



## VISUAL LANGUAGE & VISUAL LEARNING



GU Provost Stephen Weiner, Science Director Laura-Ann Petitto, NSF SLC Program Director Soo-Siang Lim, and GU President T. Alan Hurwitz cutting the ribbon at BL2's Open House

### New Brain and Language Lab opens at Gallaudet University

One of the biggest hurdles in bilingual research is accessing the minds of very young children. How does a child process and understand a language, or, in the case of bilingual toddlers, two languages? For a long time, what we knew about bilingualism and its benefits came from studies on bilingual adults. In these studies, data was collected by means of cumbersome neuroimaging machines such as the fMRI/MRI

equipment. Child-involved research is an area that has long been inaccessible due to the fact that up until recently, the only available neuroimaging options were too dangerous or inappropriate for children.

However, these barriers are now being knocked down with the establishment of the Brain and Language Lab (BL2), a state-of-the-art functional Near Infrared Spectroscopy (fNIRS) brain imaging and behavioral studies laboratory at Gallaudet University. BL2 is an offshoot of the National Science Foundation-funded Science of Learning Center on Visual

Language and Visual Learning (VL2) at Gallaudet University. At the helm of BL2 is Laura-Ann Petitto, who is also the Science Director and Co-Principal Investigator of VL2. Petitto is known for her discoveries related to the biological foundations of language and communication and particularly key brain structures implicated in early language processing in children.

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# The Brain &

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Petitto's research focuses on the biological mechanisms and environmental factors that, together, make possible what scientists call the miracle of human language acquisition. Petitto has always had a passionate interest in the ways in which language is organized in the human brain and especially how different early language experiences can change the brain. Her work has advanced understanding of the precise neural basis of the left hemisphere's specialization for language, and she has articulated a testable theory for how young babies acquire language. In addition, she has made discoveries about the ways that the age of first bilingual language exposure can impact the brain's neural circuitry for language and higher cognition and how the young child builds the extraordinary capacity for reading.

Petitto's work also focuses on aspects of grammatical patterning underlying all human languages regardless of modality, be they signed or spoken. Her discoveries relating to how signed languages are acquired and processed in the human brain span three decades. She is widely known for the discovery that babbling on the hands in young babies exposed to signed languages (deaf or hearing) is homologous in underlying structure and linguistic function to vocal babbling on the tongues of hearing babies.

Petitto uses a number of different and innovative approaches in studying the above issues, including cognitive neuroscience investigations using brain-scanning (fNIRS, fMRI, and PET) and cognitive neuro-genetic investigations (studies of clusters of genes linked with higher cognition). With fNIRS brain imaging, Petitto conducts "Infant Habituation Laboratory" studies of babies, thereby providing a first-time look into the young baby's changing brain during language processing across early life.

Following from her commitment to translating science for the benefit of society, Petitto has had a leadership role in the creation of the new scientific discipline, called Educational Neuroscience, which marries discoveries about the human brain and development with their principled application to challenges in contemporary education. Petitto also has a passionate commitment to teaching and to training students, and she looks forward to building a lab

vibrant with the next generation of young scientists.

BL2 has three primary goals: education, research and translation.

- **Education:** BL2 and its technology are open for use to Gallaudet students, including undergraduates. This grants Gallaudet undergrads the potential to embark on more advanced research, ask more difficult questions, and be able to get results instead of waiting until they begin graduate or PhD studies.
- **Research:** BL2 has the responsibility to perform transformative research that will break up age-old myths and assumptions about language processing. (One example is the myth that learning a second language will impede the first language's progress. The answer is no, it doesn't!).
- **Translation:** Armed with new information gleaned from research data, the next thing BL2 must do is get the word out. In partnership



BL2 visitors receive a tour of the lab



# Language Lab

with VL2, BL2 findings will be translated into classroom studies and provided in accessible formats for parents, educators, and practitioners.

The primary driving interests behind BL2's research are: measuring and understanding the acquisition process of bilingual children and understanding how bimodal children (who use sign and speech) process and perceive languages.

BL2 boasts the most advanced neuroimaging technology to date: fNIRS. fNIRS stands for *functional* Near Infrared Spectroscopy. The word "functional" is important because it means that researchers can measure progress immediately. It doesn't take hours or days to get results back from a brain scan. Not every university owns fNIRS equipment, and so it's quite an exceptional and exciting opportunity for one to be right here at Gallaudet's BL2 lab.

"Functional" also suggests the fNIRS' unassuming size: it is portable, and if

the researchers wanted to take the neuroimaging scanner to another area of the country, they can quite easily. All of the other brain-imaging options that exist are enormous in size and take up a room, or even two! The fNIRS equipment is also friendlier for children because they can move and play while being tested. The fNIRS is also extremely fast compared to other imaging technology. It can take 10 "snapshots" of brain activity per second, while the MRI, for example, can only take two photos per second. This allows for far greater accuracy in measuring brain activity.

