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VISUAL LANGUAGE & VISUAL LEARNING RESEARCH BRIEF:



THE BENEFITS OF BILINGUALISM: IMPACTS ON LANGUAGE AND COGNITIVE DEVELOPMENT



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LEARNING FROM RESEARCH

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Key Findings on the Benefits of Bilingualism:

- Bilingualism is the norm, not the exception.
- Bilinguals achieve language milestones on time.
- Bilingualism promotes language and literacy development.
- Bilingualism promotes cognitive control processes.
- Bilingual education promotes metalinguistic awareness.

Are you Bilingual?

Anyone who uses ASL and English on a regular basis is bilingual. There is growing interest in bilingualism, but many people still worry that being bilingual may pose difficulties for young children. Who is bilingual, and how does being bilingual impact language and cognitive development? This brief will give you short and informed answers to questions you may have and questions you may be asked when talking about the bilingual status of students who use both ASL and English.

Bilingualism Defined

There are different definitions of bilingualism, and they vary in relation to the age that each language is acquired or the speaker's proficiency in each language. As bilingualism becomes more widely recognized, a majority of researchers are settling on a functional definition. In short, individuals who use two languages regularly are considered bilingual; multilinguals use more than two languages on a regular basis.

Even so, misconceptions about bilingualism persist. François Grosjean, a psychologist in Switzerland who was one of the first researchers to study American Sign Language cognitive processing, debunks several common myths about bilingualism in his 2010 book, *Bilingual: Life & Reality*.¹ For example, many people assume that being monolingual is the norm, and that bilinguals have equal proficiency in both languages. These common beliefs are not supported by scientific evidence. In fact, Grosjean argues that just the opposite is the case. Bilingualism is the norm today in most parts of the world (but not yet in the U.S.), and most bilinguals have different proficiency levels in their two languages. Moreover, it is common for language proficiency to change across the lifespan depending on how frequently bilinguals are using

each language. A Spanish-English bilingual who moves from Miami to Detroit may initially have greater proficiency in Spanish than English, but later will have greater proficiency in English than Spanish. Estimates of the incidence of bilingualism vary from 50 to 75 percent of the world's population, depending on the definition of bilingualism. A 2007 survey completed by the U.S. Census Bureau found that 18.1% of people over the age of 4 who live in the United States speak a language other than English in the home but also have some level of fluency in English.² This survey does not capture all forms of bilingualism in the U.S., including American Sign Language-English bilingualism, but it is a good estimate of the minimum number of bilinguals living in the U.S. Based on this survey, at least 50 million people—and very likely more—in the U.S. are bilingual. While there are no population studies of bilingualism in connection to hearing status, it is likely that bilingualism is even more prevalent among deaf than among hearing individuals; many deaf individuals know a signed language in addition to a spoken language, in spoken or written form.

Most bilinguals use their languages for different purposes. For example, they may use one language at home and another at school, one for speaking and another for writing, one with siblings and another with grandparents, and so on. Proficiency in each language will depend on how and when the language was learned and the level of proficiency needed in each context of use. For example, bilingual children may know the word for “slippers” in only one language because it is a word used more commonly at home than at school; by contrast, they are likely to know a word like “get” in both languages. Many studies that once reported that bilinguals lag behind their monolingual peers suffered from an important design flaw; these studies only measured proficiency in one of the bilingual's two languages. A bilingual who doesn't use the school language in the home would not know words like “slipper,” and would appear to

have a lower level of proficiency than a monolingual. More recent studies evaluate both languages when assessing proficiency. Comparisons of monolingual and bilingual children that take both languages of the bilingual into account demonstrate that the rate of vocabulary development is not an essential difference between the two groups.^{3,4}

Language Milestones of Bilingual Children

Despite more widespread awareness about bilingualism, many parents still worry that exposing their child at an early age to two languages will be confusing and cause linguistic and cognitive delays. Studies of bilingual children, however, consistently report that the acquisition of multiple languages is a seamless process that unfolds naturally and without complications. In the areas of phonological, lexical, and grammatical development, bilingual children achieve language milestones at similar ages to monolingual children.^{2,5,6} Recent studies of hearing children with deaf parents demonstrate that infants acquiring both a signed language and a spoken language also achieve these milestones in the same time-frame.⁴ Moreover, these studies show that when young hearing signers combine signs and spoken words in a single utterance, it is not an indication of language confusion, but instead it is a systematic and predictable behavior similar to the code-switching produced by highly fluent and proficient bilingual adults. At very young ages, hearing signers combine words and signs in a manner that respects the grammatical structure of each language and reflects the type of code-switching used by children's parents.^{5,7,8} Deaf bilingual students may also benefit from the strategic use of code-switching by their teachers in the bilingual ASL-English classroom to support language development.⁹

