

# Newsletter



## BILINGUALISM MATTERS at PENN STATE

### Letter from the Editors

Dear Friends,

We are very excited to share with you this latest issue of our Bilingualism Matters at Penn State newsletter. For the new readers out there, we are part of the international Bilingualism Matters network, which translates scientific findings on multilingualism and linguistic diversity for general audiences, to promote informed decisions about things like raising and educating multilingual children. Our chapter operates out of the Center for Language Science at Penn State, which is home to a large interdisciplinary group of language researchers.

We think this newsletter issue is one of our most important yet. We chose to center it around the intersection of bilingualism and atypical development. With the rapidly growing numbers of bilingual children in our schools, it is increasingly important for educators and families to understand what typical bilingual development can look like, and to be able to distinguish a typical learning trajectory from an atypical one that requires intervention. Several innovative scientists, including some from our very own Bilingualism Matters chapter, are finding creative ways to do this. You can read more about this work in our two research summaries (on pages 3 and 6), along with some fun facts (p. 2) and some steps you can take to support bilingual learners in your community (p. 5). And you can check out page 7 for an interview with resident expert Dr. Chaleece Sandberg, to learn about a condition called aphasia, and what it can teach us about language.

As always, we encourage you to reach out to us with your questions and comments. We are always on the lookout for topics and themes that will be interesting and useful to you, so please get in touch and tell us what you'd like to learn more about!

Sincerely,

The Editors: Frances Blanchette, Tiana Cowan, Amanda Eads, Carla Fernandez, Daisy Lei, Marissa Scotto, Brittany Williams, Anya Yu

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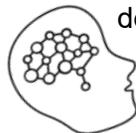


Above: Center for Language Science graduate students Haoyun Zhang, Victoria Gertel, and Abby Cosgrove sport brain hats at Exploration U: Community Science Night. This hands-on research and science fair for the whole community is attended yearly by over 600 people (<https://science.psu.edu/outreach/exploration-u>).

# Interesting Facts about Language Impairment, Dyslexia, and Bilingualism

By Daisey Lei and Marissa Scotto

**1** Developmental Language Disorder (DLD) is a language disorder that delays the development of language skills in children who have no hearing loss or developmental delay.



**2** DLD is one of the most common childhood learning disabilities, affecting 7-8% of children in kindergarten.



**3** There is a greater prevalence of DLD in boys than in girls. The ratio is around 2:1.

**4** Dyslexia is the most common learning disability, affecting 5-17% of the population.

**5** A person can be dyslexic in one language but not another. This may be due to properties specific to the writing system of one of the languages, since these can be very different.

**6** After intervention for dyslexia, reading can be successful!



**7** For bilinguals, reading in a new language seems to be easier when it has a consistent letter to sound relationship (like Italian), whereas inconsistent languages (like English) are more difficult. **A = AH 😊**

**8** Bilingual and monolingual children are equally likely to have language impairment. Being bilingual does not make you more susceptible to delays or disorder.

**9** Among children with autism, language skills are comparable whether they are bilingual or monolingual.

**A = AH, AW, AY 😞**



## Recent Events

We've been busy this semester! Here is a sampling of our most recent events. Be sure to follow us on Twitter and Facebook for upcoming events!

- 2/28: Exploration U Bald Eagle
- 3/8: Mount Nittany Elementary LitFest
- 3/22: Exploration U State College
- 3/27: Poetry without Borders
- 4/12: Saturday Stories Alive
- 4/25: Language and Linguistics Day



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Center for Language Science members Katrina Connell, Katy VanAmburg, Jessica Vélez-Avilés, and Robert Klosinski share language science research methods at Exploration-U in Bald Eagle.