With this technology, it should not be surprising to know that BL2 has already broken ground with an interesting find. It has always been known that both hemispheres of a bilingual person's brain light up when they process language (for monolinguals, it is usually the left hemisphere that processes language), but the answer for *why* has rested on a widely accepted assumption. The assumption is that the left hemisphere is overwhelmed and thus transfers

some of the energy towards the right hemisphere, making them depend on each other. This leads to the widespread assumption that bilingualism makes the brain slightly weaker if it has to "reach out" to other areas for support.

However, BL2 findings show that this assumption is a myth. Using fNIRS equipment, Petitto and her colleagues discovered that both hemispheres light up with activity *at the exact same time*. This means that being bilingual opens up the right hemisphere for language processing and that in actuality, bilinguals' brains are optimized for performance because more areas are accessible for language input/output.

The Brain and Language Lab officially opened in October, and in December, members from the campus community, the Washington, D.C. research community, and representatives from the National Science Foundation and National Institutes of Health gathered together to celebrate the new laboratory at the ribbon cutting ceremony and reception following.

With the opening of the Brain and Language Lab, VL2, in partnership with Gallaudet University, is honored and pleased to usher in this new era in ground-breaking research in bilingualism and multi-modality.



BL2 graduate research asst. Kaja Jasinksa demonstrates the fNIRS equipment

# research

## VL2 presents research on visual language and learning to high-level, international audience

Jan. 23 and 24, Laura-Ann Petitto, Tom Allen, and Kristen Harmon joined representatives from four other Science of Learning Centers at a joint conference hosted by the National Science Foundation and the Centre for Educational Research and Innovation (CERI, sponsored by the Organization for Economic Cooperation and Development, located at the Chateau de la Muette, Paris, France).

The conference, "Connecting How We Learn to Educational Practice and Policy: Research Evidence and Implications International Conference," brought together researchers from the Science of Learning Centers and policy makers and practitioners from many of OECD's member nations and from international organizations such as UNESCO.

The purpose of the meeting was to bring together members of three different constituencies who rarely interact in professional settings or read each other's published work:

scientists, policy makers, and educational practitioners. Structured as an interactive forum, the organizers encouraged interaction and innovation, the discussion and dissemination of research findings, and the sharing of successful strategies.

The conference objectives were:

- "High-level dissemination of recent research on how people learn, by promoting dialogue among researchers, practitioners, and policy makers;
- To foster the development of an international network on the broad theme of learning, so as to continue the dialogue among research, policy and practice communities on overcoming key challenges; and,
- To globalize and mobilize the field of integrative, multidisciplinary Science of Learning by strengthening and exploring new collaborations among United States researchers and their international counterparts" ("Connecting How We Learn," OECD-CERI).

Representatives from five of the six Science of Learning Centers presented findings from their research, and topics ranged from:

- visual processing and teaching practices and educational policies that impact students' visual



Laura-Ann Petitto, Tom Allen, Kristen Harmon, along with other SLC representatives and Soo-Siang Lim of NSF, at the CERI Conference

- learning (Laura-Ann Petitto);
- social foundations of learning (Patricia Kuhl, LIFE);
- math stereotyping, gender, and impact on STEM learning (Andrew Meltzoff, LIFE);
- media use and social well-being among teenage girls (Roy Pea, LIFE);
- sketch-based educational software (David Uttal, SILC);
- social and emotional factors impacting students' learning of math (Susan Levine, SILC);
- enhancing the learning of spatial learning in formal and informal settings (Nora Newcombe, SILC);
- data driven educational design and technology and the "e-science of learning" (John Stamper, PSLC);
- methods to behaviorally drive changes in neuroplasticity in the brain to provide a neural advantage for learners (Andrea Chiba, TDLC).

Power point presentations from this conference can be found at this link: <http://www.slideshare.net/event/ceri-oecdnational-science-foundation-international-conference/slideshows>

Petitto's presentation, "Diversity in Learning: Teaching Practices and Educational Policies that Impact Students' Visual Learning," reviewed some of the center's findings in visual



Laura-Ann Petitto at the CERI Conference



# connections

processing and visual learning, early reading acquisition and visual phonology, and the impact of age of bilingual exposure on executive functions and language processing. Petitto then reviewed some of the key translational and educational policy imperatives that emerge from the center's findings.

Questions and discussion after Petitto's presentation addressed the advantages of teaching a visual language to all, regardless of hearing status; gender and eye gaze; SES and bilingualism; cultural nuances of eye gaze practices; bilingual versus trilingual benefits; minority versus majority languages and educational policy; the psychological impact of being asked to only use one language at school; the impact of using native versus non-native language models on a child's developing language; and finally, questions about whether or not the center's findings related to neuroplasticity were also found across the lifespan.