Despite similar developmental timelines for monolingual and bilingual children, there are still some subtle differences in the way bilingual children achieve proficiency in each of their languages. One recent study of nearly 1000 bilingual children in Canada showed that when tested only in their "school language," bilingual students have slightly smaller vocabularies than their monolingual peers, children who use the same language at school and at home. Interestingly, this study demonstrated that the bilingual children differed from the monolinguals *only* on vocabulary used in the home, but not on vocabulary used in school.¹⁰ When the vocabularies of both languages were combined, bilingual students had larger vocabularies than monolingual children, even if translation equivalents (words with roughly the same meaning in both languages) were counted only once.^{2,11} This distinction is important because it shows that bilingual children learn the vocabulary they are exposed to; however, the types of words used at home and in school are not always the same which is why bilinguals and monolinguals don't always perform equally on a monolingual assessment. In the case of ASL-English bilingualism, deaf students' vocabulary knowledge in each language will be related to the contexts where the two languages are used. Children will develop a vocabulary in ASL for discussing topics related to the home only if ASL is used in the home. Similarly, English vocabulary will reflect the contexts where English is accessible to deaf students.

Vocabulary size is an important predictor of language learning in all children, deaf or hearing. Children who know more words are better at learning new words. This finding applies to hard-of-hearing children, deaf children with cochlear implants, deaf children learning ASL in the home, and deaf children in oral-only or signing schools.¹² In short, the more words children know, the faster they learn new words, both within and across languages. For both monolinguals and bilinguals,

vocabulary size is also a better predictor of grammatical development than a child's age.^{5,13} For bilinguals, learning how to combine words and use grammatical morphemes in two languages depends on the specific grammars of each language.¹⁴ Thus, a child may learn to express the possessive, for example, saying "Papa's cup" in one language while they are still saying the equivalent of "Papa cup" in another language. Despite these minor differences in the timing of grammatical development, bilingual children acquire the grammar of their two languages just as early as monolingual children do. As with monolinguals, the age at which specific constructions are mastered depends on the complexity of the language and the amount of exposure to that language.

Benefits of Bilingualism

There has been increasing emphasis in the media on the advantages of bilingualism, and this means that parents and educators are becoming increasingly interested in evaluating those advantages for their own children or students. The most obvious benefit of bilingual development is the ability to communicate in two languages. This increased communicative ability provides access to more diverse communities, experiences, and perspectives than one would have as a monolingual. This access may be particularly crucial for deaf children who are likely to want to develop relationships with both ASL signers and English speakers over the course of their lives.¹⁵ Because there is no language confusion or delay associated with bilingualism, learning both ASL and English from the earliest age possible is a logical choice, even if both languages are not maintained in adulthood.

Studies of bilingualism show that fluency in one language supports the development of fluency in a second language; becoming bilingual does not detract from or interfere with development in the

other language.¹⁶ Further, bilinguals appear to develop metalinguistic awareness earlier than monolinguals, and this ability then facilitates some types of language learning.^{17,18} For example, bilingual children are more sensitive to what their conversation partners are referring to than monolinguals,¹⁹ and bilingual adults acquire new words more rapidly than monolingual adults.²⁰ Studies have also found benefits of bilingualism for reading development. One such benefit is better phonological awareness, which means being able to recognize and manipulate the sounds in words or in the parameters (handshape, location and movement) of signs.²¹ These advantages are true not only for children who are bilingual from birth, but also for children who are first exposed to a second language when they enter school.²² In the context of ASL-English bilingualism, these results are a reminder that deaf children with cochlear implants can benefit from learning ASL and deaf children who are learning ASL in the home can benefit from learning English. Growth across the two languages is additive, not subtractive, and enhances the child's awareness and sensitivity to face-to-face and written communication.

Historically, researchers assumed that bilinguals stored the vocabulary of their two languages in separate areas of the brain, switching between the two languages as needed. On the surface, this assumption seems logical because bilinguals are able to selectively use one language at a time. However, more recent research shows that both languages are always active and competing in the minds of bilinguals.^{23,24} These findings have recently been extended to ASL-English bilinguals, showing that ASL signs are active when deaf bilinguals read English words.²⁵ Judith Kroll, director of the Partnership for International Research and Education on Understanding the Bilingual Mind and Brain, frequently describes bilinguals as "mental jugglers."²⁶ Kroll points out that managing two languages requires a great deal of cognitive control, including selecting the

appropriate language in the appropriate context and inhibiting competing words. Managing two languages leads to cognitive benefits for bilinguals in non-linguistic domains. Bilinguals demonstrate increased attentional and inhibitory control,²⁷ better conflict resolution,²⁸ and better working memory performance²⁹ than monolinguals. These benefits appear to result from the daily experience of controlling two competing languages.

