



## VISUAL LANGUAGE & VISUAL LEARNING

### High literacy skills do not require sound

Reading is a visual task, but spelling patterns in alphabetic writing systems represent speech sounds. What is the role of speech in reading development? When learning to read, young hearing children learn to associate written words with sound patterns, the syllables, vowels, and consonants of spoken words. Some researchers propose that this skill is necessary to become a skilled reader (1). Not all researchers agree, however. Hearing children also learn that letters represent speech sounds *after* they learn how to read (2). How important is the ability to link letters with speech sounds for deaf children? Is the ability to associate letters with speech sounds necessary for deaf children to learn how to read well? Rachel Mayberry, a professor of linguistics at the University of California, San Diego, Alex del Giudice, a graduate student, and Amy Lieberman, a research associate,

have been investigating this question through a meta-analysis.

#### *What does research tell us about the relation of phonemic awareness and phonological decoding to reading development in students who are deaf?*

In a meta-analysis, researchers re-analyze the results of all experiments that have asked a similar question (3). For example, to investigate the effectiveness of Vitamin C in cold prevention, one would analyze all studies investigating the relation of Vitamin C consumption and the frequency of getting a cold. Then all the statistical results are analyzed to see how effective vitamin C is for preventing or reducing colds. In a meta-analysis, researchers measure the "size" of an experimental effect across studies rather than conducting single experiment. Mayberry, del Giudice, and Lieberman conducted a meta-analysis of studies that investigated phonemic awareness and phonological coding (i.e., the ability to use speech sounds) in learning to read or recognizing written

words to see if it was related to proficient reading in deaf readers (4).

The research team found 229 studies of reading and deafness. Of these studies, 64 had statistical measures of phonological awareness or coding. The studies tested 2,247 subjects who were deaf in 6 written languages. Next the team analyzed the methods and statistics of these studies. A smaller set of 27 studies testing 1,309 deaf participants measured reading level in addition to phonemic awareness and coding. Half the studies found readers who are deaf use phonemic awareness and phonological coding but half of the studies found no effect. Across these studies, the

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VL2 OFFICIAL  
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# FAQ

## Interlanguage Mapping, Bilingualism, and Literacy

### 1. What does interlanguage mapping mean?

Many deaf individuals are bilingual – they use a visual language, such as ASL, and a spoken/written language, such as English. Being bilingual is fairly common, as many people read, write, or speak foreign languages. What makes deaf bilinguals unique is that the languages use different modes. Interlanguage mapping is a way of studying this interchangeable use of modalities as deaf people switch between English and ASL.

### 2. What's the goal of this initiative?

The goal of this initiative is to discover how English and ASL exist side-by-side in the minds of deaf and hearing people, and ultimately understand how the acquisition, representation, and processing of multiple languages unfolds in visual learners.

### 3. What kind of projects are being undertaken within this initiative?

There are currently nine ongoing projects in this initiative, including cross-language lexical activation in ASL-English bilinguals, self-paced reading, socio-cultural contexts for bilingual learners, and the effects of different word parsing strategies on word learning. The focus here is to analyze the effect of bimodality.

## CEASD invites Dr. Hauser as Keynote Presenter

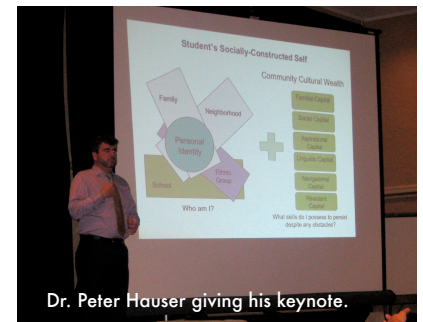
During the weekend of May 1-4, 2009 the New Mexico School for the Deaf hosted the Annual Conference of Educational Administrators of Schools and Programs for the Deaf (CEASD). The conference welcomed administrators from Gallaudet University, CSUN, and NTID. CEASD is an organization that encourages professional educators and administrators to collaborate to improve the quality of schools. This year's theme was "Propelling Students to New Heights." Dr. Peter Hauser attended as a keynote speaker with a presentation titled, "Deaf Students' Psychosocial Development: The Role of Culture Acquisition." Dr. Hauser focused on the importance of educational leaders in understanding the "cultural capital" found at deaf schools and the lack of research studies in education.



Connie Pucci and Katie Rogers were some of the attending VL2 students.