Over the two days of the conference, the conversation between representatives of each of the member nations there and the participants ranged on topics relating to visual learning, early reading acquisition and visual phonology, and the impact of age of bilingual exposure on executive functions and language processing.

## Measuring literacy and its neurocognitive predictors among deaf individuals: An assessment toolkit

Donna Morere and Tom Allen recently finished editing a book that will provide comprehensive data and descriptions of assessments that are in the VL2 Toolkit. The book is titled:

Measuring literacy and its neurocognitive predictors among deaf individuals: An assessment toolkit. It will be published by Springer Press. Chapters penned by individuals involved in the psychometric study of the toolkit measures will describe and analyze data for different categories of assessment, including: measures of visuospatial ability, achievement, general cognitive functioning, linguistic ability, and memory.

## Annual issue of Clerc Center's *The Odyssey* includes two VL2 Articles

Recently, the Laurent Clerc Deaf Education Center released their annual issue of *The Odyssey*. The *Odyssey* features articles and information important to families and educators of deaf and hard of hearing children.

The theme of the 2012 issue of *The Odyssey* is "research to practice" and included are two articles by VL2 researchers.

In "Revolutions in the Science of Learning: A New View from a New Center" (pp. 70-75), Laura-Ann

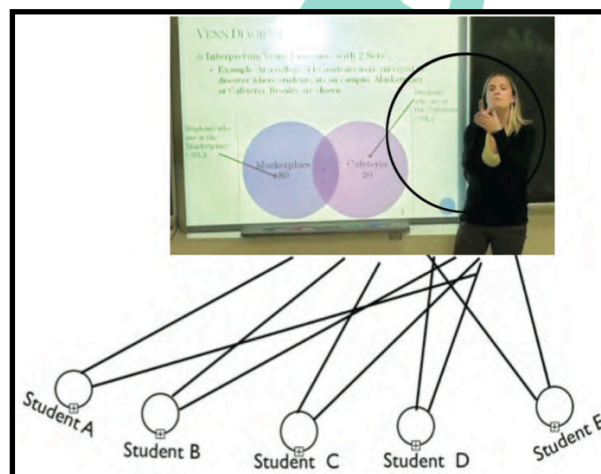
Petitto provides an overview of three key advances in the science of learning on visual language and learning:

- Visual experience can mean cognitive advantage;
- Bilingual exposure confers reading advantage; and
- Visual learners revolutionize our view of bilingualism and the role of 'phonology' in early reading.

In "An Issue of Learning: The Effect of Visual Split Attention in Classes for Deaf and Hard of Hearing Students" (pp. 20-24), Susan Mather and Diane Clark present an overview of the effects of classroom design and communication practices ("auditory-oriented" as opposed to "visually-oriented") upon visual attention, memory, and cognitive load.

Unfortunately, the authors note, "the auditory-based classroom—the traditional class model—unfairly increases the cognitive load for deaf and hard of hearing attention by requiring them to constantly engage in splitting their visual attention [which overloads working memory]." (See illustrating figure below). However, "[r]ecognizing this and incorporating some visually based learning strategies could go a long way towards eliminating traditionally low levels of academic achievement for deaf and hard of hearing students" (p. 24).

Enjoy and share: <http://www.gallaudet.edu/Documents/Clerc/Odyssey2012.pdf>



# Q&A

Melissa Herzig's new role as P-12 Manager with VL2 further connects research and practice in education. Learn more about Herzig and her experiences as both a researcher and educator.



**Q** For the last two years you've held three positions: Postdoctoral Scholar in Center for Research in Language at the University of California, San Diego; Consultant/Adjunct Professor Lead Supervisor for Interns and Student Teachers in the Deaf/Hard of Hearing Education Program at National University; and as a teacher in the Deaf/Hard of Hearing Program in the Sweetwater Union High School District. How has your experience prepared you for the job of P-12 Manager?

**A** The job of P-12 manager requires someone who's knowledgeable about current teaching practice (for both hearing and deaf students), is able to work with schools and teachers, and is familiar with research practices (translational work). With those three job positions you mentioned above, I was able to view education and research through various lenses.

