



Functional Magnetic Resonance Imaging (fMRI) is one of the methods used in investigating brain areas involved in reading comprehension.

Comprehending Reading Comprehension

BY JAN ROSEMERGY

Understanding what one reads is an essential life skill. In the beginning years, kindergarten through third grade, most of the focus in school is to teach children how to read, or how to sound out or decode words. Given the importance of learning to read, much of the research on reading has focused on young children. Yet, starting in late elementary school, reading independently is a primary means to learn in such areas as science and social studies. For the last decade, Laurie Cutting, Ph.D., has conducted studies to understand the neurobiological and behavioral basis of how students comprehend what they are reading. Cutting is Patricia and Rodes Hart Professor of Special Education; professor of Psychology, Radiology, and Pediatrics; and faculty director of the VKC Reading Clinic.

“When students learn to read, the primary focus is on reading stories, or narrative text,” Cutting said. “We have found that executive function has an impact on comprehension, in particular on understanding expository text, where one is getting information. This suggests that teachers need to focus on expository as well as narrative text, along with higher level skills, as they teach young students how to read.”

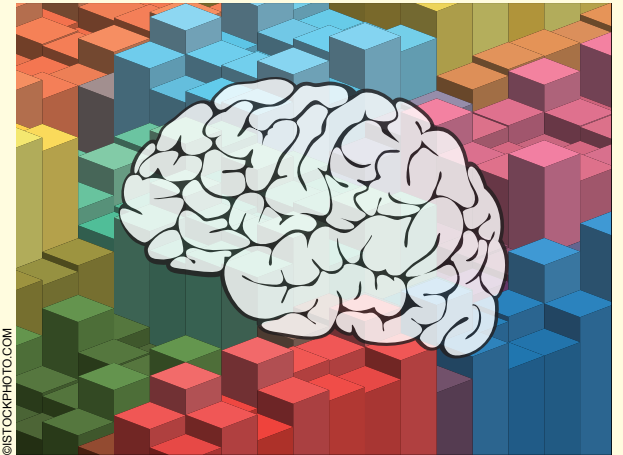
Consistent with Cutting and colleagues’ findings, research has demonstrated that reading comprehension performance varies depending on types of text and questions. Students’ ability to recognize words and their background knowledge may account for such differences. Other factors may include readers’ awareness of the meanings of words and sentence syntax, their ability to make inferences, and their ability to plan and organize information, but these factors need to be examined with regard to specific types of text and questions.

Cutting and her colleagues have sought to understand more about these complexities of reading comprehension. In one study, they examined the relations among reader characteristics, text types, and question types among children, ages 10-14 years. The goal was to compare students’ performance in comprehending narrative, expository, and functional text (e.g., signs, directions), as well as to explore differences among children’s performance on questions that assessed comprehension of passages at both literal and

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Disrupting “Building Blocks” of Behavior

BY ELIZABETH CONRAD



Researchers at the Vanderbilt Kennedy Center have been able to alter mouse behavior by silencing gene expression in interneurons, distinct populations of nerve cells that are the main regulators of brain circuits.

Interneurons can be thought of as the “building blocks” to impact behavior. Researchers found that changing the expression of a gene in one interneuron population had the exact opposite molecular and behavioral effect compared to changing the same gene in another.

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Russell the Robot was featured at the 20th annual Coalition for National Science Funding exhibition, which is held annually to encourage Congress to continue its support for the National Science Foundation (NSF). The humanoid robot usually interacts with children with autism in an innovative NSF-funded intervention research study led by VKC investigators Nilanjan Sarkar, Ph.D. (Mechanical Engineering), and Zachary Warren, Ph.D. (Pediatrics). Here Rep. Chaka Fattah (D-PA) interacts while Sarkar and Warren look on.



COMPREHENDING READING COMPREHENSION *from page 1*

inferential levels. They found that higher order cognitive skills, including the ability to make inferences and to plan and to organize information, contribute to comprehension of more complex text—e.g., expository vs. narrative text—and question types—e.g., inferential vs. literal. Since these are important components of reading comprehension for later elementary and middle school students, developing these skills in early elementary school may better prepare students for comprehending texts they will encounter in subsequent grades.

One of the reasons that Cutting and colleagues have focused on reading comprehension is because a nontrivial number of children struggle with reading comprehension. The National Assessment of Educational Progress, the national reading comprehension test administered every 2 years, consistently indicates that approximately a quarter of all children struggle to read at grade level. Although many of these children likely struggle with learning to sound out or decode words (sometimes referred to as dyslexia for those who have the most severe difficulty in this area), another type of reading difficulty is poor reading comprehension despite being able to read words.

Cutting and her research team have conducted brain imaging studies looking at grey matter density in comparisons of three groups of children ages 10 through 14: those with dyslexia, those with specific reading comprehension deficits, and typically performing readers. They found differences in the structural organization of the brain among the three groups.

In a related line of research, Cutting and her team have focused on looking at how the patterns of activation in brain regions happen or unfold while individuals are reading expository texts. They began by studying these processes in skilled adult readers, and, in an ongoing study, have used a similar approach with adolescents.

Theories of reading comprehension propose that comprehending text successfully requires that a reader use both text-derived information and prior knowledge in order to build a mental model, or the reader's understanding of the text's meaning. Constructing this mental model is a dynamic process that involves complex cognitive demands that change over time.

Cutting and colleagues conducted a study with skilled adult readers to identify neural correlates

specific to comprehending expository text. They looked both at brain regions that overlapped with processing single words and those that were specific to processing expository text. Once the systems were identified, they did analyses over time to examine how the systems changed over the period of creating and maintaining a meaningful mental representation of the expository text. A second goal of the study was to examine the patterns of neural activation that are uniquely

Participants viewed three different types of text: coherent expository passages, scrambled words, and non-alphanumeric symbols while being scanned using function magnetic resonance imaging (fMRI). The researchers were able to identify brain regions that increase and decrease in activation over the course of passage comprehension. They found that comprehending expository text involves co-activation of what is often referred to as the semantic control network,

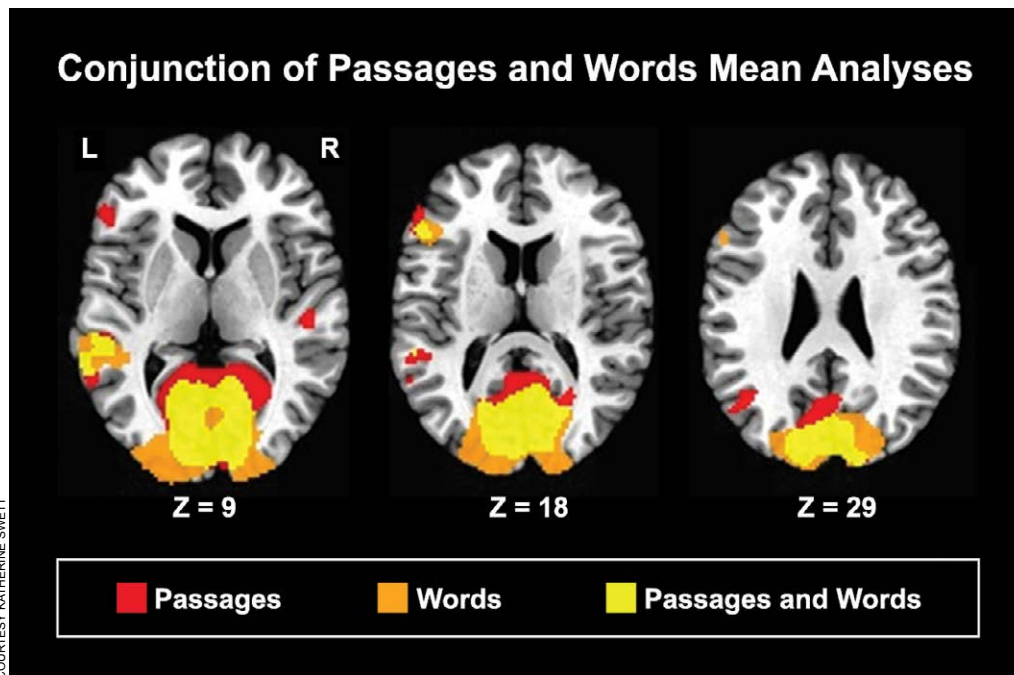
as well as regions in the posterior midline previously associated with mental model updating and integration. Over the course of passage comprehension, reliance on the same regions in the semantic control network increased, while a parietal region associated with attention decreased.

