acquisition process.

Myth # 1 - "My child doesn't understand what the homework says." The child understands the cognitive concept but is working through the transfer process. If she is not proficient in reading or completing the homework, that doesn't mean that she doesn't understand. Be sure your child has the cognitive understanding of the concept in the first language.

Myth #2 - "Having homework assigned in the second language is too hard. We are expecting too much from this child." Homework, in any language, is an extension of what the child has learned in class. If he understands the concepts, then the issue is how to appropriately transfer the knowledge. It isn't about unrealistic expectations, it is about using information and knowledge at an early age. Keep in mind that the child has learned the concepts in the second language. Having homework in the second language is important to the immersion experience.

Myth #3 - "Don't worry about [the target language]. Just translate everything." Translating is

a tool. If you begin with the translation, then the ability of the student to use all her tools/strategies for learning is circumvented. Besides, translation is difficult - languages don't function on the basis of word-to-word correspondences.

APPROPRIATE PARENTAL INVOLVEMENT

- **Listen, listen listen.** It's important not to interrupt the learning process. Allow your child to work through the transfer of language without guidance from you.
- **Assist the transfer process.** Allow the child to explain the concept in the native language and then support him in the transfer to the second language. Use the first language in a comparative way, not to translate. For example, identify words that are cognates (similar to words in the native language): "There is a word in English ...". Talk about word structure: "In English, I say that this way...". Discuss pronunciation: "That sounds like...". Compare meaning: "In English, that would be used like this...".
- **Use a dictionary, a thesaurus, and books to demonstrate appropriate research skills.** Use the following prompts: "What does this word mean in English? Let's look it up in a dictionary. If this means ..., then this must mean ..."
- **Have your child call a friend for peer help.**
- **Encourage, praise, and never use intent-defeating language.** For example, instead of telling your child that something is "too hard," use the word "challenging." When your child complains about not being able to do the work, talk to her about the high expectations you and the teacher have. If you feel that it is unrealistic for the teachers to expect your child "to do this in Spanish (or other language)," remind yourself instead how the homework is meant to be a natural extension of classroom learning. Ask your child, "How do you do this in class?"
- **Use tones of voice that are soothing, interested, and sincere.**
- **Provide enough time to work with other issues that are homework related.**
- **Write a note to the teacher** and then schedule a parent conference if negative behavior around homework issues persists.
- **Be patient, patient, patient.**

The process of learning through a second language is challenging and can sometimes be frustrating. But the benefits and rewards are very real! Creating a learning environment at home where homework acts as friend instead of foe is an integral part of the process.

What Parents Want to Know About Foreign Language Immersion Programs

Tara W. Fortune, Center for Advanced Research on Language Acquisition, University of Minnesota
Diane J. Tedick, Department of Curriculum and Instruction, University of Minnesota

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Modeled after the pioneering French immersion programs developed in Canada in the 1960s, foreign language immersion programs in the United States are designed to enrich the education of native-English-speaking students by teaching them all of their academic subjects in a second language. The goal is for students to become proficient in the second language and develop increased cultural awareness while reaching a high level of academic achievement. Students develop proficiency in the second language by hearing and using it to learn all of their school subjects rather than by studying the language itself.

Parents who are considering an immersion program for their child usually have many questions. This digest provides introductory responses to some of the questions most commonly posed by parents.

What is a foreign language immersion program and how does it work?

In foreign language immersion programs, the regular school curriculum is taught in the immersion language for at least half of the school day. In partial immersion programs, instructional time is divided equally between English and the immersion language throughout the elementary grades. In full immersion programs, teachers use no English at all in the early grades. In Grade 2, 3, or 4, teachers introduce English language arts and reading for one period per day and gradually move toward an even distribution of English and the immersion language by Grade 5 or 6. In the secondary school grades, immersion students typically have access to at least two course offerings in the immersion language, most often in social studies and language arts.

In U.S. programs, the immersion language is most often a world language spoken by large numbers of people, such as Spanish, French, or Cantonese. In some cases, it is a heritage language being revitalized, as in the Hawaiian and Yup'ik (an Alaska native language) immersion programs that serve indigenous communities. The goal of immersion is to provide educational experiences, beginning in kindergarten and ideally sustained through Grade 12, that support academic and linguistic development in two languages and that develop students' appreciation of their own and other cultures.

One of the key principles of immersion education is that linguistic and cultural knowledge is a resource—the more you know, the better off you are. Immersion education adds knowledge about a new language and culture while building on a child's English language skills and knowledge of U.S. culture.