As a teacher, I was continuously planning my lessons, reading research materials and thinking of what they mean for deaf students and how I can improve my teaching practices. It also drove my research interests. For my masters' thesis, I created a bilingual curriculum, which bridged ASL and English languages through narrative stories and field-tested them with third graders. While creating the curriculum, I also developed an ASL Scale of Development. It's an authentic assessment tool that I can use to gauge the effectiveness of the curriculum. It's designed to be a user-friendly tool for teachers, parents, and specialists. It's been used at the UCSD Educational Studies Deaf/Hard of Hearing Deaf education graduate program by student teachers at University of California, San Diego and also by local teachers. For my doctoral dissertation, I studied the motivation of adolescent Deaf Latino struggling readers. The findings I discovered through my thesis and dissertation helped me be a better teacher and motivated me to share what I learned with others. They also helped me understand what it takes to be an educational researcher and with that experience, I can support other teachers who have similar drive and interests.

As you mentioned, I was a lead supervisor and consultant for deaf/hard of hearing program at National University. Additionally, I created a new course for National University and taught several graduate level courses. I was previously a supervisor for student teachers at University of California, San Diego. Because of these experiences, I am continuously exposed to and immersed in best and current teaching practices for both deaf/hard of hearing and hearing students. Being familiar with these practices, I believe, will be an asset when I work with teachers and researchers in creating a research plan for translational research.



Melissa Herzig working with Carol Padden and So-One Hwang

As a researcher, I was motivated to do work that was relevant for myself and other researchers and teachers. I have worked on the VL2 project "ASL gesture as an indicator for readiness to learn" as a postdoctoral researcher, which is being conducted with the collaboration of researchers at University of Chicago in Susan Goldin-Meadow's lab. To collect data, I worked closely with schools, teachers, and principals all over the country and maintained relationships with them throughout the research period. I worked with other research assistants and postdocs to code and analyze the data, which has resulted in exciting findings. We have presented this work at the Piaget Society



# with Dr. Melissa Herzig

Conference and Visual Language Summit, and we did a poster session at the International Mind, Brain, and Education Society Conference. The work we have done has been published in *Cognition*. We plan to return to schools to also share our findings with specialists, teachers, and principals. Currently, we are testing hearing students. My other experience of collaborating or working in a team was when I was a part of the creation of Clerc Center-sponsored National K-12 ASL Standards. I collaborated with other professionals, ASL specialists, and ASL teachers from other colleges and schools. These experiences of working with schools, collaborating with other researchers, and working in a team, have all helped me prepare for this current job as a manager of P-12 school engagement.

I am passionate about working in the educational field and research fields. I enjoy doing this work so much that I didn't want to give up one area or the other. This new career path is thrilling for me because I can bring all three prior experiences into a single job and these fields will be related to each other. I will be able to keep working in both educational and research fields!

**Q** As P-12 Manager, you will have several general responsibilities, including promoting two-way flow of information among P-12 schools and other educational entities; participating in the design and development of materials that present research findings in a clear way; soliciting priorities and insights of teachers and communicating them to VL2 and the Clerc Center; and planning and organizing events and other methods to bring together VL2 researchers, Clerc educators, schools, and parents together to discuss the translation of research into practice. Which responsibility are you looking forward to the most, and why?

**A** VL2's innovative research is essential in understanding deaf children and how they learn, but the findings will not be useful unless they can be shared with parents, teachers, teacher preparation programs, and other professionals. I'm most excited about integrating findings on how children learn through the visual modality either at home or in the classroom and working with teachers about how these findings translate in their teaching practices. I often see interesting work and these findings rarely find their way into classrooms. The best way to ensure the research findings are being used and applied to educational setting is by working with these teachers themselves and sharing the findings with other teachers, potential teachers in teacher preparation programs, education specialists, and lastly but not the least, the parents.

Another thing is that the teachers or schools usually operate on their own. Oftentimes, the curriculums available are geared towards hearing students, and the teachers take it upon themselves to modify them for deaf students based on what they have learned through their experiences and research findings about bilingual education. I have seen some great teachers who are effective at modifying them for their students. I hope to help facilitate the communication between the teachers, schools, and researchers. So that way, the instructions can be elevated to the next level if they keep building on each others' ideas rather than reinventing the wheel.



Melissa Herzig testing students

For the rest of our Q&A with Melissa Herzig, please visit VL2's website at <http://vl2.gallaudet.edu/news.php?id=226>

# outreach

## Visual Language Summit

November 18-19 2011, VL2 and the University of California-Davis Center for Mind and Brain (with David Corina) co-hosted a two-day conference, "The Center for Mind and Brain Visual Language Summit" at the UC-Davis campus. This summit brought together specialists in attention, language, memory, and education to address issues relevant to the cognitive and linguistic development of deaf and hard of hearing individuals. By bringing together researchers and the community of educators and policy-makers in a panel and workshop format, the Visual Language Summit provided a space for sharing new knowledge from the sciences, discussing best practices in education, and fostering new collaborations that will, in turn, lead to transformative approaches to both the education and neuroscience relating to deafness and bimodal bilingualism.