Using an event-related analysis to examine central vs. peripheral phrases, they found that central ideas are functionally distinct from peripheral ideas. Over the course of comprehending a passage, central vs. peripheral ideas recruit different parts of the brain's semantic control network. This finding that central information elicits greater response in regions of the brain associated with updating mental models

supports behavioral models emphasizing the importance of distinguishing what is central in text.

“Word level comprehension and passage level comprehension ultimately have to come together for an individual to be a successful reader,” Cutting said. “We’re looking neurobiologically at where they actually overlap. That may be important for understanding the transfer of skills across different reading stages, and for understanding why some students do not respond to intervention. If there are some brain areas common to both word and passage comprehension, and if there is some anomaly, an individual may not be able to use one of these areas to compensate and to read well.”

What are the implications of this reading research for teachers, schools, and parents? Cutting answers, “Expository text is different than narrative text. Both are important, but as education proceeds, comprehending expository text becomes central. Both need to be taught—and taught *early on*.” ■



Overlaying brain activities seen in passage reading and word reading shows regions involved uniquely in passage reading (red), word reading (orange), and regions involved in both passage and word reading (yellow). Regions unique to passages are thought to be involved in higher level text processing, including building an internal representation or “situation model” of the text.

The National Assessment of Educational Progress, the national reading comprehension test administered every 2 years, consistently indicates that approximately a quarter of all children struggle to read at grade level.

associated with processing central vs. peripheral ideas, since one hallmark of successful reading comprehension is that a reader can distinguish among ideas that are important, or central, vs. less important, or peripheral, in the text.



Director's Message — Wanted: Mental Health Expertise

In June, I was invited to speak at a NIH Workshop addressing “Mental Health in Intellectual and Developmental Disabilities: Research Challenges and Opportunities.” Co-sponsored by the EKS NICHD and NIMH, the workshop aimed to address significant gaps in research and treatments for persons with intellectual and developmental disabilities (IDDs) and mental illness. Up to 40% of the IDD population is disproportionately affected by mental health disorders. Yet few practitioners are trained in IDD and, as a result, mental illnesses in these individuals are often undetected or poorly managed, with an over-reliance on psychotropic medications. The invitational workshop was an initial step to better coordinate federal research activities around this topic.

Students seeking career paths in IDD are often keen to work with children with autism or learning disorders, or with families or in schools. Fewer intend to pursue a disability research career, let alone mental illness in IDD. What helps? Being trained in interdisciplinary research and service centers like



Elisabeth Dykens, Ph.D.

the Vanderbilt Kennedy Center (VKC), funded by integrated NIH training programs. While the VKC offers rich training opportunities, NIH training programs in IDD research have all but disappeared.

So what can we do to grow the number of IDD researchers and practitioners in health and mental health?

- Engage disability-specific advocacy groups and encourage philanthropic support to provide named research fellowships for interdisciplinary trainees in health or mental health.
- The nation's 15 Intellectual and Developmental Disabilities Research Centers play critical research training roles, but we could be much more effective with dedicated EKS NICHD training funds.
- The nation's 43 Leadership Education in Neurodevelopmental Disabilities (LEND) programs provide interdisciplinary IDD training in allied health fields, but not in mental health. It makes sense to add psychiatric trainees to LEND programs.
- The network of 67 University Centers for

Excellence in Developmental Disabilities (UCEDDs) could provide mental health certification to UCEDD trainees, who would be well-positioned to examine mental health policies and services.

- Nationally, many organizations push for research practices that include persons with IDD in clinical trials and psychiatric studies. Except in places like the VKC, those with IDDs are typically excluded.
- Globally, paraprofessionals increasingly provide mental health care for underserved populations. Our own recent research success in training parents of offspring with IDD to deliver interventions to reduce stress in other parents illustrates the effectiveness of this approach.
- Despite “calls to action” from previous U.S. Surgeon Generals, there has not been a broad-based national coalition to address health or mental health in IDD. Such coalitions have proven highly effective in such other disability areas as postsecondary education and employment.

If people with IDD have undetected or inadequately treated depression, anxiety, pain, behavior problems, or trauma, they cannot take advantage of new educational or employment opportunities. Indeed, mental wellness is necessary for all of us to learn, flourish, and be positively engaged with our families and communities. ■

DISRUPTING “BUILDING BLOCKS” OF BEHAVIOR *from page 1*

“Variations in these interneuron populations are not only important in the context of schizophrenia and other disorders, but in defining our personalities through behavior and activity in response to stimuli,” said senior author Karoly Mirnics, M.D., Ph.D., James K. Blakemore Professor of Psychiatry and VKC associate director.

Schizophrenia is a uniquely human, complex brain disorder, and a true rodent model of this disorder does not and will not exist, Mirnics said. But it can be determined how these different interneuron populations regulate certain aspects of behavior in mouse models, providing insight into the underlying roles of these “anatomical building blocks of behavior.”

Mirnics and colleagues studied transgenic mice in which the expression of a certain gene had been “turned off” in specific interneuron populations. Then they examined the molecular and behavioral consequences of this manipulation.

A mass spectrometry technique pioneered at Vanderbilt called MALDI-IMS enabled researchers in this study to “see” how changes in gene

expression affected levels of proteins important in brain signaling and function.

Until now, it was known that interneurons controlled complex behaviors and synchronized neuronal networks, but there was a limited understanding of the types of behavior that were mediated by specific interneuronal subclasses.

This finding, reported recently in *Molecular Psychiatry*, could have broad implications for improved and more targeted therapies for complex brain conditions like autism, epilepsy, bipolar disorder, and schizophrenia.

“We are systematically targeting interneuron populations,” Mirnics said. “If we can modulate and control these individual cell types and achieve predicted results in mice, we could one

day translate this to humans. Ultimately, that’s what will take us to personalized medicine, where the specific interneuronal deficit in a particular patient might help us tailor the treatment.”

The research was made possible by the expertise of the Vanderbilt Transgenic Mouse/ESC Shared Resource, Murine Neurobehavioral Laboratory, and the Protein Core of the Mass Spectrometry Research Center. Support was provided by NIH grant MH967234, the Vanderbilt Kennedy Center, and a Vanderbilt Brain Institute Scholar Award earned by first author Martin J. Schmidt, a graduate student in Mirnics’ lab. ■



Karoly Mirnics, M.D., Ph.D.

Reprinted from Research News @ Vanderbilt. Elizabeth Conrad is a graduate student in Molecular Physiology & Biophysics.



Navigating a New Culture BY COURTNEY TAYLOR AND MEGAN HART

Imagine starting a new life in a place where you do not speak the language or are unfamiliar with the culture. Even for those who adapt easily, each day would be filled with uncertainty and unexpected challenges. Now imagine you are starting a new life in a place where you do not speak the language or are unfamiliar with the culture *and* you have a child with a disability who needs to be connected to services. It could be next to impossible to navigate the barriers alone.