# Identifying Bilingual Children with Language Impairment

By Carol Miller and Ji Sook Park\*

In every kindergarten classroom, there are usually one or two children who have difficulty learning spoken language. It can be hard to identify them, because they seem to be typically developing in other ways. Their hearing is adequate, and they do not have autism, intellectual disability, or neurological disorders. The terms specific language impairment (SLI) and developmental language disorder (DLD) are used to describe such children. Although we still have a lot to learn, we have many tools to help us identify children with DLD and choose an appropriate intervention—if they are monolingual English speakers, that is. Identifying DLD in bilingual children is more challenging for several reasons.

One of the reasons it can be difficult to identify DLD in bilingual children is that we don't yet have the right assessments. Imagine arriving in a new country where you're just beginning to learn the language, and being asked to take a language test in this new language. Do you think that test would give an accurate representation of your general language abilities? You probably answered no to that question, yet many schools are forced to use this method because assessment tools are unavailable in many of the languages spoken by children from diverse home language backgrounds. But even when assessments are available in the child's home language, they often prove ineffective. This is because they are typically designed for monolingual speakers, so they do not account for important differences between bilinguals and monolinguals, such as levels of exposure to a language, and different contexts for its use (e.g. home vs. school). In addition, typically developing bilingual children may make grammatical errors that look similar to errors made by a child with DLD, simply because they are still learning to distinguish

between the rules of their languages.

Because of these challenges, we have asked whether we could use non-linguistic tasks to identify children with DLD. Why non-linguistic? We know that children with DLD have difficulty with some non-linguistic cognitive tasks. It is not clear if these cognitive issues cause their language impairment, or are caused by it. Nonetheless, if we find that children with DLD perform consistently worse than their typically developing peers on certain non-linguistic tasks, we might be able to use those tasks to identify DLD. If we can find tasks that will identify children with DLD independently of whether they are learning multiple languages, then we can use these tasks to help educators more accurately identify bilingual (and monolingual) learners with DLD.

Our research group has explored two non-linguistic tasks. One is a type of procedural learning task. Procedural learning happens when individuals' performance speeds up after a certain amount of exposure to sequences with a similar structure. Typing is a good example of this. As you practice, you get faster and more accurate, and if you're a good typist, you actually do it better if you don't think about it too much. In our procedural learning task, there are 4 boxes on a computer screen, with 4 corresponding buttons to press. A cartoon monster appears in one of the boxes (see Figure 1), and the child has to press the matching button. Sometimes the order in which the monster appears is random, but sometimes there is a repeating sequence. If procedural learning is happening, children will get faster in pushing the buttons during the repeating sequences, because they are anticipating the next location—even though they aren't aware of it.

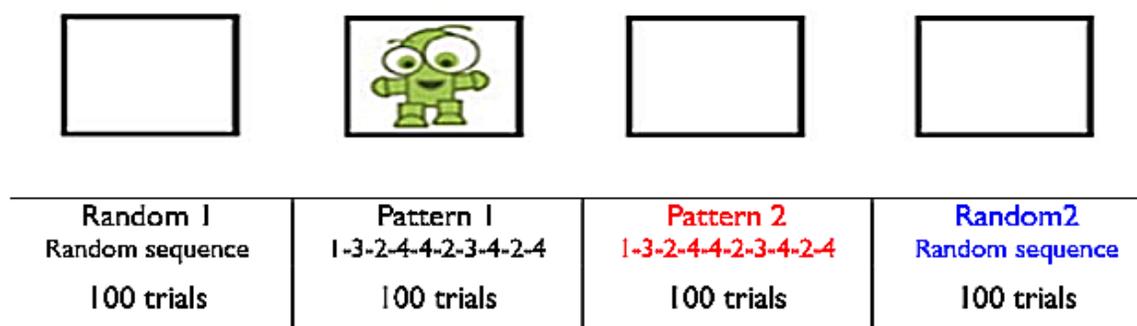


Figure 1.  
Adapted from Tomblin  
et al. (2007)



# Identifying Bilingual Children with Language Impairment (continued)

By Carol Miller and Ji Sook Park\*

Our other task looks at how children control their attention. A row of five fishes appears on the screen (see Figure 2). The child's job is to indicate which way the middle fish is facing. The surrounding fish may be facing the same way (congruent) or the opposite way (incongruent). As you might imagine, children tend to be slower when the surrounding fish are facing the opposite direction. However, children vary in how much they are slowed by this incongruence between the target fish and its neighbors. And sometimes we provide clues to help the child respond more quickly, but it only helps if they can control their attention enough to take advantage of those clues.