In order to make academic lessons comprehensible to learners and to support their second language learning, immersion teachers—who are highly proficient in English and the immersion language—use a vast repertoire of instructional strategies as they cover the school district's curriculum (Cloud, Genesee, & Hamayan, 2000; Snow,

1987). Many of these strategies appear on the Immersion Teaching Strategies Observation Checklist (Fortune, 2000) developed by immersion teachers and researchers at a summer institute at the University of Minnesota. In the early years, immersion teachers realize that their students will not understand everything they say. They use body language, visuals, manipulatives, exaggerated facial expressions, and expressive intonation to communicate their meaning. In kindergarten it is common for students to speak English with their peers and when responding to their teacher. As the years progress, students naturally use more of the immersion language. To draw students into using the language, teachers often use songs, useful phrases, chants, and rhymes and carefully structure the day with familiar routines.

Why should I consider enrolling my child in an immersion program?

Immersion programs are the fastest growing and most effective type of foreign language program currently available in U.S. schools. Most immersion students can be expected to reach higher levels of second language proficiency than students in other school-based language programs (Met, 1998). Becoming bilingual opens the door to communication with more people in more places, and many parents want to provide their children with skills to interact competently in an increasingly interdependent world community.

In addition to reaping the social and economic advantages of bilingualism, immersion learners benefit cognitively, exhibiting greater nonverbal problem-solving abilities and more flexible thinking (see reviews in Met, 1998). It has been suggested that the very processes learners need to use to make sense of the teacher's meaning make them pay closer attention and think harder. These processes, in turn, appear to have a positive effect on cognitive development. However, a high level of second language proficiency is needed in order to experience the positive cognitive benefits that come with bilingualism (Cummins, 1981). From the standpoint of academic achievement, over three decades of studies consistently show that immersion students achieve as well as or better than non-immersion peers on standardized measures of verbal and mathematics skills administered in English (Cloud, Genesee, & Hamayan, 2000; Genesee, 1987).

How will learning everything in a second language affect my child's English language and literacy development?

Many parents are initially fearful that immersion may have a negative impact on their child's English language development. But research consistently finds that the immersion experience actually enhances English language development (Cloud, Genesee, & Hamayan, 2000). It should be noted that full immersion students' English development may lag temporarily in reading, word knowledge, and spelling while instruction is occurring exclusively in the immersion language. However, after a year or two of instruction in English language arts, this discrepancy disappears (Genesee, 1987). It is important for parents to understand that this lag is temporary and to be expected.

In full immersion programs, children develop initial literacy in the immersion language. Many cognitive processes that underlie the ability to read, such as understanding the relationship between the spoken language and the written word, transfer from one language to another (Cloud, Genesee, & Hamayan, 2000). But when the immersion language differs significantly from English (e.g., languages that don't use our alphabet) literacy skills developed in

one language will not necessarily transfer to the other language. Immersion students who learn to read first in a language that is markedly different from English, such as Arabic or Japanese, will need to learn and practice literacy skills that are specific to each language (Kanagy, 2001).

It is assumed that immersion students will have consistent exposure to and support for English at home and in the community. Parents need to provide their children with experiences that will enhance their English language and literacy development. For example, they should read to their children every day and involve them in games and activities that complement their classroom learning. Research shows that the stronger the development of the native language, the greater the proficiency in the immersion language, so children who enter an immersion program with a strong base in English will succeed more easily than those whose English skills are not as strong.

Will my child become proficient in the second language? How long will that take?

After only 2 or 3 years in an immersion program, students demonstrate fluency and confidence when using the immersion language, and their listening and reading skills are comparable to those of native speakers of the same age. While these skills remain native-like, students' speaking and writing skills lag behind those of native speakers (Johnson & Swain, 1997). Research finds that immersion students' second language lacks grammatical accuracy and does not display the variety and complexity produced by native speakers of the language. Achieving high levels of oral and written proficiency in a second language is a long-term process. A long-term commitment is essential, and parents need to understand that native-like proficiency in every skill area is unlikely. Still, immersion students will have a strong second language base upon which to continue moving toward full proficiency and to develop proficiency in subsequent languages.

Language learning is influenced by many factors, including students' personality and motivation, teacher expectations, parental support, program leadership, and support at both the school and district level. Student success requires the active involvement of all of these stakeholders.

Is immersion an appropriate choice for all children?

The vast majority of immersion programs are open to all students. There is no admission test or pre-screening process. Research findings on the effectiveness of immersion education hold true for a wide range of students, including those from diverse socioeconomic and ethnic backgrounds (Genesee, 1992). As is sometimes purported, these programs are not intended exclusively for middle- and upper-class Anglo families. In fact, some recent research indicates that immersion may be an effective program model for children who speak a language other than English or the immersion language at home (deCourcy, Warren, & Burston, 2002). It is hypothesized that these learners may benefit from a leveling-of-the-playing-field effect that occurs when all of the students in the class are functioning in a second language. Students who are not native speakers of English are able to be on par with their native-English-speaking peers and enjoy the same kinds of success with learning.