In response to the growing number of immigrants and refugees with disabilities who need resource and referral assistance in this state, Tennessee Disability Pathfinder founded the Multicultural Outreach Program in 2010. The program's staff works to alleviate barriers to accessing disability resources and to provide cultural awareness training, information, and assistance to families with diverse cultural backgrounds. In the last fiscal year, staff assisted 311 refugees and immigrants from 34 countries of origin now living in 22 counties across Tennessee.

Meet Sarah

Sarah is the mother of a child who is medically fragile and has an intellectual and physical disability. She and her family are refugees from Burma. When Sarah began working with the Multicultural Outreach Program, she expressed various needs for her family, including the need for respite care, so she could attend English classes. Although Pathfinder staff helped her to apply for Family Support funding to cover the cost associated with respite care, Sarah eventually declined financial assistance. She expressed a preference to take care of her daughter herself. After explaining Sarah's situation to staff at the Tennessee Foreign Language Institute, they agreed to start an English class in Sarah's apartment complex so that she and other Burmese women could learn to speak English.

The family also experienced complications with transportation to and from school. The school bus driver refused to enter the apartment complex in which Sarah's family lived since it was located on a steep incline. This same incline made it difficult for the family to get their child to the bus. Pathfinder staff worked with STEP, an educational advocacy organization, and the management company in the family's apartment complex to move the family to an apartment closer to the bus stop.

Meet Daniel

Daniel is a recent graduate of Next Steps at Vanderbilt, a postsecondary education program for individuals with intellectual and developmental disabilities. In 2010, Pathfinder staff connected him with Next Steps when his mother, Guillermina, asked about resources available for Daniel to continue his education after high school. Since Next Steps is a VKC program, Pathfinder staff continued to support Daniel and his family by providing interpretation/translation assistance and facilitating communication for the family to provide input and ask questions about the program. Daniel has been paying it forward through his Capstone project that allows him to share his experiences at Next Steps with other Hispanic students in high school.

"I feel so thankful for the help Alexander Santana at Pathfinder gave to me," said Daniel. "If he did not help me, I feel like I might be trapped at home doing nothing forever with nothing to do. I am independent now because I went to Next Steps

their new home in Nashville, Alexander worked in disability services and eventually found his way to Tennessee Disability Pathfinder.

"I am very happy working with the Multicultural Outreach Program," said Alexander. "I am able to combine my interests by working with people with disabilities and with people from other cultures. When I help those families, I look to myself 6 years ago in a new country with little English skills and with limited connections. I realize how important it is not only that people have a place to call and communicate in their language, but also that from there, they have someone that can be a bridge between them and disability services and resources available."

One of the ways the Multicultural Outreach Program meets the needs of immigrants and refugees is by providing information and referral assistance. Through its statewide multilingual telephone HELpline, staff members take a case management approach to providing personalized assistance in managing complicated family

situations. In addition to the HELpline, staff members manage and maintain Camino Seguro, a statewide database of agencies that have Spanish-speaking staff. The database continues to expand, now housing over 250 agencies, and continues to have an impact with over 3,000 visits in the last fiscal year. Staff members also organize and lead two monthly support groups for Spanish-speaking parents, which provide valuable opportunities for the families to learn from each other and to receive the emotional and informational support they need.

"Pathfinder has been the best help we have found," said Guillermina. "They helped us to open one more door so Daniel can keep going with his education. Now as an adult, he is able to control his life. I must say thank you to Alexander Santana. He is a person that not only does his job, but that also puts his feelings in his work and that's what makes him so successful." ■

Daniel and Sarah's stories were first shared through Compass, TN Disability Pathfinder newsletter. Multicultural Program is supported in part by TN Council on Developmental Disabilities, TN Dept of Education, and TN Dept of Intellectual and Developmental Disabilities. For information, contact alexander.santana@vanderbilt.edu, (615) 875-5083.

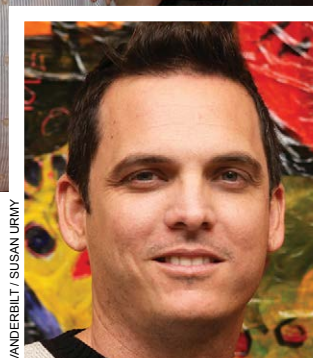


Above: Daniel Bautista-Sanchez celebrates his graduation from Next Steps at Vanderbilt with his family. Right: Alexander Santana.

and I know how to be more self-aware and how to apply for a job. I am also feeling great because I am telling other Hispanic students about how they can go to college. I would like to say thank you to Alexander."

Meet Alexander

Alexander Santana immigrated to the United States from Cuba in 2008. He left his wife and two children in Cuba, with plans to begin their petition process immediately upon settling. During the four years it took to bring his family to





Family-Centered Training BY JAN ROSEMERGY

When a young child is diagnosed with autism spectrum disorder (ASD), it can be a painful, overwhelming time for a family. Now, thanks to a new partnership between TRIAD and the Tennessee Early Intervention System (TEIS), many families can receive immediate support, and some among them can receive training.

“TEIS is proud to expand our partnership with TRIAD to provide a family-centered training model of service delivery for families of children with ASD,” said Jill Rigsby, M.S., Training Workforce Development coordinator, TEIS, Tennessee Department of Education. “We anticipate many successful outcomes for children with the increased knowledge gained by caregivers through their participation in the program.”

Based on concerns about a child’s development, TEIS refers families to TRIAD psychologists at the Vanderbilt Center for Child Development. If a child is diagnosed with ASD, families have the option of working directly with TRIAD. Children must be under 30 months of age. Every effort is made to meet with families within 2 weeks of diagnosis.

“Thanks to TEIS funding, TRIAD can provide high-quality, individualized services to families of young children recently diagnosed with autism,” said Alacia Stainbrook, Ph.D., BCBA-D, TRIAD early intervention program coordinator. “One of our primary goals is to build each family’s capacity to support the needs of their young child. We do this through a family-centered approach

that focuses on teaching caregivers strategies to engage and teach the child.”

Following diagnosis, TRIAD has two consultative meetings with a family and then a meeting to complete an Individualized Family Support Plan (IFSP). This first level of service is available to

Caregivers learn ways to gain and maintain a child’s attention within joint play and caregiving routines.

“When there is engagement, there is increased opportunity for learning,” Stainbrook said.

The parent education series is provided over

12 weeks and is available to families in Davidson, Rutherford, and Williamson County. The series is focused on ways to teach communication and social skills during play and daily family routines.

“We do a lot of play time, because when children are playing, they’re in a great state for learning,” said Mary Morton, M.Ed., BCBA, TRIAD educational and behavioral consultant. “Children really develop their social and communication skills during play.”

TRIAD interventionists first focus on successful family routines and show caregivers how to promote the child’s social skills and communication within those routines. Then they assist with daily routines that may be more challenging,

e.g., diaper changing, transitioning from outdoors to indoors, or going to the grocery store.

“We’re really focusing on how to support a family as they support their child and build skills, not only for the child but for the family,” said Pablo Juarez, M.Ed., BCBA, TRIAD associate director. ■



KYLE MUCCHILLI

families in Middle and South Central Tennessee.

Following consultation, some of these families will take part in a training series based on the Early Start Denver Model (ESDM, developed by Sally Rogers, Ph.D., and Geraldine Dawson, Ph.D.). A core feature of ESDM is its emphasis on shared engagement between child and caregiver(s).