At the Summit, Laura-Ann Petitto and Carol Padden were keynote speakers. Petitto, VL2's Science Director, presented, "On two languages in one brain: New insights into the human capacity for language from the bilingual brain." Padden, VL2's former Interim Science Director and Professor of Communications at University of California-San Diego, presented, "The

role of gesture in language: Clues from signing deaf children."

VL2 researchers from U.S. and Canada also presented on bimodal bilingualism, cognitive neuroscience, reading research, early findings from a longitudinal study on deaf children in various education settings, episodic memory and executive functions, eye gaze and social engagement in the learning environment, and visual attention in deaf students and the implications for education. Other speakers on the roster represented the California Department of Education, the California School for the Deaf, and other universities also doing behavioral and neuroscience research.

Featured in the third issue of the *Deaf Studies Digital Journal* are interviews with several presenters at the Summit. These interviews can be viewed, along with the rest of the issue, at <http://dsdj.gallaudet.edu>.

## March 18, 2012, Educators and VL2 met for School Partner Meeting at the Delaware School for the Deaf

"Transcending the bridge from research to practice is not an easy task," said Sharon Baker, VL2 affiliated researcher and University of Tulsa Deaf Education professor. The

challenges in bringing together researchers and educators are many: disciplinary differences, taking findings from the basic science and implementing a translational research agenda, ensuring a common and accessible language for all research materials, and most importantly, finding ways to involve teachers in the research process itself.

Teachers are on the front lines of education everyday; they are the ones who implement and share information about best practices in education with parents and other educators. Involving teachers in research to practice (and vice versa) initiatives is imperative for bringing the science of learning to the classroom. The wealth of information and knowledge teachers bring from the classroom also needs to be brought into the discussion of—and research into—the science of learning.

March 18, in a joint collaboration with the Laurent Clerc National Deaf Education Center, VL2 hosted over eighty teachers and practitioners at a "School Partner Network Meeting" at the Delaware School for the Deaf. The intent of the one-day workshop was to encourage more dialogue between teachers and researchers. Attendees came from more than 20 schools, both residential and public schools. Teachers represented all educational levels, with most of them

## ANNOUNCING NEW BRIEFS!



Eye Gaze and Joint Attention: Fundamental Skills for Successful Interaction in Home and School Environments

The Implications of Bimodal Bilingual Approaches for Children with Cochlear Implants



The Benefits of Bilingualism: Impacts on Language and Cognitive Development

ASL/English Bilingual Education: Models, Methodologies, and Strategies



FIND THEM AT  
<http://vl2.gallaudet.edu>





from Early Childhood programs. Many were in town for the ASL-English Bilingual Early Childhood Education Summit III, held March 16-17, also at the Delaware School for the Deaf. After the end of the summit, many of the educators stayed on for the "VL2 day." The co-organizers of the Clerc Center/VL2 School Partner Network meeting, Diane Clark, VL2's Post-secondary Engagement Coordinator, and Susan Jacoby, Executive Director of Planning, Development, and Dissemination at the Laurent Clerc National Deaf Education Center, along with other personnel from both Clerc and VL2, worked closely with the organizers of the ECE Summit III to ensure the success of the meeting.

Working towards the "partner" part of the School Partner Network, VL2 researchers first presented summaries of their main findings as they apply to schools and teachers as well as products that are currently being developed. Presenters included Laura-Ann Petitto, Thomas Allen, Jenny Singleton, Kristen Harmon, Sharon Baker, Laurene Simms, Diane Clark, and Christen Szymanski. Topics included the development of ASL iPad apps that are designed with research findings in mind, the creation of research databases, the development of a Parent Information Package, new assessment measures in the VL2 Toolkit, and mechanisms for new collaborations.

After each presentation and then later, at length, teachers and practitioners shared their thoughts on VL2 research and presented needs to be addressed by the research. The Clerc Center staff led the dialogues after each presentation; Susan Jacoby, Richard Jeffries, and Cheryl Shahan worked with Christen Szymanski, director of research and evaluation at Clerc Center, to facilitate

these dialogues. In these dialogues, teachers and administrators in attendance contributed many important ideas for the creation of a strong and positive two-way dialogue driving translational research.

Sharon Baker further noted, "the VL2 partnership meeting provided a platform for not only presenting the ongoing research accumulating at VL2 and the emerging findings regarding the advantages of visual languages and bilingualism, it also increased

**"Teachers had a chance to see their experience working with deaf children validated by research and to see long-expressed needs addressed through products in development through VL2." - Susan Jacoby, Clerc Center**

educators' awareness of how research is conducted, IRB processes, and the opportunities for future applied research studies. Through the VL2 partnership meeting, educators began to see themselves as an important part of the research agenda and began to situate themselves within the research paradigm. Further, they began to think about how to work more collaboratively in their own communities to share research-based practices."