There are, however, many unanswered questions concerning the suitability of language immersion for children with language-based learning disabilities. Research on this topic is scant. Some researchers and immersion practitioners argue that children whose first language acquisition is seriously delayed or who struggle with auditory

discrimination skills may be overtaxed in a language immersion program (see review in Genesee, 1992). Previously identified language-processing challenges should be considered prior to enrolling a child in an immersion program. Still, many children with mild learning disabilities, knowledgeable teachers, and supportive families can and do achieve well in immersion programs and develop proficiency in a second language. Parents and educators need not assume that learning in two languages will overtax these children. In fact, many instructional techniques used in immersion are similar to techniques recommended for struggling learners. Understanding how to make language immersion classrooms more inclusive for a broader spectrum of learners is one of many topics of interest to immersion educators.

What can I do to support my child's immersion experience if I don't speak the second language?

Like all parents, parents of children in immersion programs should maintain an active role in their children's education by providing experiences that help develop their English language skills and enhance their cognitive and affective development. They should read to them daily and engage them in activities where they need to apply what they are learning in class. For example, third-grade students studying measurement can do activities at home that involve measuring, such as hanging a picture or baking cookies. Parents should also communicate with the teachers on a regular basis about their children's academic, social, and language development. They should become well informed about immersion education, make a commitment to keep their child in the immersion program, and support their children's use of the immersion language outside the school context, for example, by providing reading materials in the immersion language at home and encouraging a pen/keypal friendship. While volunteering in classrooms is often a good way for parents to be involved in their child's education, parents need to be careful that their volunteering efforts don't compromise children's use of the immersion language. Some programs designate one afternoon per week for parent volunteers, encourage volunteering during periods when English is used, or have parents volunteer their time for activities that don't involve classroom interaction.

Conclusion

Immersion education offers an exciting opportunity for students to reach high levels of academic achievement and to acquire strong proficiency in English and another language. Parents who are interested in immersion for their children should become as well informed as possible about this program model. It is hoped that this digest will serve as a useful starting point.

Notes

1. This checklist can be found online at <http://carla.acad.umn.edu/Immersion/checklist.html>.
2. To access the directory of foreign language immersion programs maintained by the Center for Applied Linguistics, see <http://www.cal.org/resources/immersion>.

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Top Ten Answers for Parents about Immersion Education

The ACIE Newsletter, May 2007, Vol. 10, No. 3

By Canadian Parents for French, Ottawa, Ontario

Why should I choose immersion education for my child?

Parents want to make the best educational choices for their children, and many would like them to have the advantages of bilingualism. The ability to understand and speak more than one language is not the only benefit of immersion education. Research shows that students gain additional cognitive, academic and employment benefits.

How does immersion differ from other types of language instruction?

In traditional second language instruction, the target language is the subject of instruction. Immersion programs use the target language for instruction and as a means of communication. This authentic communication allows students to learn a second language in a similar manner to the way that they have learned their first.

Do children need above average academic ability to succeed in immersion?

Students with lower academic ability do as well in immersion as they might in English programs and have the additional benefit of bilingualism. Researchers found that "below-average students in immersion scored at the same level as below-average students in the English program on English language and academic achievement tests." In addition, "below-average students in immersion scored significantly higher on second-language tests than the below-average students in the English program" (Genesee, in press).

How bilingual will my child be?

Immersion programs have generally produced better second-language proficiency results than traditional foreign language teaching strategies. The intensive exposure to the target language is important because it allows students quickly to reach the level of second-language proficiency required to study other subjects in the new language. Immersion students approach native-like levels in second-language listening comprehension and reading by the end of elementary school, although they are distinguishable from native speakers in speaking and writing. High school immersion graduates should be able to work in or pursue post-secondary studies in their second language. In fact, in Canada, many high school immersion graduates attained an intermediate or higher level of second-language proficiency on Public Service Commission of Canada tests. (Lazaruk, in press)

Will immersion education affect my child's English-language skills?

Students can add a second language at no cost to their first language competence (additive bilingualism) because languages are interdependent. Skills developed in the second language are available for learning and using in the first language and vice versa. First-language arts are introduced by the middle elementary

years, while family and community also reinforce first language skills. (Lazaruk, in press)
Research has shown that “the effect of learning a second language on first-language skills has been positive in all studies done.... [and] the loss of instructional time in English has never been shown to have negative effects on the achievement of the first language.” (Bournot-Trites & Tellowitz, 2002) In fact, immersion students match and often surpass English program students’ performance by Grade 4 or 5 after first-language arts are introduced in the middle elementary years. (Turnbull, Hart & Lapkin, 2000)

Can my child really learn math and science in their second language?

Reviews of research studies found that immersion students met or exceeded English program students’ performance in mathematics and science, and province-wide assessments in three Canadian provinces* found that at grades 6, 8, and 10, respectively, immersion students did as well as or achieved at a significantly higher level than those in the regular program. (Bournot-Trites & Tellowitz, 2002; British Columbia Ministry of Education, 2000; Dube & MacFarlane, 1999; New Brunswick Department of Education, 2000; Turnbull, Hart & Lapkin, 2000.)