Intervention for At-Risk Siblings BY JANE SEVIER

Vanderbilt University investigators Paul Yoder, Ph.D., and Zachary Warren, Ph.D., and Wendy Stone of the University of Washington’s Autism Center have received a 5-year grant from the National Institute for Deafness and Other Communication Disorders to study community interventions for younger siblings of children with autism spectrum disorder (ASD). Yoder is professor of Special Education, and Warren is associate professor of Pediatrics, Psychiatry, and Special Education, and TRIAD director.

“Impairments in social communication represent a core feature of ASD,” Yoder said. “Because ASD is highly heritable, later-born siblings of children with ASD are also at elevated

risk for language and social communication disorders. In fact, a recent large-scale study revealed that 40% of those siblings had either ASD or language delay by the age of 3.”

Yoder and the team will follow an Incremental Treatment Approach, which involves using a cost-effective treatment with infants at risk during the period in which a stable diagnosis is not yet possible because of their youth. The researchers will identify a treatment that targets skills to support social and linguistic communication development, categorize characteristics of the subgroup of siblings most likely to benefit from this treatment, and ascertain which siblings are most likely to need more intensive treatment.

The study will include 120 children ages 12 to 15 months at risk for communication disorders. Participants will be randomly assigned to receive Brooke Ingersoll’s Improving Parents As Communication Teachers (ImPACT) treatment or to a control group.

Researchers hope to show that the children assigned to the ImPACT group will increase their language skills and social communication. Parents will be trained to provide the treatment, which will be evaluated at 3- and 6-month intervals. The project begins in September.

For information, contact (615) 343-1725. ■

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Leading the Vanguard of Discovery

Gregg Stanwood

Assistant Professor of Pharmacology • Associate Director of VKC Neuroscience Core
Vanderbilt Kennedy Center Investigator • Joined Vanderbilt Kennedy Center in 2002

Research Interests

My laboratory focuses on the developmental origins of brain disorders, with a particular influence on classical neurotransmitters including dopamine and serotonin. These neuromodulators regulate brain biology early in development, even before synaptogenesis, and fine-tune brain architecture. Dysregulation of these processes during sensitive periods of brain maturation contributes to the generation of neurodevelopmental and mental health disorders. We use pharmacological, molecular, cell biological, neuroanatomical, and behavioral methods in animal models to explore these issues.

Principal Investigator

- Dopaminergic Modulation of Brain Development (National Institute of Mental Health)
- GLP-1 Receptors and Psychostimulant Addiction (National Institute on Drug Abuse)

Education

- B.A., 1991, Biology and Psychology (*summa cum laude*), Temple University
- Ph.D., 1997, Neuroscience, University of Pennsylvania

Honors and Awards

- Vanderbilt OBGAPS, Distinguished Faculty Award, 2013
- American College of Neuropsychopharmacology Travel Fellow, 2010
- Associate Editor for Special Issues, *Developmental Neuroscience*
- Editorial Boards of *Developmental Neuroscience*, *Frontiers in Behavioural Neuroscience*, and *Neurotoxicology and Teratology*

Attraction to Developmental Disabilities Research

I have been interested in brain-behavior relationships and brain development for most of my life. So many people and families are directly affected by developmental disabilities. The time when my children were enrolled at the Susan Gray School was one of the most rewarding and influential in my life. The empathy and understanding that the School and its students inspired in our family was profound.

Reasons for Kennedy Center Membership

The VKC is truly unique. It is an inclusive and multidisciplinary community that thrives in its

diversity. As a basic scientist, the clinical connections and collaborations that the VKC promotes has fundamentally influenced my research program in very positive ways. I simply cannot imagine not being a part of this amazing community of scientists, educators, and clinicians.

Selected Publications

- Ross, E. J., Graham, D. L., Money, K. M., & Stanwood, G. D. (in press). Developmental consequences of fetal exposure to drugs: What we know and what we still must learn. *Neuropsychopharmacology Reviews*.
- Graham, D. L., Erreger K., Galli A., & Stanwood, G. D. (2013). GLP-1 analog attenuates cocaine reward. *Molecular Psychiatry*, 18(9), 961-962. doi: 10.1038/mp.2012.141. Epub 2012 Oct 23. PMID:23089631.
- Frederick, A. L., Saborido, T. P., & Stanwood, G. D. (2012). Neurobehavioral phenotyping of Gαq knockout mice reveals impairments in motor functions and spatial working memory without changes in anxiety or behavioral despair. *Frontiers in Behavioral Neuroscience*, 26, 29. Epub 2012 Jun 19, PMID:22723772.
- Carpenter, A. C., Saborido, T. P., & Stanwood, G. D. (2012). Development of behavioral responses in dopamine transporter deficient mice. *Developmental Neuroscience*, 34(2-3), 250-7, PMID: 22572477.
- Thompson, B. L., Levitt, P., & Stanwood, G. D. (2009). The effects of prenatal exposure to drugs on brain development and function: Implications for policy and education. *Nature Neuroscience Reviews*, 10, 303-312. PMID: 19277053 ■

Accolades BY ELIZABETH TURNER

“Biobehavioral profiles of arousal and social motivation in autism spectrum disorders,” by **Blythe Corbett**, Ph.D., associate professor of Psychiatry, which appeared in the *Journal of Child Psychology and Psychiatry*, was **featured in the February 2014 “In Brief” section of the American Psychological Association’s APA Monitor.**

Laurie Fleming, VKC UCEDD program coordinator, **served on the Tennessee Arts Commission’s 2014 Citizen Advisory Panel.** Panelists meet once a year to offer advice on program planning and to review grant applications, and they serve as year-round resources to the Tennessee Arts Commission staff as advocates for the arts in their communities.

Lynn Fuchs, Ph.D., and **Doug Fuchs**, Ph.D., Nicholas Hobbs Chair in Special Education and Human Development and professors of Special

Education, were awarded the **2014 Distinguished Contributions to Research in Education Award of the American Educational Research Association**, its highest award.

John Gore, Ph.D., Hertha Ramsey Cress Chair in Medicine and director of the Vanderbilt Institute for Imaging Science, was **named an honorary professor of Zhejiang University in China.** Gore delivered a lecture, “The Emerging Role of Biomedical Imaging.”

Ann Kaiser, Ph.D., Susan Gray Chair in Education and Human Development and professor of Special Education, received the prestigious **J. E. Wallace Wallin Lifetime Achievement Award of the Council for Exceptional Children.** The Wallin Award recognizes significant, lifelong professional contributions to the education of children and youth with exceptionalities.



Doug Fuchs, Ph.D., Lynn Fuchs, Ph.D., Elise McMillan, J.D., and Jan Rosemergy, Ph.D.

Three VKC faculty and staff were honored at the **American Association on Intellectual and Developmental Disabilities (AAIDD)** annual meeting in June in Orlando. **Elise McMillan**, J.D., co-director, Vanderbilt Kennedy Center for Excellence in Developmental Disabilities, and VKC director of Community Outreach, accepted the

Continued on page 7



A Central Regulator of Neuron Development BY LEIGH MACMILLAN

The cerebellum—the “little brain” at the base of the brain—plays important roles in motor control, and it has recently been implicated in cognition and social behavior. Its small size and relatively simple architecture make the cerebellum an attractive brain region for studying nervous system development, said Chin Chiang, Ph.D., professor of Cell and Developmental Biology.

Chiang and his colleagues recently reported in *Developmental Cell* that Purkinje neurons—prominent cerebellar neurons that send signals to the rest of the brain—act as central regulators of neuronal development in the cerebellum. Led by graduate student Jonathan Fleming, the investigators showed that the signaling molecule Sonic hedgehog, which is produced by Purkinje neurons, promotes the proliferation of two different types of precursor neurons that will ultimately become either excitatory or inhibitory interneurons.