We tried these tasks with bilingual and monolingual typically developing children and children previously diagnosed with DLD. For the procedural learning task, we found that children with DLD did not get faster during the repeated sequences, whereas the typically developing children did. Importantly, monolingual and bilingual children in each group learned equally well, which suggests that our task was successful in distinguishing bilingualism from DLD.

For the task that requires attention control, we found that children with DLD were slower than typically developing children when the fish surrounding the target fish were pointing in the opposite direction, while again, monolingual and bilingual children's performance was the same.

It is important to note that before any task can be used as a test for DLD, it has to meet several scientific criteria, and we do not yet know whether our tasks meet these criteria. But the results point us in a promising direction toward developing better tools to identify bilingual children who have DLD, and therefore, toward providing these children with appropriate treatment and intervention as early as possible.

\*This research was conducted by Ji Sook Park and Elina Mainela-Arnold as principal investigators, along with collaborators Carol Miller, Teenu Sanjeevan, Janet Van Hell, and Daniel Weiss. A portion of this work was published in 2018 in the *Journal of Speech, Language, and Hearing Research*: [https://pubs.asha.org/doi/10.1044/2017\\_JSLHR-L-16-0409](https://pubs.asha.org/doi/10.1044/2017_JSLHR-L-16-0409).

**References**

Rueda, M. R., Fan, J., McCandliss, B. D., Halparin, J. D., Gruber, D. B., Lercari, L. P., & Posner, M. I. (2004). Development of attentional networks in childhood. *Neuropsychologia*, 42, 1029–1040.

Tomblin, J. B., Mainela-Arnold, E., & Zhang, X. (2007). Procedural learning in children with and without specific language impairment. *Language Learning and Development*, 3, 269-293.

**Attention Networks Subtractions:**

- Alerting:** RT for No Cue – RT for Double Cue trials
- Orienting:** RT for Central Cue – RT for Spatial Cue trials
- Conflict:** RT for Incongruent – RT for Congruent trials