*Although other provinces and territories conduct province-wide assessments, they do not separate the results of immersion and English program students.

Will immersion graduates have trouble in university or college because they didn’t take high school subjects in English?

A survey of Canadian university students (Canadian Parents for French, 2005) found that the majority of immersion graduates surveyed reported no difficulty in adjusting to university courses offered in English. In fact, immersion graduates have more options than other students because in Canada they may choose to take some or all post-secondary courses in their second language. The majority of survey respondents reported no difficulty in making the transition from high school to university courses in French.

What are the cognitive benefits of being bilingual?

[Editor’s note: Research on the cognitive benefits of immersion education specifically is limited. Some researchers argue that immersion students’ language proficiency may not be developed as sufficiently as that of fully bilingual individuals who researchers feel more consistently exhibit the behaviors discussed below.]

- Mental Flexibility

Bilinguals are better able to analyze their knowledge of language. They learn that there are at least two ways of saying the same thing and understand the relationship between words and their meaning. They are able to focus more on meaning and take into account only relevant features when there is distractive information. (Heightened metalinguistic awareness.) Bilinguals demonstrate more mental flexibility and perform better on tasks requiring mental manipulation. They are original in verbal expression, demonstrate non-verbal intelligence and can answer open-ended questions more freely than monolinguals (Lazaruk, in press).

- Increased sensitivity to others; heightened awareness, receptivity and appreciation of language.

Students with two well-developed languages are more sensitive to communication. There is some evidence to suggest that they are better able to understand the needs of others and to respond appropriately. Through exposure to cultural differences they may become more respectful of differences between people and their cultures and may be able to communicate with a large variety of people (Lazaruk, in press).

What are the employment benefits of immersion education?

Bilinguals have access to a wider range of national and international jobs. Thousands of businesses operate in more than one language – airlines, import-export companies and other international businesses require employees with second-language skills and cultural sensitivity.

How can I help my child if I don't know the language?

Immersion teachers know that most parents don't understand the target language. Indeed, immersion programs were designed specifically for children of unilingual parents. You can help make your child's second-language experience positive and lasting by being supportive and enthusiastic. Research shows that students whose parents have positive attitudes towards the target language do better in immersion programs. Remember that most skills learned in the first language are transferred to the second. Read to your children in English, encourage English writing, and introduce English-language word games like crossword puzzles, word searches, Scrabble and Password. Provide opportunities to use the target language outside of the classroom: borrow or buy books and videos, watch second-language TV with your child, and expose your child to second-language events and activities like plays, interest courses, and sport activities.

The Evidence Speaks Well of Bilingualism's Effect on Kids

October 7, 2002

Judy Foreman, LA Times

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Kids who grow up in bilingual homes may be slower to speak than other kids, but once they've learned both languages they appear to have a number of intellectual advantages. People who speak two languages early in life quickly learn that names of objects are arbitrary, said Suzanne Flynn, a professor of linguistics and second-language acquisition at the Massachusetts Institute of Technology. "So they deal with a level of abstraction very early."

Also, bilingual kids become exceptionally good at learning to ignore "misleading information," said Ellen Bialystok, professor of psychology at York University in Toronto. Bialystok tests bilingual and monolingual 4-year-olds with what she calls the "tower game," which involves building towers with either Lego or Duplo blocks. Duplo blocks are similar to the familiar Lego ones, but they're roughly twice as big. Every block, regardless of its size, holds one "family," Bialystok tells kids. The child's task then becomes to look at a tower and say how many families it can hold. The trick is that a tower made of seven Lego blocks is the same height as a tower made of four Duplos. To answer correctly the question of which tower holds more families (the Lego tower), the child has to ignore this obvious visual fact.

"By age 5, monolingual children can do this," said Bialystok, but bilingual kids can do it at 4. "This is the advantage of bilingualism"--in other words, a child can focus attention and ignore distractions. Bilingual kids also learn another useful skill--how to switch back and forth between tasks when the rules (such as the rules of a language) change, said Adele Diamond, director of the Center for Developmental Cognitive Neuroscience at the University of Massachusetts Medical School in Waltham.

Learning to adapt to a new set of rules means learning how to inhibit--or not pay attention to--a previously learned set, a skill that depends on development of a particular part of the brain, the prefrontal cortex, which functions in concert with other areas. In bilingualism, said Diamond, "you are constantly having to exercise inhibition because otherwise one language would intrude. We think this puts such a heavy demand on the system that it pushes the brain to mature earlier."

This ability to filter out distractions and switch back and forth between tasks may give bilingual kids a leg up in school, she said.