“It was very surprising that the Purkinje cell can simultaneously regulate the production of these two completely different neuronal cell types,” Chiang said. “These cells are not only functionally different, but they are located in different positions in the cerebellum as well.”

Interestingly, he noted, both types of mature interneurons ultimately project to and regulate the Purkinje neurons themselves.

“It seems that the Purkinje cells have a role in balancing their own excitatory and inhibitory inputs, by regulating the production of these interneurons,” Chiang said.

The findings could be a model for the development of similar regulatory circuits in other parts of the brain, and they provide new molecular insights into human disorders, Chiang said. “There is increasing evidence that an imbalance of excitatory and inhibitory neurons plays a critical role in psychiatric and neurodevelopmental

cerebellum.

Chiang and his colleagues showed in earlier studies that Sonic hedgehog is an important signal for the production of neurons in the cerebellum during the first wave of neurogenesis in embryonic development. The current studies implicate the same signaling molecule in the second wave of neurogenesis, which happens in the white matter of the cerebellum during postnatal development.

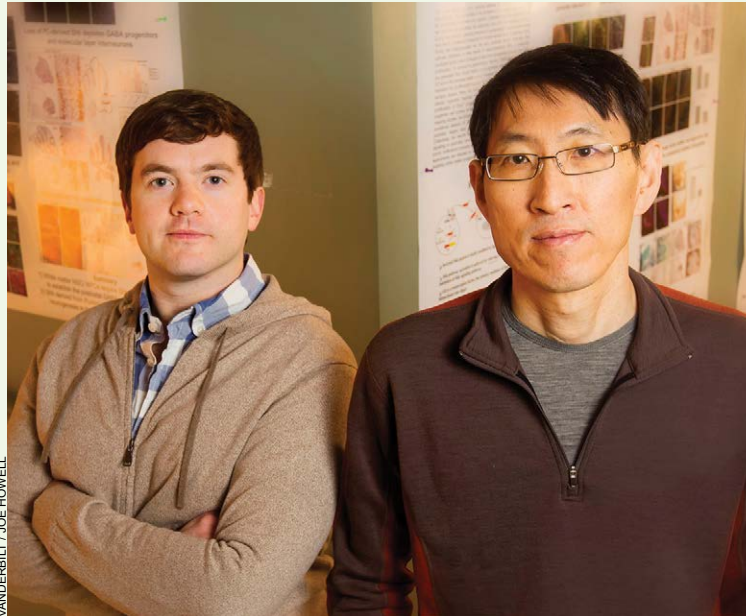
“We haven’t understood what signals regulate the production of neurons in postnatal cerebellar white matter—and what neurons they give rise to,” Chiang said. “Our study basically provides those answers.”

Next, the group will probe how Sonic hedgehog produced by the Purkinje neurons travels to two different regions of the cerebellum to stimulate neuron proliferation.

“It’s too far to be diffusion. There has to be some active transport system,” Chiang said. “We are fascinated by how Sonic hedgehog travels so far to regulate neuron development.”

Other Vanderbilt authors of the study include Tatiana Ketova, Ph.D., Fong Pan, Ph.D., Christopher Wright, D.Phil., and Ying Litingtung, Ph.D. The research was supported by grants from the National Cancer Institute and the National Institute of Neurological Disorders and Stroke. ■

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Jonathan Fleming and Chin Chiang, Ph.D.

disorders including schizophrenia and autism spectrum disorder.”

Defects in Purkinje neurons have been demonstrated histologically in patients with autism spectrum disorder. The current findings suggest that Purkinje defects would disturb the balance of excitatory and inhibitory neurons in the

ACCOLADES *from page 6*

AAIDD Service Award. Jan Rosemergy, Ph.D., VKC deputy director and director of Communications, received the **AAIDD Education Award.** Julie Lounds Taylor, Ph.D., assistant professor of Pediatrics and Special Education, received the **AAIDD Early Career Award.**

Elise McMillan was **reappointed to the Tennessee Department of Intellectual and Developmental Disabilities Middle Tennessee Regional Planning and Policy Council.**

Velma McBride Murry, Ph.D., Lois Autry Betts Professor of Education and Humanities, was among ten professors nationwide selected to receive an



Velma McBride Murry, Ph.D.

Elizabeth Hurlock Beckman Award Trust for inspiring former students to make a difference in their communities.

Amy Needham, Ph.D., professor of Psychology, was awarded a **Southeastern Conference Visiting Faculty Travel grant.** The program is designed to enhance faculty collaboration between SEC member universities by providing faculty from one SEC institution the opportunity to travel to another SEC campus to exchange ideas, develop grant proposals, and conduct research. Needham will travel to the University of Georgia’s Department of Psychology.

Bethany Rittle-Johnson, Ph.D., associate professor of Psychology, was among an elite group invited to participate in a **National Governors Association Expert Roundtable for Strengthening Early Mathematics Education.**

Rittle-Johnson emphasized how important it is for children to be exposed to mathematical concepts even before kindergarten.

Craig Smith, Ph.D., associate professor of Psychology, received a Vanderbilt chair to mark his **25 years of service at Vanderbilt.** Smith also serves as associate dean of Undergraduate Affairs, Peabody College.



Lynn Walker, Ph.D.

Lynn Walker, Ph.D., professor of Pediatrics, was **elected to the American Pediatric Society (APS).** For over 20 years, Walker has maintained National Institutes of Health funding for her research examining predictors of outcomes in adolescents with chronic pain. ■



Interprofessional Learning Trainees Learn the Value of Teamwork BY ELIZABETH TURNER

“There’s no ‘I’ in the word ‘team.’” The old adage often used in sports is ringing true in the medical field. Years ago, one primary physician would manage a patient’s care during a hospital stay. Today, medical teams with a panoply of specializations come together to treat and educate patients toward a healthy recovery and recuperation.

“I think that medicine in the 21st century is unequivocally a team effort. In my clinic, I work closely with a genetic counselor, nurse practitioner, dietician, and nurse,” said Tyler Reimschisel, M.D., assistant professor of Pediatrics and Neurology, director of the Division of Developmental Medicine and the Vanderbilt LEND Program, associate director of the Pediatric Residency Program, and vice chair for Education, Department of Pediatrics. “I think that it is essential for students to learn as soon as possible in their health professions education that we are now learning and practicing our professions within a health care team.”

Because of this shift from “I” to “we,” Vanderbilt University Schools of Medicine and Nursing, Belmont University College of Pharmacy, Lipscomb University College of Pharmacy & Health Sciences, and the Mid-Tennessee Collaborative Master of Social Work Program at Tennessee State University for the past 6 years have partnered in the Vanderbilt Program in Interprofessional Learning (VPIL).

“The program has admitted four cohorts of students and is on track to admit the fifth this summer,” said Martha Hutchinson, VPIL program director. “The program has supported a total of 39 interprofessional student teams placed in community-based clinics, hospital-based primary care, and hospital-based subspecialty clinics.”

The opportunity to apply for VPIL is presented to all incoming first-year students at their respective institutions. Accepted students begin with a week-long Immersion course, when they have a chance to bond before they are grouped into their professional cohorts, according to Hutchinson. During the Immersion course, VPIL students learn about several domains of health care education and delivery, including interprofessional education, the varied professions in the program,

the Nashville community, patient care, and the provider’s sense of self. Afterwards, they are assigned to a four-person team, which will work together in a clinical setting for the next 2 years.