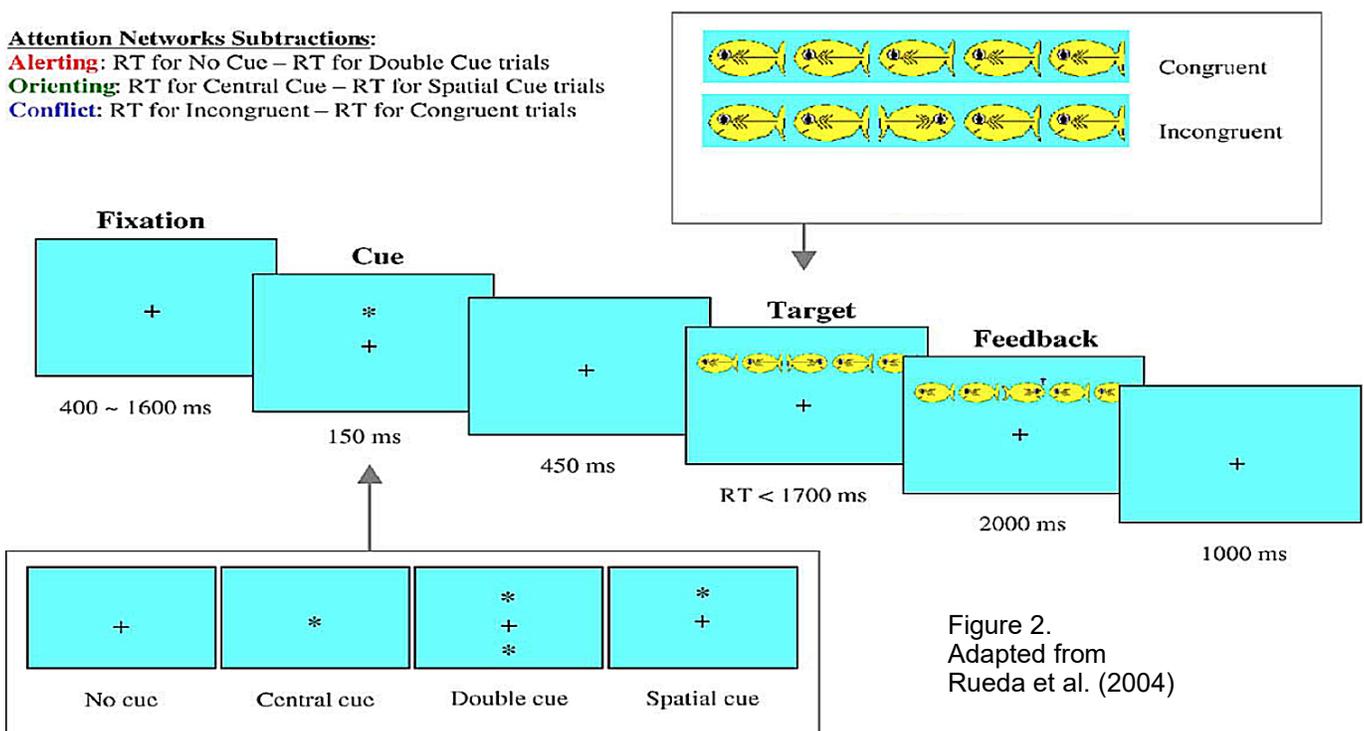


Figure 2. Adapted from Rueda et al. (2004)

# What can we do to support bilingual and multilingual speakers?

## Practical Tips for Helping our Neighbors

By Tiana Cowan and Brittany Williams

In June of 2016 the Office of the Administration for Children and Families released the policy statement *Supporting the Development of Dual Language Learners in Early Childhood Programs*. The statement asserts that the Federal laws pertaining to children's rights to special education extend to bilingual and multilingual children. This means that school districts must consider the child's individual language needs when providing special education services.

Importantly, the document also affirms that there is no evidence to suggest that children with developmental disabilities should only be exposed to one language. Instead, it recommends supporting development in the home language(s), and the languages integral to the child's community as a best practice for education.

In addition to laying down some dual language learner laws, the document also points out some systemic barriers to educating bilingual children. For example, the majority of teachers in the U.S. are monolingual English speakers, which makes it difficult to support development of the home language in the classroom. In addition, there is a need for more specialized curricula and accurate language measures to be developed for children who speak multiple languages.<sup>1</sup>

In case you're wondering what you can do in your community to help address these issues, we've included some suggestions below. We hope you'll consider using some of the information presented here to help support bilingual and multilingual learners in your area.

1 U.S. Office of Administration of Children and Families. (2016). *Supporting the Development of Dual Language Learners in Early Childhood Programs*. Retrieved from: <https://www2.ed.gov/policy/elsec/leg/essa/essatitleiiiguidenglishlearners10219.pdf>

2 Callahan, R. M., & Gándara, P. C. (Eds.). (2014). *The bilingual advantage: Language, literacy and the US labor market* (Vol. 99). Multilingual Matters.

3 National Center on Cultural and Linguistic Resources (NCCLR). 2012. *Dual language learners in state learning guidelines and standards*.

1

### Be informed about the challenges many bilingual and multilingual children are facing in the education system.

When you're informed, you can also fight against the spread of misinformation. For example, you can spread the word that children with developmental disabilities can in fact learn multiple languages, and reap the many social benefits of being bilingual.

2

### Consider engaging with others about the issue.

Reference the positive outcomes for English language learners, bilingual, multilingual, and monolingual children the classroom. For example, research shows that learning in a multilingual environment helps all children gain a broader cultural perspective and appreciation of languages.