Also representing VL2 were Connie Pucci, Katie Rogers, and Lon Kuntze. Reflecting on

her experience at the conference, Connie commented that she enjoyed the format of the conference because it was structured by cohort group discussions: "Most conferences that I have attended are usually workshops all day long—but CEASD was completely different because there was a lot more dialogue and discussion on a various topics especially cultural diversity (presented by Dr. Hauser and Dr. Wu), educational practices, early childhood education, and the viability of deaf schools. It was inspiring and moving to meet a lot of superintendents from all over the country because they are the top leaders that lead deaf education."



Dr. Peter Hauser giving his keynote.

## Winter Meeting was a well received success

At the end of February, VL2 researchers traveled from around the world for the 3<sup>rd</sup> Annual VL2 Winter Meeting. The event kicked-off with a VL2 Presentation Series talk by Dr. Jill Morford of the University of New Mexico titled, "How we make sense of signs: Sign perception and recognition by native and non-native signers." Interestingly, Dr. Morford found that native and non-native signers were equal in their ability to quickly identify hand shapes and sign locations; however, native signers were better able to recognize signs when they were visually degraded.

On Friday, teams of researchers joined together in working groups to take advantage of face-to-face meeting time. This essential time helped international projects move forward in both their design and implementation. Such synergy has lead to international trips between Drs. Paul Miller (University of Haifa, Israel), Christian Rathmann (University of Hamburg, Germany), and Peter Hauser (NTID, RIT.)

Also during the Winter Meeting, VL2 students connected for a day-long retreat. One part of this retreat focused on grant writing and was led by Dr.



L to R: Angela McCaskill, Shanon Price, and Tom Allen.

Carol Padden (Associate Dean of Equity at the University of California – San Diego and trustee emeritus). Additionally, Dr. Jenny Singleton (University of Illinois, Urbana –Champaign) discussed ethical issues that relate to research with deaf participants.

The weekend ended with scientific presentations for VL2's Advisory Board and a lively discussion of future directions for VL2 efforts.



Students Clifton Langdon-Grigg and Peter Crume discuss posters.



# research

Continued from front page...

research team found that the effect size for phonological coding was small. Specifically, whether or not deaf readers were able to use phonological coding only explained 11% of the variation in overall reading ability. The research team found many studies that measured other factors including language ability, IQ, and memory span. These other factors turned out to be more highly related to reading proficiency in deaf students. The same is true for hearing readers (5).



L to R: Amy Lieberman, Dr. Rachel Mayberry, Alex Del Giudice.

What does this meta-analysis tell us about the role of phonemic awareness and phonological coding in deaf students' reading development? Learning to recognize word meaning by identifying spelling patterns quickly and effortlessly is necessary for skilled reading. The ability to identify speech sounds and associate them with spelling patterns can be helpful in learning how to read, especially if the student is a fluent speaker. However, in the big picture of reading, this skill plays a minor role. Many highly skilled readers who are deaf do not show evidence of using phonemic awareness and phonological coding when recognizing written words. Like hearing readers, other basic skills such as language comprehension and memory for language, and a lot of time spent reading, play larger roles in reading development (6).

#### References:

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predict reading skill in deaf readers? A meta-analysis. Paper presented at the *Boston University Conference on Child Language Development* (Boston).

5. Catts, H.W., Fey, M.E., Zhang, X., & Tomblin, J.B. (1999). Language basis of reading and reading disabilities: Evidence from a longitudinal investigation. *Scientific Studies of Reading*, 3:331-361.
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## VL2 makes presence at ACE-DHH

The Annual Meeting of the Association of College Educators of the Deaf and Hard of Hearing (ACE-DHH) was held in New Orleans this past February. ACE-DHH is an organization that provides professional development and opportunities for collaborative interaction among professionals of higher education with deaf college students. The meeting saw a prominent VL2 presence with three different presentations.

*"We need to bring more deaf perspective here." - Connie Pucci*

First, Dr. Tom Allen and two students, Yunjae Hwang, a Ph.D. candidate in the Department of Education and Anna Stansky, an MS candidate in the Hearing, Speech, and Language Sciences Department, gave a presentation entitled, "Measuring factors that predict deaf students' reading abilities: the VL2 toolkit-project design and early findings." This talk presented the structure and design of the VL2 toolkit, and reported the results of an early analysis of the relationship of syntactic skills and ASL skills to reading achievement. The researchers displayed a statistical model in which ASL and Syntactic skill explained over 60% of the variation in reading scores for a sample of college students.

Second, Dr. Judith Mounty, affiliated researcher, and Concetta Pucci, Ph.D. candidate in Administration & Supervision, gave a presentation entitled, "How deaf children become proficient readers: A sociocultural perspective." This talk reported

on the results of an interview study in which parents and teachers of proficient middle-schoolers were asked to describe effective literacy strategies.