In many studies, researchers use the Stroop test. The child is presented with a list of colors, but each color's name is written in ink of a different color. For instance, the word "red" would be written in green ink. Sometimes, the rule is that the child must say the name of the color and sometimes the child must say the color of the ink instead. For kids who can't yet read, Diamond uses pictures of circles on a computer screen.

Diamond then uses functional MRI scans to see which areas of the child's brain are needed when the rules keep switching. Constant rule switching, she said, causes the brain to recruit extra neural circuits, whereas tasks that don't involve rule switching do not.

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October 7, 2002

Judy Foreman, LA Times

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Large Area of Brain Used

Even in monolingual people, language processing is so central to being human that the brain devotes a huge amount of "real estate" to it, said Patricia K. Kuhl, director of the Center for Mind, Brain and Learning at the University of Washington. For 99% of right-handed people, the brain processes language mostly in the left hemisphere. In left-handers, it's often, though not always, reversed. Specifically, speech production is governed by Broca's area, a small region in the left inferior frontal cortex of the brain--beneath the temple. Language comprehension, on the other hand, occurs in Wernicke's area, which lies farther back. (Sign language, by the way, uses the same areas, as well as visual processing areas. If a person who communicates by sign language has a stroke in Broca's area, he may become aphasic--unable to speak--just like a person who uses oral speech.)

Getting the brain up to speed for language processing takes years. A recent imaging study by Steven Petersen, a cognitive neuroscientist at Washington University in St. Louis, showed that even in kids ages 7 to 10, the brain was working harder at language tasks than brains of adults. That's because "kids are still learning," he said. And kids who learn two languages, not surprisingly, have an even tougher challenge. When babies are born, they are "citizens of the world," said Kuhl, who studies language development in babies in the U.S., Sweden, Japan and Russia. Newborns don't classify sounds; they simply hear and respond (by turning their heads) to all sounds. But over the first six months, as they become "bathed" in their native language, a baby's brain does a kind of statistical analysis that said, in essence, "This sound is important. I'd better file it away for future use." Or, "This other sound is not important. I can forget it." Using computer-generated vowel sounds and sophisticated statistical analyses of babies' responses, Kuhl has shown that by 6 months of age, Swedish babies and American babies "have totally different perceptions of the exact same sound" from the computer. Other researchers, including those from the University of British Columbia, have shown similar results.

These distinctions become ingrained for life. While Japanese babies learn that there's no meaningful difference between the sound for "L" and the sound for "R," American babies learn there is. The result, for Japanese adults, is that it is very difficult to distinguish between "L" and "R" because the two sounds, said Kuhl, are in the same storage "bin." But mapping exactly where language "bins" reside is a tricky, and fascinating, business. Neuroscientist Joy Hirsch of Columbia University uses functional MRI scanning to study bilingual adults, half of whom became bilingual as toddlers and half of whom learned a second language as an adult. The question was simple: "When one learns a second language, is that represented in the same area of the brain as the native language?"

Hirsch's subjects, who spoke a variety of languages--English, Chinese, German, French, etc.--were shown a picture and were asked to describe it first in one language, then in the second language. In adults who had learned a second language early, as toddlers, electrical activity in Broca's area looked virtually identical, regardless of which language

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was being used. But when people had acquired a second language later, the scans showed two separate parts of Broca's area lighting up. This suggests that when the learning is early, "the brain treats multiple languages as one language. But when one learns later in life, the sorting out seems to be done more spatially," says Hirsch, whose research has been used by both sides in the bilingual education debate.

At the Montreal Neurological Institute, Denise Klein also finds brain differences depending on when people learn a second language. Using PET scans, she has found that people who are fully bilingual in French and English use the same area of the brain as an "internal dictionary," regardless of which language they're speaking. By contrast, people who are not truly bilingual, that is, who learn a second language after childhood, need to recruit additional brain areas to find words in their nonnative language, suggesting the brain has to work harder to do this.

Neurosurgeons, too, have documented that multiple languages can be stored in discrete parts of the brain. Dr. George Ojemann, a professor of neurology at the University of Washington School of Medicine in Seattle, operates on people who suffer severe epileptic seizures, some of whom are bilingual, and maps the precise location of each language. With the patient awake and able to speak, Ojemann shows a picture of, say, a banana, and asks the patient to name it. By using very precise electrical stimulation of specific regions in the brain, Ojemann can get the patient to talk, say, in French but not English, then stimulate a nearby area and get the opposite result.

Separate Circuits

Though there is some overlap, this suggests that there are "somewhat separate neuronal circuits for different languages," said Ojemann, who has recently been able to map different languages to single neurons. "If you have two languages, all lines of evidence show there is separate real estate for different languages" in the brain, agrees Patricia Kuhl of the University of Washington.

So what, if anything, does all this imply for bilingual education? "We are nowhere near knowing what it implies," she said, though researchers are trying to find out. Even though the answers are not all in, she added, there seems to be a "great advantage" to being multilingual.