3

### Become informed about bilingual education policies.

Understanding the laws protecting bilingual and multilingual children in your area will help you be an advocate for those in need.

Ask your school administrators whether they have policies in place to support bilingual learners.

Visit the National Association for Bilingual Education (NABE) to follow elections and get updates related to bilingual education policy.



CLS graduate students Jessica Vélez Avilés and Robert Klosinski share literature and songs from Puerto Rico and Germany at the Saturday Stories Alive series in Schlow Library,

## Understanding Bilingual Development Through Storytelling

By Tiana Cowan and Brittany Williams

In the previous piece by Carol Miller and Ji Sook Park, we learned that non linguistic tasks have the potential to serve as a solution to the challenge of appropriately distinguishing typically developing bilinguals from bilinguals with developmental language disorder. This is particularly important given the prevalence of monolingual teachers, and the lack of good assessments in many bilingual children's home language. In this piece, we discuss a different approach to this challenge, which uses the language-based tool of storytelling.

Researchers Govindarajan and Paradis (2019) compared how typically developing preschool-age children and bilingual children with language disorders told stories in their second language, English. They hoped to find a clear error pattern that would distinguish typically developing children from those with language disorders. The children, who spoke languages as diverse as Assyrian, Mandarin, Somali, Pashto, Spanish, and Arabic, were asked to tell a story describing what happened in a picture. Their stories were then coded to determine whether they included basic story elements, such as an introduction, setting, characters, a problem, and a resolution.

Because the task was performed in English, Govindarajan and Paradis hoped to identify a measure that monolingual English-speaking teachers could use in the classroom to assess their students. They expected both bilingual and atypically developing children to have at least some errors, but they also expected that the error patterns would be different across groups. In addition to the storytelling task, they also gathered information about the children's language environment and development.

The results of the storytelling task showed that both typically developing bilingual children and those with developmental language disorder made more errors than monolingual children. This is perhaps unsurprising, especially since the bilingual children were acquiring English as a second language. The researchers also found that the more the children were exposed to rich and varied English input in their everyday environment, the better their stories were. Interestingly, this was the case only for typically developing bilinguals. For bilinguals with developmental language disorder, the researchers found that even when their everyday language environment was rich with English input, their storytelling did not improve.

This finding illustrates the importance of comparing bilingual children with other bilingual children when assessing language development. If we compare bilingual development to monolingual development, then we run the risk of wrongly diagnosing a typically developing bilingual child as a child with a language disorder, simply because that child does not perform in the same way that a monolingual child might. It is therefore extremely important to consider bilingual children's language development independent from monolinguals. In addition, because language environment clearly plays a role in development, it is also important to collect information about the child's language environment as part of the assessment process.

We are clearly on a path toward being able to identify and employ more effective measures to assess bilingual children's language development. We hope that by helping to share and spread this information, we can also contribute toward more effective care for the growing number of bilingual children being served in our nation's schools.

### This piece summarizes the research in the following article:

Govindarajan, K., & Paradis, J. (2019). Narrative abilities of bilingual children with and without Developmental Language Disorder (SLI): Differentiation and the role of age and input factors. *Journal of communication disorders*, 77, 1-16.

### Other helpful references:

Fleckstein, A., Prévost, P., Tuller, L., Sizaret, E., & Zebib, R. (2018). How to identify SLI in bilingual children: a study on sentence repetition in French. *Language Acquisition*, 25(1), 85-101.

Paradis, J., Schneider, P., & Duncan, T. S. (2013). Discriminating children with language impairment among English-language learners from diverse first-language backgrounds. *Journal of Speech, Language, and Hearing Research*.



Center for Language Science graduate assistant Jessica Vélez Avilés, shares Spanish stories from Puerto Rico during the Mount Nittany Elementary LitFest in March 2019.



## Bilingualism Matters Featured Partner

**Chaleece Sandberg**  
PhD, CCC-SLP

Interview by Anya Yu

### What is aphasia?

Aphasia is an acquired language disorder following stroke or other acquired brain injury.