Third, Dr. Lon Kuntze gave a presentation on, "A preliminary analysis: The longitudinal study on the higher order thinking skills and acquisition of reading skills in children from ages 3-9," in which he described the development of a protocol for analyzing the classroom communications of very young deaf children.

In the words of Connie Pucci: "The ACE-DHH conference was a surprising experience for me because there were many experienced educators in attendance and most of them shared the same perspective on the importance of advancing technologies to support deaf and hard of hearing students. Oral education was a repeated emphasis throughout the conference, in which I felt that deaf culture, research studies by deaf individuals, and deaf perspectives were overlooked at the conference."

## Golden opportunity at APS

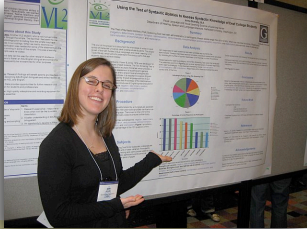
The Association for Psychological Science is rapidly becoming a favorite meeting place for young VL2 researchers. This spring, all six Undergraduate Psychology Interns attended the Annual Meeting in San Francisco to present their work with their advisors Drs. Thomas Allen and Diane Clark. Joining this group was one of our newest staff members, Selina Agyen, who assisted Dr. Clark's interns with their project. Additionally, VL2's new post doc, Shilpa Hanumantha, presented her dissertation. Two Graduate Assistants, Melissa Anderson and Millicent Musyoka, with one of our interns, Jason Begue, presented a poster on the study skills of incoming first-year Gallaudet students.

Congratulations to our graduates – Jason Begue, Amanda Krieger, Richard Latini, Jonathan Penny, Kenneth Reimer, and Vivienne Schroeder. VL2 wishes all of our graduates much success on their research endeavors as they transition from undergraduate students to become accomplished researchers. All of the graduates have been accepted into graduate programs at Gallaudet, in both the counseling and psychology departments.

# LIVING IT UP IN SEATTLE

## LIFE, a Science of Learning Center, hosts the 2009 iSLC

VL2 sent a group of students to the Second Annual Inter-Science of Learning Center Student and Post-Doc Conference (iSLC) in Seattle, hosted this year by the University of Washington's LIFE center. The purpose of iSLC is to encourage students from each NSF-funded Science of Learning Center (SLC) to network, share research perspectives, and exchange ideas and experience. In attendance were Shilpa Hanumantha (post-doc), Wyatt Hall, Erin Wilkinson, Clifton Langdon-Grigg, Cecily Whitworth, Sarah Fish, Remah Abu Achmed, Anna Stansky, Peter Crume, Gabrielle Jones, Christen Szymanski, Gabe Waters, Naomi Berlove, and Cynthia Goodman. For VL2 students, this was a time to get acquainted in person, as many of our students work at distant universities. Moreover, an important part of the conference was meeting students from other SLCs and creating a strong network among our peers. VL2 students had the opportunity to present their research posters, as well as give a brief presentation on VL2 and its initiatives led by Clifton Langdon-Grigg.



Anna Stansky, a MS Candidate in Hearing, Speech, and Language Sciences at Gallaudet, proudly shows her research

"The iSLC conference was phenomenal with the quality and versatility of papers. That kind of conference is always a great opportunity for learning more about the cognitive process in different domains other than linguistics (which is my own domain)." - Erin Wilkinson, Ph.D. Student, University of New Mexico

"The conference overall was a great experience for me. I was able to re-connect with people I had met last year, and I also made many new connections. It is such a gift to be able to meet with my peers and to spend time together, and it makes me feel like once I graduate and have a job that I will be able to call on these connections. It's like I will have a ready-made network of people out there - and not just in my field of sign language linguistics. That is invaluable for me." - Sarah Fish, Ph.D. Student, Boston University

Sarah Fish leads a presentation on her work with the Kuntze Lab at Boston University.



## Summer Undergraduate Research Fellows

This summer, VL2 is expanding their student activities by offering a pilot Summer Research Fellowship to four undergraduate students.

We welcome Ryan Barrett, from the University of Illinois, Urbana-Champaign; Brittany Freel, from RIT; Jamaal Deon Johnson and Candace Myers, from Gallaudet University. Students will be on campus for 10 weeks working with VL2 researchers Drs. Thomas Allen, Diane Clark, Peter Hauser, and Pilar Pinar.

Ryan, in collaboration with Dr. Pinar, is investigating the relationship between iconicity and linguistic background by collecting iconicity rates from ASL signers with different levels of experience in ASL. In particular, they will compare deaf signers native and non-native ASL users and will address the question of how age of acquisition affects the perception of iconicity.

