

**Expanding Opportunities:**

**Developing a Robust World Languages Program in Early Childhood**



## EXECUTIVE SUMMARY

- New research in cognitive psychology and neuroscience reveals that there are significant cognitive benefits to becoming fluent in more than one language. These benefits include improved attention, creativity, emotional control, critical thinking, organization, and problem solving. (1.1, pp. 3-4).
- Research also shows that in early childhood, the brain is particularly adept at acquiring languages and programs that begin in this period have the greatest success in building multilingualism. (1.2, pp. 4-5).
- There are three models of world languages programs in elementary and preschools: FLEX, FLES, and immersion. FLEX provides fewer than 75 minutes per week, FLES provides between 75 and 200 per week, and immersion programs provide at least half of instruction in the target language. FLEX produces basic vocabulary and some oral proficiency by 5<sup>th</sup> grade, FLES produces intermediate oral proficiency and some literacy, and immersion produces oral fluency and intermediate to advanced literacy in the target language. (2.1-2.3, pp. 6-7).
- Albemarle County may choose among several models that build intermediate to advanced proficiency. These options create recurring costs of around \$156,000 per immersion school to \$299 per student (\$1.9 million) for countywide FLES by 2019. (3.1, pp. 7-8).
- Albemarle County is poised to become a leader in multilingual education. Policymakers may lead this initiative with a framework that includes a program model and objectives to facilitate implementation. (3.2, p. 9).

## TABLE OF CONTENTS

### **Research**

1.1 The benefits of multilingualism.....	1
1.2 When to start a world languages program.....	2

### **Models for Consideration**

2.1 Foreign Language Exploration (FLEX).....	4
2.2 Foreign Language in Elementary School (FLES).....	4
2.3 Immersion Programs.....	4
2.4 Immersion & FLES Language Academies by Feeder Pattern.....	5

### **Options in Albemarle County**

3.1 Expanding opportunities through language education.....	6
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<b>Cost Assumptions.....</b>	<b>7</b>
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<b>References.....</b>	<b>8</b>
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## RESEARCH

### 1.1 The benefits of multilingualism

In the past 15 years, there has been a revolution in our understanding of how language shapes the brain. While we've always known that speaking multiple languages is helpful for meeting new people, traveling, and learning about other cultures; recent research shows that becoming multilingual actually *makes people smarter*. Specifically, it improves memory, problem solving, critical thinking, attention, organization, PSAT and SAT verbal scores, and AP enrollment. Learning multiple languages develops the prefrontal cortex: the part of the human brain responsible for higher order thinking, or what scientists call the "executive functions" (Carlson & Methzoff, 2008; Bialystok, 2001; Bialystok & Shapero, 2005). Development of these functions leads to better math, science, and reading outcomes; emotional self-regulation, and enhanced creativity for students (Wilson, Evans, Alderman, & Burgess, 1998; St Clair-Thompson, & Gathercole, 2006; Bull & Scerif, 2001; Koenigs & Tranel, 2007; Miller & Cohen, 2001; Qureshi, Apperly, & Samson, 2010; Ricciardelli, 1992). The cognitive benefits of multilingualism can even act as a buffer against Alzheimer's disease since a bilingual person's brain has more pathways to work around the degeneration that occurs in Alzheimer's (Craik, Bialystok, & Freedman, 2010).

In addition to cognitive advantages, multilingualism brings economic and social benefits to individuals and communities. Our fast-changing world is more and more linked through networks of global capitalism; thus workers who can move fluidly across boundaries of language and culture are in greater demand (Gebhard, 2004). Every nation's competitiveness in global markets rests in part on its workers' capacity to communicate across multiple languages and cultures. Multilingual citizens also play an important role in national security (Pratt, 2004). Communities with workers capable of communicating across language and culture offer

attractive investment opportunities for companies looking to expand into an increasingly intercultural and global marketplace. Countries as diverse as Singapore and Switzerland show that national systems supporting multilingual education prepare students to achieve at the highest academic levels (Dixon, 2005).

Our new understanding of the cognitive benefits of multilingualism and the increasing importance of intercultural communication for economic and social development require our community to ask a question: How can Albemarle County develop a robust PK-12 World Languages program that expands economic and academic opportunities for our children, grandchildren, and ultimately the future of our region?