Language Immersion, Especially Early On, Helps Kids

A mountain of evidence suggests that surrounding a young child with a foreign language increases natural curiosity the ease of learning a new language.

EducationNews.org by Matthew Tabor, September 7th, 2011



An article by The American Council on the Teaching of Foreign Languages called “[Cognitive Benefits of Learning Language](#)” purports that the learning of a second language at an early age triggers the child’s natural curiosity during the learning process. This heightened engagement helps the student learn the language proficiently and with near native pronunciation and intonation.

Theresa Caccavale, president of the National Network for Early Language Learning (NNELL), (www.nnell.org) states, “Children who learn a foreign language beginning in early childhood demonstrate certain cognitive advantages over children who do not.” Some of those advantages are understanding object permanence, problem solving, [greater critical thinking skills and increased creativity](#). “There is also a relationship between foreign language study and increased mathematical skill development.”

In the same article, Martha G. Abbott, the Director of Education for the American Council on the Teaching of Foreign Languages (ACTFL), (www.actfl.org) says that immersion programs work because the learning of the second language is a tool, a vehicle, for content for general education curriculum. Consequently, two things are accomplished: the student learns content (for example – math) *and* the second language.

Abbott also insists that all students can learn a second language in this way. Some students will have a natural talent for learning language and learn it quickly. But *all* students will benefit from the program.

The Center for Applied Linguistics (CAL, www.cal.org) article “What Parents Want to Know About Foreign Language Immersion Programs” states that Immersion programs are the fastest growing and [most effective type of foreign language program currently available in U.S. Schools.](#)

Here, Tara W. Fortune and Diane J. Tedick claim that the experience of having to pay closer attention to the teachers non-verbal cues makes the student think harder. The effect? Three decades of studies show that immersion students consistently test as well or better than students in non-immersion schools.

Language immersion schools are not new. The obvious benefit to a language immersion school is the acquisition of a second language. Spoken, written and read. In addition to that, the knowledge and appreciation of another culture.

The surprise benefits include a better understanding of the child’s native language, the cognitive ability to transfer skills from one language to another and increased flexibility and creativity. There is also that connection between language learning and higher scores on standardized academic testing, especially in math, which draws us like moths to a flame.

Building a Nation of Polyglots, Starting With the Very Young



Librado Romero/The New York Times

Kim Del Rosario teaching third graders at the W. L. Morse School in Sleepy Hollow, N.Y.

By [JOSEPH BERGER](#)

Published: November 14, 2007

TARRYTOWN, N.Y.

Seven-year-old Cooper Van Der Meer is learning Spanish as a second language.

That's right. This American native is lucky enough to be in a school system that considers the acquisition of languages so important in today's polyglot, globally entwined America that students start learning a foreign language in kindergarten.

When Cooper is asked to match “el ojo” with the figure of a colorful “monstruo,” he moves the words on an electronic blackboard right up to the monster’s eye, winning a smile from his teacher, Vanessa Franco. His second-grade classmate, Carissa Perez, may be able to slip the words “la

nariz” up to the monster’s nose more confidently since her Dominican roots give her an edge. But for Cooper, recognizing body parts, days of the week, numbers, animals and greetings in Spanish is a big deal.

“Sometimes I don’t need to speak Spanish, but I probably will need to,” he said, sounding like a future master of the universe. “I want to own a pet shop because I like dogs. If there’s a Spanish person in the store, I’ll probably translate that guy.”

Cooper’s wisdom is percolating across the nation. The United States, often fiercely chauvinistic and sometimes outright isolationist, has never considered the ability to speak a foreign language an essential talent. Unlike many Europeans and Asians who learn languages in primary school, most Americans do not get the chance until high school or in the grades just before — at too advanced an age to soak in quirky words and syntax with the nimbleness needed for fluency. That is why traveling Americans resign themselves to speaking menu French or Spanish.

But with an economy that recognizes few geographical borders, and with people from all over the planet becoming our next-door neighbors, more Americans are demanding language instruction earlier in school.

Martha Abbott, director of education at the American Council on the Teaching of Foreign Languages, said that while there is no reliable data on the trend, her organization keeps learning of more school systems that think paying for elementary school language teachers is money well invested.

Since September 2006, all students in grades one through five in Loudon County, Va., have been given 30 to 60 minutes of Spanish instruction each week. Last year, officials in Fairfax County, Va. — which, with 165,439 students, is the nation’s 13th-largest school system — decided to expand the study of foreign languages to all 137 elementary schools over a seven-year period. Twenty-five Fairfax schools provide 30-minute lessons twice a week in Spanish, Japanese, Arabic, Chinese or French starting in the first grade. Ten schools have ambitious “immersion” programs where math, science and health are taught in a foreign language.