Three VPIL trainees—Vanderbilt’s Kelly

Wolenberg, Katie McLaughlin, Abby Pfeleiderer, and Tyler Reimschisel, M.D. Social Work at the Shade Tree Clinic [a nonprofit operated by Vanderbilt medical students that provides free medical care to low-income Nashville residents]. I recalled the memory whenever I became frustrated with my patients and their life choices, and it helped me be more empathetic and understanding.”

In their first few weeks working in the Neurogenetics Clinic, McLaughlin, Wolenberg, and Pfeleiderer shadowed the clinic’s various professionals in their day-to-day operations, then moved on to assist in patients’ physical examinations before the doctor consultation, and then assisted with the discharge process, speaking with patients’ family members to make sure they had a good understanding of the doctor’s recommendations and next steps.

“I have learned many invaluable lessons throughout my participation in the program,” said Abby Pfeleiderer. “I have recognized the importance of being able to work successfully as a team, keeping the patient and family as the core focus. I have seen what a difference it makes when health care professionals communicate and work together despite their differing opinions or educational training, and that better patient outcomes occur as a result.” ■



Kelly Wolenberg, Katie McLaughlin, Abby Pfeleiderer, and Tyler Reimschisel, M.D.

Wolenberg (Medicine) and Abby Pfeleiderer (Nursing) and Lipscomb’s Katie McLaughlin (Pharmacy)—have been working closely with Reimschisel in his Pediatric Neurogenetics and Metabolism Clinic at the Monroe Carell Jr. Children’s Hospital at Vanderbilt. After a year of working at the clinic, all three became trainees within the Vanderbilt LEND Program, which Reimschisel directs.

“Dr. Reimschisel was always eager to make time in his busy schedule outside of clinic to mentor Katie, Abby, and me,” said Kelly Wolenberg. “He helped us set goals for ourselves and evaluate our progress. Through the LEND program, we have been challenged to go above and beyond the requirements of VPIL for our team. At LEND, our interprofessional scope broadened to incorporate audiologists, psychologists, Ph.D. researchers, policy lobbyists, and many others.”

Each VPIL student spends one half day per week in the clinic, and one half day per month in the VPIL classroom throughout the academic calendar. The clinic work and the class time give the VPIL student a better understanding of patient-centered care, even beyond the medical setting.

“I continue to be struck with the fact that, in VPIL, our focus almost always comes back to the patient,” said Wolenberg. “For example, during our VPIL training weekend, we were asked to buy enough food to feed a family of four their dinner with a budget of only \$5. This frustrating task stuck with me when I became the director of

“I think that medicine in the 21st century is unequivocally a team effort. In my clinic, I work closely with a genetic counselor, nurse practitioner, dietician, and nurse.”

~ Tyler Reimschisel, M.D.
Director of the Division of Developmental Medicine and the Vanderbilt LEND Program



VKC UCEDD Reaching Out BY COURTNEY TAYLOR

► **Henderson Training Addresses Transition to Work** To help improve employment outcomes, the Britt Henderson Training Series focused its Spring sessions on helping educators meet the needs of adolescents and young adults with disabilities who are transitioning into the world of work. Three sessions were conducted for educators in seven public and private school districts in Middle Tennessee. In addition, representatives from employment programs and families took part, creating a collaborative atmosphere in which participants could share resources and information.

Founded in 1996, the Britt Henderson Training Series is made possible at no cost to participating educators through an endowment from the Robert and Carol Henderson family in memory of their son Britt. This annual workshop series provides training on innovative, evidence-based practices to improve the quality of education for students with diverse learning needs.

The Spring series kicked off with a session exploring technology for the classroom, workplace, and community. *Is There an App for That?* featured a talk by Jennifer Cullen, Ph.D., assistant professor of Applied Behavior Analysis, Ball State University. Cullen shared her expertise on educational apps and gave educators hands-on experience with tools to support their students.

Student-Directed Job Searches featured Kelly Wendel and Lindsay Bowles-Krech, Next Steps at Vanderbilt program coordinators, who led participants through the development of 1-page employment profiles that can aid students in securing jobs after high school. Next Steps alumnus Bud Sugg shared his experiences developing and using a visual resumé. The session also included a panel of representatives from Goodwill Industries, Tennessee Rehabilitation Center, and Vocational Rehabilitation.

The sessions finished with *Partnering with Paraprofessionals*, a team-based training that focused on effective classroom collaboration. Participants learned about innovative communication strategies and explored diverse learning styles with Next Steps director Tammy Day, M.Ed. A panel of educators shared their experiences, and participants contributed to an interactive session that helped educators create collaboration plans for the Fall.

Planning has begun for the 2014-2015 Series, *Roadmap to Employment*. Sessions will cover a range of topics from initial assessments to job placement and college preparedness, which will provide educators with the strong foundation needed to improve outcomes for youth with disabilities in Tennessee.

For more on the Britt Henderson Training Series, contact jennifer.l.rowan@vanderbilt.edu.

► Assessing Quality of Services

The VKC UCEDD is collaborating with the Tennessee Department of Intellectual and Developmental Disabilities (DIDD) and The Arc Tennessee on the National Data Measurement Project: National Core Indicators. The project is currently measuring the performance of public systems for people with intellectual and developmental disabilities in 39 states.

VKC UCEDD faculty, staff, and students will enter and analyze data collected through The Arc Tennessee's award-winning *People Talking to People* project. They will survey over 400 adults with intellectual and developmental disabilities. Survey responses will provide a "snapshot" of how well Tennessee is performing relative to other states in areas like employment, community inclusion, choice, rights, and health and safety.

"The survey is an in-depth look at quality of life for people," said Lynnette Henderson, Ph.D., VKC UCEDD associate director of Adult Community Service. "We will have access to



KYLE JONAS

Above: Britt Henderson Training Series for Educators session. Right: Laurie Cutting, Ph.D., Neuroscience and Education Symposium keynote speaker.

comparison data, which will provide a great deal of insight. The fact that we will be comparing apples to apples across 39 states is important. The project is using precise measurements, asking specific questions that have very quantifiable answers. Other ways we measure quality in this state are more qualitative, so having this quantitative way of measuring quality in our state is a new way of looking at our service systems. It's an exciting opportunity."

For more on National Core Indicators, contact lynnette.henderson@vanderbilt.edu.

► Connecting Neuroscience and Education

With the goal of providing educators the latest information on brain research as it relates to education and strategies for implementing this research in the classroom, the Annette Eskind Institute of Learning at Currey Ingram Academy and the VKC UCEDD co-hosted the inaugural *Neuroscience and Education: The Connection*, a 2-day symposium. The program also included a wealth of information on ADHD, sensory integration, technology, anxiety, reading, sleep, and executive functioning.

"Currey Ingram Academy was proud to co-host this event with the Kennedy Center," said Kathy Boles, director of the Annette Eskind Institute. "We are dedicated to using evidence-based approaches in educating students with learning differences, and we strive always to be on the forefront in how neuroscience intersects with education."

Several VKC researchers shared their professional insights. Laurie Cutting, Ph.D., presented one of the two plenary lectures. She explored how neuroscience has contributed to understanding the biological bases and origins of learning disabilities, and how the field of education provides important insights for neuroscience. She also led a breakout session that explored neurobiological and cognitive findings related to decoding and reading comprehension processes in students with learning challenges. Cutting is Patricia and Rodes Hart professor of Special Education and VKC Reading Clinic faculty director.

Vanderbilt faculty-led breakout sessions were conducted by Melanie Schuele, Ph.D., associate professor of Hearing & Speech Sciences; Steve Couch, M.D., assistant professor of Pediatrics; Beth Malow, M.D., M.S., Burry Chair in Cognitive Childhood Development and professor of Neurology and Pediatrics; and Gavin Price, Ph.D., assistant professor of Psychology.