To aid teachers in this process, VL2 has recently developed "Emerging Scholars," a lecturers' pool comprised of recent or current VL2 pre- and post-doctoral fellows and research assistants. Teachers, administrators,

and practitioners can review information on each of the emerging scholars and call one or more of them to present on VL2 research on topics ranging from bilingual research, qualitative research, early findings from a VL2 longitudinal study, ethics and research, literacy development, neuroscience findings on the bilingual/bimodal brain, and ASL linguistics. For more information, see: <http://vl2.gallaudet.edu/news.php?id=212>

Susan Jacoby, one of the organizers of the meeting, said "Teachers had a chance to see their experience working with deaf children validated by research and to see long-expressed needs addressed through products in development through VL2. They now have the research to support their understanding and to share with others. From that point, knowledge and idea sharing ensued. The value of the day and the opportunities it presented was repeatedly stated by educators, researchers, and everyone involved in planning the event. The day gave roots to a foundation of collaboration and partnership."

As part of a long-term plan to develop stronger partner networks and a deeper collaboration between VL2 and Clerc Center, the two entities recently hired a P-12 Manager (Melissa Herzig, profiled in this newsletter). Herzig will oversee collaborative efforts between teachers, practitioners, and researchers, and will play a critical role in the development of "research to practice" initiatives.

Diane Clark, also a co-organizer of the School Partner meeting, noted that "working with the Clerc Center and all of the teachers who came to the School Partner meeting was energizing. They brought deaf children front and center as the focus

# education

of our efforts. The comment, 'How does that apply to the classroom' was an important refrain to help plan the meeting and keep us focused. Their comments and ideas helped direct future efforts in ways that will allow the development of future educational interventions."

VL2 wishes to thank everyone involved with this very successful meeting, and we look forward to more. As co-PI Tom Allen said, "I thought it was a spectacular event, [and] I am looking forward to the next partnership meeting and to future collaborative events between VL2 and the Clerc Center."

## VL2's Inaugural & International "ASL Assessment Toolkit Workshop"

At VL2's inaugural "ASL Assessment Toolkit Workshop" on April 4, over

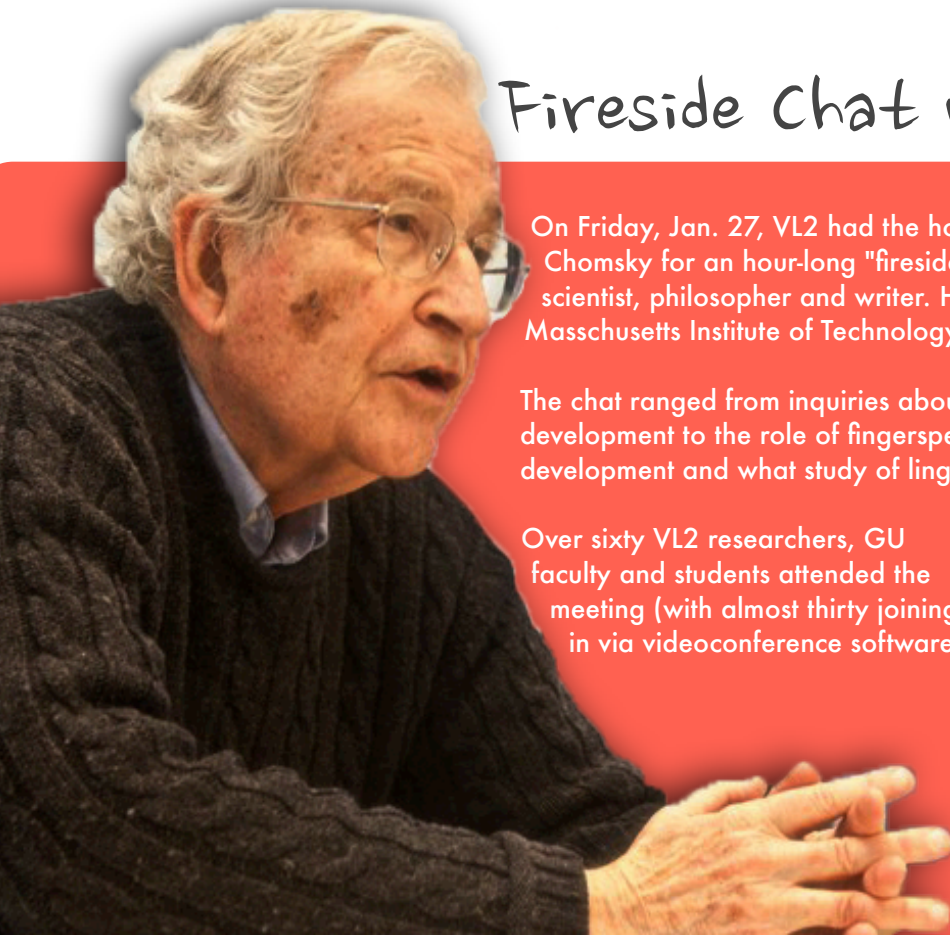
twenty researchers and practitioners from around the United States and indeed, from around the world, met both face to face on Gallaudet's campus and online via video conferencing software. The goals of the meeting were three-fold: to demonstrate existing assessment tools and tools in process; to make decisions about how to compile assessment tools in order to create a product that psychologists, linguists, cognitive neuroscientists, and ASL specialists can use; and to ensure data sharing.