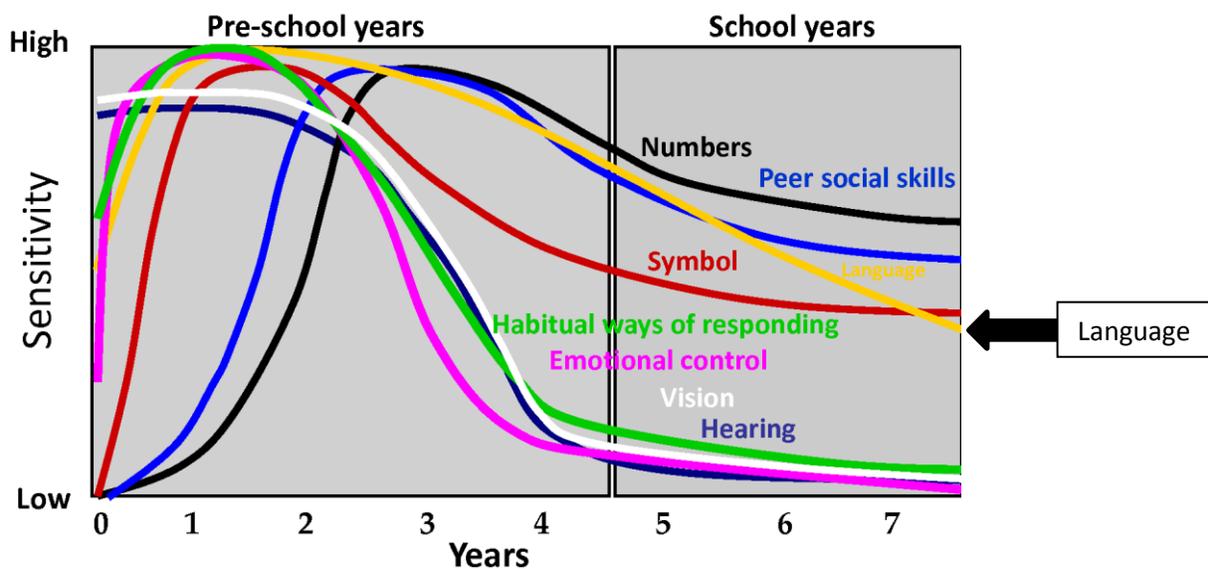
## **1.2 When to start a world language program**

The most important programmatic change schools can make to ensure the benefits of multilingualism is to begin teaching languages in the earliest stages of child development. The most common models of U.S. world language education do not include world languages until students reach adolescence. This is a vestige of an historical system in which only college-bound students went to public high schools and studied Latin or Greek as a requirement for post-secondary institutions. Recent research in cognitive psychology and neuroscience reveal that this system runs contrary to how the human brain acquires languages.

Children learn languages faster when they are younger and the more time they spend learning the greater fluency they are able to attain (Fox, Levitt, & Nelson, 2010). The period when a child's brain is most primed for acquiring multiple languages occurs between the ages of nine months and seven years (see figure 1) (Shonkoff, & Phillips, 2000). Children who learn a language during this period are more able to recognize and produce slight differences in tone and correct subtle grammatical errors than those who learn the language later in life (Weber, Fox, &

Neville, 2001; Gordon, 2000; Reichle, 2010). In addition, knowledge of multiple languages transfers across languages, so that young multilingual students who gain proficiency in one language apply those skills to others (Lesaux, Geva, Koda, Siegel, & Shanahan, 2008; Snow, & Kang, 2006; Jiménez, & García, 1996). Finally, immersion programs that include English Language Learners, or Limited English Proficient (LEP) students are the most effective for closing achievement gaps between these students and their native-English speaking peers (Cazabon, Lambert, & Hall, 1993; Lucido & McEachern, 2000; Stipek, Alan, & Alarcon, 2001; Francis, Lesaux, & August, 2006; Howard & Sugarman, 2007). Thus, implementing immersion programs may also create the most state-of-the-art English as a Second or Other Language (ESOL) program even as it supports all students to become multilingual.

## Sensitive Periods in Early Brain Development



Graph developed by Council for Early Child Development (ref: Nash, 1997; *Early Years Study*, 1999; Shonkoff, 2000.)

Figure 1: Synapse proliferation in early childhood.