Deon, Candace, and Brittany, in collaboration with Drs. Allen and Hauser, are pooling resources and recruiting a broad range of participants to investigate the impact of one's culture on ASL skills and reading skills. They have hypothesized that familial characteristics of deaf individuals (parental hearing status, ethnicity, hearing status at birth, and parental education level) have an effect on the relationship between ASL proficiency and reading skills. In addition, a new test of ASL depiction, the Depiction Comprehension Test, and a receptive test of ASL, the ASL-Sentence Repetition Test, will be investigated for differences between native and non-native signers.

The four interns have shown amazing levels of motivation and commitment to research—we can expect them to lead in the near future!



L to R: Candace Myers, Brittany Freel, Jamaal Deon Johnson, and Ryan Barrett.



# meet the pre-docs

In the 2008-2009 year, VL2 welcomed five pre-doctoral center fellows: Erin Wilkinson, from the University of New Mexico; Cecily Whitworth, Wyatt Hall, and Clifton Langdon-Grigg from Gallaudet University; and Gabrielle Jones from the University of Illinois, Urbana-Champaign. Erin Wilkinson was featured in our first newsletter (Spring 2008), so check that out on our website to read about her work. We will feature Gabrielle and Clifton in the next issue. Keep reading!

Cecily Whitworth is currently working on her dissertation, which examines the idea that “handshape” is an ideal characterization of one unit in ASL. Cecily is coding acquisition data from a project in the Linguistics Department (Effects of Bilingualism on Word Order and Information packaging in ASL) conducted by Dr. Deborah Chen Pichler. She analyzes video data and looks for tiny differences in physical configurations between children’s and adult’s handshapes. These differences are then used to determine which form (such as opposed thumb or extended index finger) often occur together, never occur together, or rarely occur together. The goal of this project is to better understand the exact nature of sign phonology and how people perceive/use hand configurations.

In addition to the aforementioned work, Cecily has traveled to Rwanda to conduct research on Amarenga y’Ikinyarwanda (AKR, Rwandan Sign Language) by collecting video data of deaf children. She continues to code and analyze this data. She is also working on a bilingual, multimedia dictionary project geared towards Deaf students who are native ASL signers and who are in the process of learning to read and write English. This pilot project involves the interdisciplinary collaboration of Linguistics, Education, and Computer Science in the creation of a multimedia mini-dictionary and associated mini-curriculum, which includes target vocabulary in English, target vocabulary in ASL, definitions in ASL and English. This dictionary is searchable by sublexical features of the sign (number of fingers selected, thumb position, starting location, ending location, etc.) as well as by English words. This project is developing a test curriculum to see if this type of bilingual material is worth developing on a larger scale.

As a center pre-doctoral fellow, Cecily is presented with ample opportunity to attend conferences, meet with other students and post docs, and work on projects related to many aspects of learning. In the future, Cecily sees herself teaching and conducting research in a linguistics department. She asserts, “I’m interested in continuing to work on theoretical phonetics and phonology as they pertain to the nature of signed languages, the nature of spoken languages, and the nature of human language in general.” In the meantime, this Montana native can be seen around campus, driving her ‘87 pick up truck that’s covered in swirls of blue and purple paint.



**Cecily Whitworth**  
Linguistics Ph.D. Program



Wyatte Hall is currently involved in two VL2 projects: the Psychometric Toolkit Study and the Reading Study. The Psychometric Toolkit Study focuses on establishing standardized tests that can be validly administered to deaf individuals and determining which tests are not valid with deaf individuals. The focus of this project is to develop valid and reliable tests for those who process the world visually. The Reading Study involves examining the reading practices of deaf children in 4 countries: Germany, Israel, Turkey, and the United States. Wyatte and the team are now examining what factors predict poor reading and what factors predict proficient reading. Countries were selected based on how phonological knowledge is represented in their languages. For example, some languages have 1-to-1 mapping between the letter and the sound, while others have more exceptions to the rules for mapping letters and sounds. This project will help in determining if phonological knowledge is important for those languages with 1-to-1 mappings, where the connection is fully accessible visually or if phonological knowledge is not as important for deaf readers.

Through this work and his role as a center pre-doctoral fellow, Wyatte is gaining invaluable research experience as well as learning how to set up complex studies—a tremendous advantage when he applies for internships. He has also attended conferences sponsored by VL2 and developed networks with deaf researchers in the field. By being a pre-doctoral center fellow, Wyatte receives support that allows him to fully focus on pursuing his doctoral degree.