## VL2's Gabrielle Jones joins Gallaudet delegates visiting China

Last Nov., VL2 graduate research assistant Gabrielle Jones joined a delegation from Gallaudet that included T. Alan Hurwitz, Asaiah Mason, and Jiyai Zhou at the signing

ceremony commemorating a historical agreement between Beijing Union University and Gallaudet University. This event also celebrated the beginning of a Sino-American collaborative exchange between the two universities. This much-anticipated collaboration will promote faculty, student and researcher exchanges in higher education for the deaf in both countries.

The purpose of Jones' trip on VL2's behalf was twofold—first, to establish connections with researchers and school administrators for future research collaboration and second, to conduct data reliability coding for her classroom video recordings and interviews with a fluent Deaf signer of Chinese Sign Language.



## Fireside Chat with Noam Chomsky

On Friday, Jan. 27, VL2 had the honor and privilege of hosting Professor Noam Chomsky for an hour-long "fireside chat." Chomsky is a well-known linguist, cognitive scientist, philosopher and writer. He is a Professor of Linguistics and Philosophy at Massachusetts Institute of Technology, where he has worked for over fifty years.

The chat ranged from inquiries about language acquisition and "theory of mind" development to the role of fingerspelling in early-exposed bilingual language development and what study of linguistics could offer to the field of artificial intelligence.

Over sixty VL2 researchers, GU faculty and students attended the meeting (with almost thirty joining in via videoconference software).





## Peter Hauser leads the Science Mentorship Program

Science mentors ensure that students don't get discouraged when experiments don't work out or when their papers are not accepted on their first round in the evaluation process. Peter Hauser is pioneering the VL2 Science Mentorship Program, and his goals include but are not limited to: involving all levels of students from undergrad to faculty, facilitating open exchange and communication, and promoting an overarching theme of collaboration.

## VL2 Research Presented at Oslo, Norway

At the International Symposium on Bilingualism (ISB8) hosted at the University of Oslo from June 13-18 2011, several VL2-affiliated researchers presented VL2 research. These presentations were part of a special colloquium on bilingualism within and across modalities organized by Karen Emmorey. The colloquium was well attended and brought international attention to VL2 research, especially to different issues related to bimodal bilingualism among deaf and hearing bilinguals.

## VL2 Research at the Endangered Signed Languages Conference

In some countries, signed languages are becoming endangered. Languages become "endangered" when there is less inter-generational passing on of the language and/or decreasing number of users of a language. The World Federation of the Deaf (WFD) and European Union of the Deaf (EUD) hosted a conference on endangered sign

languages November 7-9 in Ål, Norway. Deaf leaders and scholars from 24 different countries attended this conference. VL2's Peter Hauser was invited to give a keynote address at this conference, and he shared VL2 research findings on visual learning and visual language acquisition.

## Student Leadership Team Hosts Retreat at Gallaudet

The Student Leadership Team created an impressive 2011-2012 Student Retreat. For incoming students there was an introduction to VL2, while for returning students, many professional development activities were scheduled, including statistical training and an introduction to working with ELAN, eye tracking, and fMRI equipment at Georgetown and other local universities. The retreat was an effort to provide more training and networking opportunities for all students. The retreat was held September 8th through 11th at Gallaudet.

## VL2 brings world class scholars to Scientific Advisory Board meeting

March 4-5, 2012, VL2's Scientific Advisory Board Members converged on GU's campus for an annual meeting discussing VL2's past findings and future direction. Prominent scholars include Steven Pinker, PhD, bestselling author and professor at Harvard University, New Mexico School for the Deaf Superintendent Ron Stern, PhD, and neurocognitive scientist Ken Pugh, PhD, from Yale to mention a few.

The Advisory Board provided outstanding suggestions regarding the Center's sustainability, and they suggested mechanisms that will help

achieve the Center's goals. They also provided vital observations regarding what VL2 can offer to the outside world.

"The VL2 Project is a natural treasure. Not only does it shed new light on the deaf experience, but it is pursuing scientific questions about language, learning, and the brain which could not be answered in any other way," said Dr. Steven Pinker of Harvard University.