Many symposium participants toured the VKC, visiting the VKC Psychophysiology Laboratory and the Vanderbilt University Institute for Imaging Science.

"This symposium is so important because it reflects the exciting and growing field of educational neuroscience," said Cutting. "It's an interdisciplinary area that brings together neuroscientists and educators in order to further understand pressing issues in education."

Plans are already underway for the 2nd annual Neuroscience and Education Symposium in 2015.

Currey Ingram Academy is a K-12, college preparatory school for students with learning differences such as ADHD and dyslexia. The Annette Eskind Institute offers public community education events throughout the year on a variety of topics related to education, neuroscience, and parenting children with learning differences. ■





Learning Through Curiosity and Expression Susan Gray School STAR CARE BY COURTNEY TAYLOR

Research has documented the benefits of quality afterschool programming—children gain personal, social, and academic skills. For the Susan Gray School (SGS), the first nationally recognized early intervention program to include typically developing children in educational settings with children with disabilities, the development of quality afterschool programming has meant making a commitment to continue the school day with a blend of learning, enrichment, and FUN!

“We redesigned the STAR CARE program about 2 years ago,” said program coordinator Ashley Barnette. “We wanted our children who stay with us after the school day has ended to have exposure to a variety of hands-on activities, and to be engaged in new ways. The preschool program includes a rotating schedule between our Discovery Lab and Art Studio, which have new permanent spaces in our building. Toddlers have special activities planned just for them as well in our gym and Rainbow Room. We take pride in making sure STAR CARE programming encourages curiosity in our kids and also allows free expression.”

Discovery Lab activities are based on Tennessee Early Learning Developmental Standards, and include a building center, classification corner (sorting), sensory table, and an investigation

station for teacher-led science experiments. In the Art Studio, children flex their creative muscles at an easel station, a sculpting circle, and a design center. Every effort is made to incorporate the subjects that the children explore in their classrooms each week into the STAR CARE guided lessons.

Then they described what they saw, heard, and smelled. STAR CARE can get a little messy, but the children are engaged. All of the children are engaged, because STAR CARE lessons and materials are accessible to every child who participates. We put materials on low shelves so everyone can reach. We are mindful about what

materials are put out because some of our kids have sensory issues. We use visual schedules. These are just some of the ways we ensure that each child has access.”

Barnette emphasizes that access to high-quality teachers and collaboration with the entire SGS team help make STAR CARE a stellar program. STAR CARE group leaders are a separate team of teachers who come in at the end of the day to take over student instruction with fresh energy and commitment. Some assist in other areas of the School during the day, or may serve as substitutes when classroom teachers are absent. They know the School and the children,

and understand the commitment that SGS has to helping each student succeed and meet individual goals.

For more information on the SGS STAR CARE program, contact ashley.l.barnette@vanderbilt.edu. ■



KYLE MUCCHILI

“One of the favorite experiments among the kids was making a volcano during our dinosaur theme week,” said Barnette. “They made a life-sized dinosaur bone in the art studio and then made an erupting volcano in the Discovery Lab. Students predicted what would happen when they mixed baking soda, detergent, and vinegar.

Meaningful Experiences of Trainees BY JAN ROSEMERGY

Whether as educators or students, we seek to connect experiences in meaningful ways. In the past year, long-term trainees contributed to the work of our University Center for Excellence on Developmental Disabilities (UCEDD). The trainees came from diverse disciplines—from psychology and education in Vanderbilt’s Peabody College, from Vanderbilt Divinity School, and from social work via our collaboration with the University of Tennessee School of Social Work.

Trainees were asked to log their hours devoted to UCEDD-related activities. “The cumulative total for this academic year is over 25,000 hours of trainee effort, which is one indicator of impact,” said Evon Lee, Ph.D., VKC UCEDD training director, LEND associate director, and associate professor of Pediatrics, Psychology, and Psychiatry. “As a UCEDD, we can accomplish so much more and reach so many more children and families

because of the excellent work of our trainees.”

An even more significant indicator of impact is the question Lee asked of each trainee at the end of this academic year: “What has been most meaningful to you this year?” Below is a sampling of Lee’s summary of trainee responses.

- Seeing an idea for a research study come to fruition and then seeing children benefit.
- Doing therapy, working one on one, engaging with children.
- Experiencing Disability Day on the Hill [Tennessee Legislature]—joining self-advocates, witnessing their advocacy and family conversations with legislators—disability public policy advocacy was a new experience.
- Student teaching—seeing progress in students, feeling competent at teaching and finding a viable life path.
- Working with young adults in Next Steps at

Vanderbilt [certificate program] has provided a new career path in transition and postsecondary education.

- Experiences with TennesseeWorks, learning more about employment and disability policies.
- Applied Behavior Analysis internship—putting ABA into practice, valuing clinic observations and consultations, and experiencing ABA as a career path.
- Being part of a project interviewing families and faith leaders, which was spiritually formative.
- Proposing a research project, applying for a student research grant, getting approval from the Institutional Review Board, and garnering support and participation.
- Forming new relationships—having a Next Steps student say that the trainee had been the most influential person in the student’s life. ■



Committed to Children and Families—Honey Alexander BY JAN ROSEMERGY

If you ask Honey Alexander what brought her together with her husband U.S. Senator Lamar Alexander, how she replies is probably not common among couples: “We both had a strong commitment to public service.”

Honey Alexander grew up in Texas, attended Smith College, where she majored in American Studies, and then moved to Washington, DC, where she was on the staff of then Texas Senator John Tower. Lamar Alexander also was working on a senatorial staff.

“That was one of the things that brought us together, a common interest and commitment. We met and married and came to Tennessee a few years later and have been here most of the time since,” she said.

The Alexanders have four adult children and six grandchildren, ages 18 months to 8 years, four of them in Nashville. “Our family is very close, which is not always the case for families who have been in the public eye as much as we have. Our grandchildren are all still little, which is so much fun.”

Given the way she values her own family, it is not surprising that the common thread in Alexander’s public service is children and families.

“I’ve always been involved with programs and institutions serving families and children,” she said.

“What makes children strong are our families.”

Locally, she’s been involved, among other organizations, with Family and Children’s Service, Dede Wallace Center (now Centerstone), and currently the Adventure Science Center. She has served on the Vanderbilt Kennedy Center



Senator Lamar Alexander and Honey Alexander

Leadership Council since 1998.

“One thing I love about the Kennedy Center is the people who work here, who volunteer here, the families who are involved. They’re so passionate about what’s going on. That inspires me. I love to

see that passion expressed in programs and work and experiences.”

Another common thread in Alexander’s public service is how she values an interdisciplinary approach, which began with her college major of American Studies.

“I liked the many things involved in American Studies—history, literature, arts, and more.”

It’s what she also values in the Vanderbilt Kennedy Center. “Interdisciplinary collaboration—I know that’s a strong part of this Center and always has been.”

Because of the Alexanders’ long-time service to Tennessee, she was introduced to the Kennedy Center in its early years and became close friends with Center researchers. “We had a very tight group when I was heading up Tennessee’s Healthy Child Initiative. That was where I got to know so many people committed to children, especially children’s health and well-being. It seems to carry on. We keep connecting with people who care about people with disabilities and who are involved with programs.”

Alexander values both the outreach and research of the Vanderbilt Kennedy Center. “What’s happening in the labs is inspiring, but what also inspires me is what you do with that research. You take it out into the community and really change lives.” ■

Jeanne Gavigan: Broadway Fan and TPAC Intern BY LORI WARD

A fan of musical theatre since early childhood, Next Steps at Vanderbilt graduate Jeanne Gavigan often tells others that she has her dream job at the Tennessee Performing Arts Center (TPAC).