Self-described “jack-of-all-trades,” Wyatte has an interest in teaching and researching, especially on Theory of Mind and its development in deaf children, which he hopes to pursue in the future.

**Wyatte Hall**  
Clinical Psychology Ph.D. Program

## 2009 site visit a success!

VL2 hosted their Annual NSF Site Visit this past May. During this site visit, a team of researchers reviewed and provided feedback on VL2 initiatives. In addition, important NSF staff members were in attendance, including Dr. Soo-Siang Lim, the Director of the Science of Learning Centers Program. Team members presented posters to showcase the progress on our 32 Center projects. Selected members of the Scientific Management Team summarized ongoing efforts.

## Center welcomes visitor from Israel

Remah Abu Achmed, a student working with Dr. Paul Miller at the



University of Haifa, attended the iSLC meeting with other VL2 students from around the United States. Prior to her flight to Seattle, Remah visited with

faculty and students at Gallaudet and even had a few minutes to squeeze in sightseeing of our nation's capital!

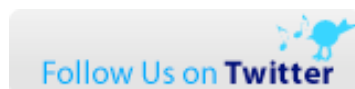
## G-VL2 brings ideas to table

Gallaudet-VL2 (G-VL2) provides an informal setting for Gallaudet community members to discuss ongoing center research. Lively debates have been known to occur and research is flourishing. The climate of intellectual inquiry stimulates new endeavors and is open to all members of the Gallaudet community.

## Research-Practice Integration set to launch

VL2 welcomes Dr. Sharon Baker (University of Tulsa, Oklahoma), who joins VL2 as a consultant in Research-Practice Integration efforts. Dr. Baker will work with Melissa Malzkuhn and Connie Pucci to develop research briefs to inform educators of new educational theory.

To launch the program, a Twitter account has been set up, and anyone can follow the VL2 RPI series by signing up at [www.twitter.com/NSFVL2](http://www.twitter.com/NSFVL2). Tweets will be sent out for announcements and to inform members when new briefs are released. In addition to that, VL2 is also now on Facebook, and there is a public wiki site anyone can access to initiate discussions on research-practice sharing. The wiki can be accessed at <http://vl2wiki.ediime.com>.



## VL2 shares ideas with DYUSA participants

Deaf Youth USA, an emerging organization focusing on politics, media, and advocacy work among young adults (in the 18-30 age group), hosted their second camp in Fort Collins, Colorado from June 2 to 7.

Melissa Malzkuhn, Peter Hauser, and Gene Mirus were among the presenters. Topics ranged from linguistic preservation to scientific research as a tool for social justice. In addition, VL2 supported the collection of video data for potential research projects. The camp participants responded with enthusiasm for more information on research projects. Moreover, DYUSA has helped VL2 to understand the importance of introducing research to young people, increasing the potential for future collaborations.

For further information on DYUSA, go to [www.dyusa.org](http://www.dyusa.org).

## Deaf topics heat up at AERA

The American Educational Research Association (AERA) meeting was held in San Diego from April 13<sup>th</sup> - 17<sup>th</sup>. This association includes a Special Interest Group (SIG) that focuses on Research on the Education of Deaf Persons. The SIG hosts paper sessions, business meetings, and more recently "Hot Topic" discussions. This year's meeting included an interesting set of papers including ethnographies and international reports, during which Dr. Thomas Allen was the discussant. During the Business Meeting and during the "Hot Topic" components, discussion focused on bilingual education. Many perspectives were debated and the discussion lived up to the title of "Hot Topic." We encourage you to become AERA and SIG members to join in these important discussions regarding the future of deaf education (see [aera.net](http://aera.net) for more information).



## 2009 - 2010 student leaders

### STUDENT LEADERSHIP TEAM

Wyatte Hall (Gallaudet University)  
Gabrielle Jones (University of Illinois, U-C)  
Erin Spurgeon (RIT)  
Cecily Whitworth (Gallaudet University)

### STUDENT REVIEW COMMITTEE

Sarah Fish (Boston University)  
Shilpa Hanumantha (Gallaudet University)  
Erin Wilkinson (University of New Mexico)  
Clifton Langdon-Grigg (Gallaudet University)  
Connie Pucci (Gallaudet University)

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Connie Pucci (Gallaudet University)

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## VISUAL LANGUAGE & VISUAL LEARNING

Partner Institutes: Boston University, Georgetown University, Rochester Institute of Technology, San Diego State University, University of California - Davis, University of California - San Diego, University of Haifa, University of Hamburg, University of Illinois - Urbana-Champaign, University of New Mexico, and University of Rochester.