Bilingual Education

Exposure to sign language from birth is not the norm for deaf children, but all deaf children can become bilingual if parents expose them from an early age to ASL and English in the home. In addition, attending a school that cultivates bilingualism by fostering language skills and literacy in both ASL and English will provide deaf children with the optimal tools necessary for life-long learning and success. High levels of proficiency in ASL are strongly correlated with English proficiency and with academic achievement in general.^{30,31}

Early exposure to a first language that is fully accessible (such as ASL) encourages the development of language skills and provides opportunities to develop critical thinking and complex reasoning skills that can be applied to literacy development in a second language (such as English).^{32,33,34} Educators of deaf children can capitalize on their students' metalinguistic skills in ASL to promote English language learning. Using appropriate comparative and integrative pedagogic strategies such as translation, fingerspelling, and chaining/sandwiching supports the development of literacy skills in both ASL and English, thus encouraging students to strengthen and preserve their bilingual proficiency.^{35,36}

Relevance to Parents and Educators of Deaf Children

Encouraging Bilingualism

There are several take-home messages here for parents, caregivers, and educators of deaf children. First, it is important to sum up the message from the research: Bilingualism is beneficial for children and adults regardless of hearing status. Parents and educators need not hesitate to encourage bilingual development. Contrary to popular belief, bilingualism will not impede successful language learning; in fact, it has the opposite effect. Early exposure to multiple languages ensures optimal linguistic and cognitive development. Limiting exposure to one language with the aim of improving the acquisition of another is unwarranted, as both languages will support language acquisition in general.

So why not give deaf children as many tools as possible to be successful academically and in their lives? A full toolbox containing a set of wide-ranging bilingual language experiences and skills provides deaf children with much more flexibility to take advantage of opportunities for learning. The world is a multilingual and multicultural place, where facility in interacting with speakers of other languages and members of other cultures is highly valued. Bilingual and multilingual children who are deaf will grow up possessing knowledge and skills necessary for academic and life success.

Parents and educators are in a position to promote rather than prohibit language learning in their children. By encouraging a deaf child's curiosity about all forms of language, parents facilitate their children's linguistic and cognitive development.

Use Both Languages for Multiple Functions

The language proficiency of bilinguals is shaped by the contexts in which each language is used. For this reason, expose deaf children as much as possible to language in all settings. For example, remember not to reserve ASL only for those times when you are directly interacting with your deaf child; instead, sign with others whenever your child is present--even if she is not directly participating in the conversation. In this way, your child is exposed to the full range of social interactions language makes possible. All types of interactions (arguments, discussions, questions/answers, negotiations, small talk, etc.) are negotiated through language, thus providing opportunities for deaf (and hearing) children to observe the power of language. It is imperative that young language learners have access to models of language use in varied contexts.

In addition, surround deaf children with books, storytelling, and reading. This will help to ensure that they do not perceive English as a mysterious code that is meaningless or impossible to understand. For example, using ASL to share books written in English (that is, translating them) illuminates the connection between the two languages. Deaf children will discover that both languages are capable of conveying stories and experiences. In a similar manner, parents, caregivers, and educators can encourage the use of English in real-life situations such as emailing, journaling, texting, etc., thereby reinforcing the notion that language helps us to communicate and accomplish things.

Just as increased exposure to and practice with English in a variety of contexts will help deaf children improve their English language skills, using ASL in a wide variety of settings will also improve ASL language skills. Often, deaf children see ASL mostly used in informal or casual contexts such as

the playground or the dinner table. But deaf children should also see that ASL can be used to discuss abstract and academic topics, and that ASL can be used for a variety of purposes ranging from everyday communication to highly formal or artistic presentations.

In sum, if parents are interested in bilingualism but worried that it may pose a challenge to their child's linguistic and cognitive development, the short answer from the research literature is that they can stop worrying. Children acquire two languages as easily as one, become more aware of how language works through learning two languages, and profit in non-linguistic domains as well.

Translating VL2 Research to Practice

The National Science Foundation-funded Science of Learning Center on Visual Language and Visual Learning (VL2) publishes research briefs as a resource for educators and parents. The goal is to inform the education community of research findings, to summarize relevant scholarship, and to present recommendations that educators and parents can use when addressing the multifaceted challenges of educating deaf and hard of hearing children.

The information provided in this brief is intended to explain the benefits of bilingualism for the cognitive and linguistic development of young deaf and hard of hearing children.

Research briefs are available at vl2.gallaudet.edu.

VL2 Center Mission Statement

The Center's primary mission is to improve learning through an understanding of the behavioral and brain mechanisms of learning primarily through vision and visual processes, with our scientific questions being motivated and informed by an exciting balance of advances and questions in

science and advances and questions in learning and social environments. Our mission is to create a science of learning using a two-way discovery model in which practitioners and scientists exchange ideas freely and mutually identify core questions in educational and social practice that would be fundamentally advanced with knowledge from the behavioral and brain sciences. The mission involves the advancement of two overarching complementary groups.

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