## **MODELS FOR CONSIDERATION**

### **2.1 Foreign Language Exploration (FLEX)**

Students in this model receive fewer than 75 minutes per week in the target language and gain basic spoken proficiency by the end of fifth grade. The city of Charlottesville currently has a program that falls into this category. Its students gain basic Spanish proficiency and are ready to be successful in Spanish I in sixth grade. Such a program can be added onto an existing school schedule fairly easily, and students who transfer into the school without background in the target language can still participate without accommodations. The drawback for this program is that students do not gain fluency in the language and therefore do not acquire many of the cognitive benefits associated with bilingualism. If the program is implemented with additional teachers, it can also be expensive. It is possible, however, to offer FLEX programs through interactive digital media. This significantly reduces cost, though may also impact quality.

### **2.2 Foreign Language in Elementary School (FLES)**

Students in this model receive between 75 and 180 minutes per week in the target language. The current world languages program at Cale Elementary School falls into this category. Students in this model gain conversational fluency by the end of fifth grade, as well as basic literacy in the language. This model is sufficient in time in the target language for students to gain some of the cognitive benefits that come with learning multiple languages. The benefits of this model include accessibility by students transferring into the school with some accommodations and increased cognitive benefits over the FLEX model. The drawbacks include difficulty in scheduling and significant staffing costs if implemented across all grade levels. Currently, Arlington Public Schools offers a FLES program of 120 minutes per week and its 5<sup>th</sup>

grade students achieve, on average, around the Novice-mid to Novice-high level on the American Council of Foreign Language Teacher's (ACTFL) scale of language proficiency.

### **2.3 Immersion Programs**

Immersion programs have the highest success rate in developing fluency in another language and the associated cognitive benefits of bilingualism. Students spend between 50-90% of the instructional day learning in the target language. Teachers who instruct in the target language have near-native proficiency and teach the curriculum in the target language. The most successful immersion programs are known as Two-Way Immersion in which half of the students speak English as their first language, and half speak the target language as their first language.

The benefits of the immersion model are advanced proficiency for students by the time they finish fifth grade and improved English achievement for LEP students; reduced cost relative to FLEX and FLES since language instruction is not an add-on period, but rather a means to deliver the core curriculum; and the full cognitive benefits of bilingualism. The drawbacks are challenges to recruiting and retaining teachers with the required skills in both languages and difficulty in incorporating transfer students in the upper grade levels.

### **2.4 Immersion & FLES World Language Academies by Feeder Pattern**

Albemarle County can create an elementary world languages program of the highest caliber at a reasonable cost by creating a World Language Academy in each feeder pattern. Each world language academy would offer immersion classes that blend English with an additional language. Students would spend half of their instructional time in each language. They would go beyond learning a second language to learning Albemarle County's rigorous curriculum *in* a second language; thus gaining the cognitive benefits of full bilingualism. Parents would opt into this rigorous language option through application. If the immersion classrooms are

oversubscribed, the academy would institute a lottery to determine enrollment. All other students in the World Language Academies would participate in a robust FLES program of 70-100 minutes per week. Some seats within the language academies would be reserved for students who live outside of the academies' districts. The FLES portion of the academy's programming could provide a model curriculum that could eventually be expanded to all elementary schools in the county with additional funding.

### **3.1 Expanding opportunities through language education**

Research from cognitive psychology and neuroscience illuminate a new frontier for the benefits of multilingual education in early childhood. Multilingualism bestows cognitive, social, and academic benefits to children. It prepares them to participate in a global economy that is fast reshaping the lives of families, schools, and businesses. Albemarle County is poised to become a national leader in providing opportunities for its children to study multiple languages in elementary school. The development of World Language Academies in each feeder pattern that offer both immersion and FLES programming will pave the way to world-class language education in all public schools in Albemarle County.

## **Appendix A: Cost Assumptions**

Each World Language Academy would cost around \$156,000 per year to establish and maintain.

This assumes an elementary school of around 600 students with immersion classes making up around 60% of all classes in the school<sup>1</sup>. Three immersion schools in the county would cost around \$470,000 to establish and maintain.

World Language Materials Costs: \$3,000

Additional 2 FTE for FLES teachers: \$137,000

Professional Development for Teachers: \$10,000

Expanding a FLES program with additional teachers to all elementary schools in the county would cost an additional \$1.2 million dollars, or close to \$2 million. Coupled with the World Language Academy costs, this option would cost around \$299 per pupil per year.

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<sup>1</sup> This ratio is important for cost assumptions as immersion classes have a much lower cost than FLES classes, since FLES requires additional teachers.

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