### What are some general misconceptions about aphasia?

People with aphasia are often dismissed as having intellectual deficits. This is an extremely detrimental misconception. Although it may be difficult to communicate with people who have aphasia, their ability to think is intact.

### What can aphasia research teach us about typically developed populations?

The vast majority of people with aphasia have fully developed and intact language systems before experiencing their brain injury. Also, damage from stroke can be extremely focal. Because of these two characteristics, we can learn a lot about how language is represented in the brain by studying people with aphasia who have very specific deficits.

### Some studies have found that there are cognitive benefits to bilingualism. Is this true for aphasic patients?

One line of research that may help answer this question is the exploration of language control versus cognitive control in healthy bilingual adults and bilingual adults with aphasia. Healthy bilingual adults have high cognitive control and high language control. However, there is evidence that bilingual persons with aphasia have cognitive control similar to their healthy counterparts, but have deficits in language control. Importantly, cognitive control is correlated with language control in bilinguals with aphasia (Gray & Kiran, 2019). The fact that cognitive control is intact in bilingual aphasia, and is linked with language control, may mean that this is a currently untapped resource for rehabilitation of language.

### Can aphasia patients benefit from bilingualism? If so, how does it work?

Not a lot of work has been done on this subject. A study by Alladi and colleagues in 2016 showed that aphasia occurs at the same rate in monolingual and bilingual people who have had a stroke. However, there were fewer cases of impaired cognition after stroke in the bilingual group. This suggests that the bilingual group was benefitting from cognitive reserve, but doesn't really help us understand bilingual vs. monolingual aphasia after stroke. A study by Hope and colleagues in 2015 found that language scores for bilingual persons with aphasia were worse than what would be predicted based on monolingual data. This suggests that being bilingual may not provide an advantage in aphasia. In contrast, in a 2018 study, Paplikar and colleagues found higher language scores in a group of bilingual persons with aphasia compared with monolingual persons with aphasia. This would suggest the opposite: that there is a bilingual advantage in aphasia. It is important to remember that these two studies use different populations of bilingual persons. More work needs to be done to see if there is a benefit that can be had from bilingualism for persons with aphasia.

### Is there anything else you'd like to tell us about aphasia?

There is a growing health disparity for the bilingual population in the US. Even though approximately 20% of the population speaks a language other than English at home, only about 9% of a Speech Pathologist's caseload includes people who are bilingual. Add to this the fact that the bilingual population is growing and that the aging population is growing, and it's easy to see that there will be a growing number of bilingual individuals who are at risk for stroke and aphasia. There are currently not enough resources to adequately address this population. This may be partly due to the stigma that has been associated with being bilingual in the U.S.

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- Alladi, S., Bak, T. H., Mekala, S., Rajan, A., Chaudhuri, J. R., Mioshi, E., . . . Kaul, S. (2016). Impact of bilingualism on cognitive outcome after stroke. *Stroke*, 47, 258–261. doi:10.1161/STROKEAHA.115.010418/-/DC1
- Gray, T., & Kiran, S. (2019). The effect of task complexity on linguistic and non-linguistic control mechanisms in bilingual aphasia. *Bilingualism: Language and Cognition*, 22(2), 266–284. doi:10.1017/S1366728917000712
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- Paplikar, A., Mekala, S., Bak, T. H., Dharamkar, S., Alladi, S., & Kaul, S. (2018). Bilingualism and the severity of poststroke aphasia. *Aphasiology*, DOI: 10.108

# Upcoming Events

**You can find us locally at:**  
 Children's Day at the Central PA  
 Arts Fest, July 10, 2019

SCASD ESL Summer S'More Fun  
 Night, June 5, 2019

**Upcoming international events:**  
 Bilingualism Matters Symposium,  
 September 20-22, 2019



Frances Blanchette and Jessica Vélez-Avilés interact with students at Language and Linguistics Day for high schoolers, held annually in April.

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