Paula Patrick, the Fairfax system's foreign language coordinator, said Americans have for too long had a "mind-set that everyone else in the world could learn English." Her district is receiving appeals from businesses that need global-ready travelers and from a health care industry that needs translators.

The growth in language instruction is also taking place in college. A survey by the Modern Language Association released yesterday found a 13 percent increase in language-course enrollments between 2002 and 2006, with a 127 percent increase in the number of students taking Arabic.

Foreign language instruction does not come cheap. Fairfax estimates that hiring instructors for its expanded program will cost \$16 million. The mystery is why more affluent districts that are willing to pay for gifted football coaches aren't starting language instruction earlier, particularly in areas with significant immigrant populations. The logic for doing so seems obvious. As every immigrant knows, it's far easier to learn a language as a 6-year-old than as a 16-year-old.

"They're like sponges," said Mary Lynn Pearlman, a kindergarten teacher here, speaking of her young pupils. "In middle school they would worry about how they sound and their accent. Here, they don't care."

But in this school district in Westchester County, where Latinos make up half the 2,600 students, learning Spanish is also a strategy for weaving together a community splintered along class, race and linguistic lines.

The district's two villages, Tarrytown and Sleepy Hollow, are both heavily blue collar, and when factories like the General Motors assembly plant closed, the houses left empty by departing auto workers were filled with Latino immigrants. Until four years ago, Hispanic students, most with roots in Ecuador or the Dominican Republic, were placed in bilingual classes where they would learn all subjects in Spanish or in mainstream classes, with extra English help. Young children from English-speaking homes, though, had no option to take Spanish, in, say, the way English is offered in Sweden.

In 2003, with increased emphasis on standardized tests exposing how poorly bilingual students were doing in English, Tarrytown did away with most bilingual classes. Tarrytown also found that bilingual students had a tendency to stick together, said Michele Milliam, principal of the Tappan Hill School.

Under the new regimen, where almost everyone studies two languages, teachers are noticing that Hispanic and white children are more likely to play together and that parents from different cultures are more willing to approach one another.

“It’s not as easy to harbor stereotypes when it’s their children your children are mixing with,” said Dr. Howard Smith, the superintendent.

Tarrytown’s program follows a two-tier approach. In classes where Spanish is taught as a foreign language, a specialist visits the second, third and fourth grades every fourth day for a 40-minute lesson. (Ms. Franco teaches 16 second- and third-grade classes over the four-day cycle.) In kindergarten and first grade, students are given 20-minute lessons daily by Spanish-speaking assistant teachers.

In one kindergarten class the other day, the students told the assistant teacher, Aura Feliciano, the colors they were wearing — rojo, amarillo, azul or anaranjado (red, yellow, blue and orange). About 20 percent of the elementary students, volunteers all, receive more challenging immersion classes.

In all Spanish classes, officials said, newcomers from Spanish-speaking homes, get their moments to shine.

That includes John Tintin, a first grader and son of Ecuadorean immigrants who claims to have learned Spanish “when I came out of my mom’s stomach.”

Tarrytown’s program is far from ideal. One principal, Marilyn Mercado-Belvin of the John Paulding School, has let Mr. Smith know that students need Spanish twice a week, not just every fourth day.

But even with flaws, the program produces tangential benefits, like the kindness shown by Ryan Geary, a shy, blue-eyed 6-year-old. She likes to learn Spanish, she said, to be helpful “because I have some Spanish friends, and they don’t speak much English.”

Ryan can’t actually speak Spanish well. Not yet. But she is learning.

Academic Studies Supporting Cognitive and Academic Benefits from Early Education Language Learning and Immersion Classrooms

Early Education Language Learning

- **Met, M. (1991). Elementary school foreign languages: What research can and cannot tell us. In E. S. Silber (Ed.), *Critical issues in foreign language instruction* (pp. 63-79). New York: Garland Publishing, Inc.**

Examined are some issues in elementary school foreign-language instruction, including concerns about when to begin such instruction, which language(s) to teach, learning methods, & measures of competence among children. The cognitive, academic, & attitudinal benefits of early language learning are discussed, along with factors that may affect the beginning grade level (resources, etc). In general it is asserted that the earlier the language is introduced, the more rapidly children stand to reap the benefits. FLES & FLEX instruction programs are considered as models, & content-based instruction is cited as most effectively transmitting the communicative & semantic nature of a foreign language to children. It is further suggested that both immersion & FLES learning programs may provide the best vehicles for producing research data on the effectiveness of primary school foreign-language study.

- **Stewart, J. H. (2005). Foreign language study in elementary schools: Benefits and implications for achievement in reading and math. *Early Childhood Education Journal*, 33(1), 11-16. from PsycINFO database.**

Educators and policy makers in many countries have been expressing concern about how to improve students' achievement in reading and math. This article explores and proposes a solution: introduce or increase foreign language study in the elementary schools. Research has shown that foreign language study in the early elementary years improves cognitive abilities, positively influences achievement in other disciplines, and results in higher achievement test scores in reading and math. Successful foreign language programs for elementary schools include immersion, FLES, and FLEX programs.