## VL2 Emerging Scholars

Gallaudet University's Science of Learning Center, Visual Language and Visual Learning (VL2), has launched "Emerging Scholars," a new lecturers' pool featuring VL2 alumni and graduate students. These individuals represent the best and brightest of our upcoming scholars, and they are eager to present important findings from VL2's research and their own research to parents, teachers, and scholars.

For more information, see: <http://vl2.gallaudet.edu/news.php?id=212>

## Cross Lab Visit with Georgia Tech on Kinect

Georgia Tech is running research programs under the Center for Accessible Technology in Sign, and one of the research studies focuses on the uses and the programming of the Kinect to recognize sign language, going beyond gaming, to turn it into a powerful learning tool.

Dr. Ben Bahan and VL2's Digital Innovation & Media Strategies Manager, Melissa Malzkuhn of Motion Lab, met with researchers at the School of Interactive Computing at Georgia Tech. At the meeting, the

# TIDBITS

two teams discussed the possibility of a collaboration between Gallaudet and Georgia Tech. This collaboration could include setting up introductory lessons in the use of Kinect for sign language recognition work. It is in the mutual interest of both parties to encourage Gallaudet students to experiment with new and innovative tools, and to increase an interest in the field of computer science, human-computer interaction, and sign language research.

The visit was made possible thanks to Jenny Singleton, who transferred to Georgia Tech from University of Illinois, Urbana-Champaign. Dr. Singleton heads research projects with the Psychology Department.

## VL2 Research in mtvU's reality show, "Quiet Campus"

Last fall, mtvU released a five-episode reality television show featuring four Gallaudet students. In the fifth show, an epilogue, Gallaudet professor and VL2 Communications Officer Kristen Harmon was interviewed. She discussed VL2 research findings related to vision, deafness, and bilingualism.

## VL2 Represents Science of Learning in Australia

The University of Queensland in Australia is establishing a cross-disciplinary Science of Learning


Centre in Brisbane, and VL2, along with representatives from the five other NSF Science of Learning Centers, was invited to present at a conference there. VL2's co-PI Tom Allen and VL2 researcher Matthew Dye (University of Illinois) presented on VL2's research on attention and learning.

## Two VL2 Studies in 3<sup>rd</sup> Issue of *Deaf Studies Digital Journal* (DSDJ)

The *Deaf Studies Digital Journal* is the world's only academic sign language journal. The theme of the spring 2012 issue is "Linguistic Human Rights, Bilingualism, and Sign Language Planning," and findings from two VL2 studies were published there through working with the DSDJ Managing Editor Melissa Malzkuhn.

The first VL2-supported article is "Emic Perspectives on Reading Development in American Sign Language/English Bilingual Deaf Children" (by Concetta Pucci, Judith Mounty, and Kristen Harmon) examines the perspectives of teachers and parents of deaf children in relation to how

bilingualism impacts reading development in deaf children. In addition, this study discusses how Deaf parents and teachers promote bilingualism and literacy in their deaf children and students. In "Deaf Friendly Research? Toward Ethical Practice in Research Involving Deaf Participants," Jenny Singleton, Gabrielle Jones, and Shilpa Hanumantha discuss their study on ethical practices with deaf participants in research. The third issue can be viewed at <http://dsdj.gallaudet.edu>.



Article: "Emic Perspectives on Reading Development in American Sign Language/English Bilingual Deaf Children"  
By Concetta Pucci, Kristen Harmon, Judith Mounty

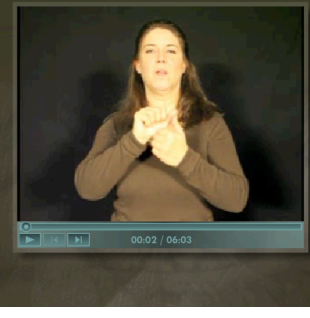
Concetta Pucci, Ph.D. Candidate, Gallaudet University; Judith Mounty, Ph.D., Gallaudet University; and Kristen Harmon, Ph.D., Gallaudet University

"Abstract"

"Introduction"

"Methodology"

"Results"



Article: "Deaf Friendly Research? Toward Ethical Practice in Research Involving Deaf Participants"  
By Jenny Singleton, Gabrielle Jones, Shilpa Hanumantha

Jenny Singleton, Ph.D., Georgia Institute of Technology; Gabrielle Jones, Ph.D. Candidate, University of Illinois; Shilpa Hanumantha, Ph.D., Gallaudet University

"Introduction and Literature Review"

"Methods"

"Results"

Two VL2-supported articles in DSDJ, "Emic Perspectives on Reading Development in ASL/English Bilingual Deaf Children" and "Deaf Friendly Research? Toward Ethical Practice in Research Involving Deaf Participants"



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