- **Cohen, A. D. (1974). The Culver City Spanish immersion program: The first two years. *The Modern Language Journal*, 58(3), 95-103. from Linguistics and Language Behavior Abstracts database.**

A report on the Culver City Spanish Immersion Program designed for the bilingual education of English speaking students learning Spanish showed definite patterns emerging following the second year of the program. **The English speaking students were acquiring competence in understanding, speaking, reading, and writing Spanish, while maintaining English language proficiency. These students are also performing on the same level as their English speaking age group who were not in bilingual programs in content subjects such as mathematics.**

▪ Pagan, C. R. (2005). English learners' academic achievement in a two-way versus a structured English immersion program [Abstract]. *Dissertation Abstracts International, A: The Humanities and Social Sciences*, 66 (5), 1603-A-1604-A. (Available from UMI, Ann Arbor, MI. Order No. DA3175715.)

This study examines the academic achievement scores of English learners in a two-way immersion (TWI) program and a Structured English Immersion program in two California elementary schools. In addition, this study compares the English and Spanish academic performance of English learners with the achievement levels of English-dominant students in the same TWI program. A total of 194 students were followed over a three-year period beginning with the 1999-2000 school year and ending in 2001-2002. Assessment scores from the Stanford 9 (reading and mathematics) and the Spanish Assessment for Basic Education (SABE) (reading and mathematics) were collected and analyzed. **The findings support work by other researchers who have reported that teaching English learners in their home language does not impede the acquisition of English. Similarly, English-dominant students in a TWI program, by the end of their first and third year of this study, were achieving at-or-above**

▪ Bialystok, E. (1997). Effects of bilingualism and biliteracy on children's emerging concepts of print. *Developmental Psychology*, 33(3), 429-440. from PsycINFO database.

Three groups of 4- and 5-year-old children were examined for their concepts of how print refers to language. All of the children could identify printed letters and their sounds but not read alone. The groups studied were monolingual speakers of English, bilingual speakers of French and English, and bilingual speakers of Chinese (Mandarin) and English. Bilingual children were equally proficient in both languages and were familiar with print and storybooks in both languages. The tasks assessed children's understanding of the general correspondence between print and language in which the printed form represents a word and the specific correspondence between a constituent of print and one of language that determines representation in a given writing system. The general correspondence relation applies to all writing systems, but the specific correspondence relation changes for different kinds of writing systems. **Bilingual children understood better than monolingual children the general symbolic representation of print. The older Chinese-English bilingual children also showed advanced understanding of the specific correspondence relations in English print.**

Immersion:

- Bamford, K. W., & Mizokawa, D. T. (1991). Additive-bilingual (immersion) education: Cognitive and language development. *Language Learning, 41(3)*, 413-429. from ERIC database.

Examination of a second grade additive-bilingual (Spanish-immersion) classroom, compared to a monolingual classroom for nonverbal problem-solving and native-language development, found significant differences in problem solving in favor of the bilingual class and no significant differences in native-language development.

- Barik, H. C., & Swain, M. (1976). A longitudinal study of bilingual and cognitive development. *International Journal of Psychology, 11(4)*, 251-263. from PsycINFO database.

Presents findings of a study of IQ data collected over a 5-yr period (kindergarten to Grade 4) on pupils in a French immersion program (anglophone pupils receiving all instruction in French except English language arts) and pupils in the regular English program. **Although year-by-year results may fail to show IQ differences between the 2 groups, repeated measures analysis indicates that the immersion group had a higher IQ measure over the 5-yr period.** Supportive of those studies is a further analysis on the data of immersion students classified as "high" vs "low" French achievers. High achievers obtained significantly higher IQ measures and subtest scores than low achievers, even when scores were adjusted for initial IQ and age differences.

- Samuels, D. D., & Griffore, R. J. (1979). The Plattsburgh french language immersion program: Its influence on intelligence and self-esteem. *Language Learning, 29(1)*, 45-52. from Linguistics and Language Behavior Abstracts database.

This study examined the effects of a year's attendance in a French Language Immersion Program (FLIP) on children's verbal & performance sections of the Wechsler Intelligence Scale for Children (WISC) & self-esteem, measured by the Purdue Self Concept Scale (PSCS). Eighteen 6-year-olds attended the program, while 13 6-year-olds constituted a control group which attended a regular English program. Analyses of data showed that differences between the FLIP & English control groups at the end of the school year were not significant for Verbal IQ or PSCS. **Significant differences were found between groups on overall Performance IQ, Picture Arrangement, & Object Assembly. The increments in Performance IQ in the FLIP group are consistent with previously reported data suggesting that bilinguals have greater cognitive flexibility than monolinguals.**