Jeanne first joined TPAC as an intern and was invited to continue in the administrative offices after her graduation from the Next Steps at Vanderbilt postsecondary education program. She also greets audience members and hands them playbills on the evenings that she attends a performance at TPAC.

Jeanne’s love for Broadway musicals inspires and motivates her work in the offices of the Arts Center. On her break, she’s apt to re-read the playbill from the most recent show she’s seen or watch a movie musical. She looks forward to the Tony Awards every year, learning about Broadway

shows that are likely to make their way to Nashville.

Jeanne makes a positive difference in the daily life of the TPAC office. She’s friendly and sweet,

with a great sense of humor. She has a gift for making other people smile, always making a point to introduce herself to new employees and interns. Jeanne is a great employee. She’s highly

conscientious, responsible, and reliable, steadily working through the list of her responsibilities when she comes to the office. We’ve all watched her grow.

Isn’t it wonderful that Jeanne loves her job just as much as we love having her at TPAC? She makes our workplace a better, happier place.

TPAC has produced a 2-minute video about Jeanne and her work that helps to tell her story; view video at <http://tinyurl.com/tpacjg> ■



Donna Eskind, VKC Leadership Council Chair, and Jeanne Gavigan

Lori Ward is vice president of Communications and Community Relations, Tennessee Performing Arts Center, a VKC Community Partner.



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- More photos of research, training, and services
• A-Z directory added
• More news, videos, events on home page
• Quick links to social media and share options

Discovery is a publication of the Vanderbilt Kennedy Center designed to educate our friends and the community, from Nashville to the nation. The Center is a Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Center funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, and a University Center for Excellence in Developmental Disabilities (UCEDD) funded by the Administration on Intellectual and Developmental Disabilities (AIDD). Discovery is supported in part by Grant No. HD 15052 from EKS NICHD, AIDD Grant #90DD0595, and LEND Training Grant No. T73MC00050 MCHB/HRSA.

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CALENDAR OF EVENTS | AUGUST 2014–APRIL 2015



Top and bottom left: Young actors with autism had lead roles in “Bridges” at SENSE Theatre summer camp. Photos by Tony Maupin. Right: The Band Perry pose with campers at ACM Lifting Lives Music Camp. Photos by Getty Images/Courtesy of ACM Lifting Lives.

Unless otherwise noted, events are free and open to the public. Events are subject to change. Please check the website calendar at vkc.mc.vanderbilt.edu or contact (615) 322-8240 or toll-free (1-866) 936-VUKC [8852].

Please keep this calendar and check the Event Calendar on the VKC website for updates. If you wish to receive event announcements by email, send your email address to kc@vanderbilt.edu.

For disability-related training and other events statewide and nationally, see the searchable TN Disability Pathfinder Calendar www.familypathfinder.org.

If you would like to receive an email announcement of VKC art exhibits, please email ucedd@vanderbilt.edu.

*Event will be held in Room 241 Vanderbilt Kennedy Center/One Magnolia Circle Bldg (110 Magnolia Circle).

**VKC Member or Investigator

■ **AUGUST 23***
TRIAD Families First Program Supporting Siblings of Children with ASD
Register at vkc.mc.vanderbilt.edu/events. Sat. 9 a.m.-12 p.m.

■ **SEPTEMBER 17**
TennesseeWorks Think Employment!
Annual summit for employers, service providers, partners in government, and people with disabilities to learn about best practices and build community partnerships. Info jennifer.l.rowan@vanderbilt.edu. Register at vkc.mc.vanderbilt.edu/events. Wed. 8-3:30 p.m., Scarritt Bennett Center

■ **SEPTEMBER 17**
Neuroscience Graduate Seminar Series
This Is Your Brain on Mitochondria: Mitochondria and Psychotic Disorders
**Christine Konradi, Ph.D. Professor of Pharmacology and Psychiatry. Co-sponsor Vanderbilt Brain Institute. Room 1220 MRB III Lecture Hall. Wed. 4:10-5:10 p.m.

■ **SEPTEMBER 19***
VKC Community Advisory Council Meeting
Info (615) 936-8852
Fri. 9 a.m.-2 p.m.

■ **SEPTEMBER 23***
TRIAD STAT-MD Training Workshop: Early Identification of ASD for Pediatric Health Care Providers
Training in conducting autism-focused assessments with children, ages 18-36 months; emphasis on incorporating time-sensitive consultation models into community practice. \$750/person. Info amy.r.swanson@vanderbilt.edu. Register at vkc.mc.vanderbilt.edu/events. Tu. 8 a.m.-5:30 p.m.

■ **OCTOBER 15**
Neuroscience Graduate Seminar Series
The Benefits of Estrogen Replacement on Hippocampal Physiology and Learning and Memory: Timing is Everything
Lori McMahan, Ph.D. Jarman F. Lowder Professor of Neuroscience and Director, Comprehensive Neuroscience Center, Assoc. Director, Center for Aging, U Alabama Birmingham. Co-sponsor Vanderbilt Brain Institute.

Room 1220 MRB III Lecture Hall. Wed. 4:10-5:10 p.m.

■ **OCTOBER 15-17***
TRIAD Autism Diagnostic Observation Schedule (ADOS-2) Research Training
An advanced clinical training/research reliability workshop for psychologists, pediatricians, behavioral specialists, speech-language pathologists, and research assistants who have completed ADOS-2 clinical training in person and regularly do ASD assessment. \$1500/person. Info amy.r.swanson@vanderbilt.edu. Register at vkc.mc.vanderbilt.edu/events. Mon. & Tu. 8 a.m.-4 p.m., Wed. 8 a.m.-5 p.m.

■ **OCTOBER 23***
VKC Lectures on Development and Developmental Disabilities
Problem Talk in Adolescents' Friendships: Implications for Girls' and Boys' Emotional Well-Being and Future Romantic Relationships
Amanda Rose, Ph.D. Associate Professor of Psychology, U Missouri. Info at vkc.mc.vanderbilt.edu/events. Thurs. 4:10-5:10 p.m.



CALENDAR OF EVENTS | AUGUST 2014–APRIL 2015

■ **DECEMBER 12***

VKC Community Advisory Council Meeting
Info (615) 936-8852
Fri. 9 a.m.-2 p.m.

■ **JANUARY 7**

Neuroscience Graduate Seminar Series
Consequences of Maternal Immune Activation
**Karoly Mirnics, M.D., Ph.D.
James G. Blakemore Chair and Vice Chair for Basic Science Research, Department of Psychiatry, VKC Associate Director. Co-sponsor Vanderbilt Brain Institute. Room 1220 MRB III Lecture Hall. Wed. 4:10-5:10 p.m.

■ **JANUARY 21***

Martin Luther King, Jr. Commemorative Lecture
VKC Lectures on Development and Developmental Disabilities
The Future of Disability Policy
Andy Imparato, J.D.
Executive Director, Association of University Centers on Disabilities
Register at vkc.mc.vanderbilt.edu/events. Wed. 4:10-5:10 p.m.

■ **FEBRUARY 12***

VKC Lectures on Development and Developmental Disabilities
An Integrative Approach to Dyslexia Research: At the Intersection of Educational and Developmental Cognitive Neurosciences and Practice
Fumiko Hoefft, M.D., Ph.D.
Associate Professor of Child & Adolescent Psychiatry, Director of Laboratory for Educational Neuroscience (LENS), U California San Francisco. Info at vkc.mc.vanderbilt.edu/events. Thurs. 4:10-5:10 p.m.

■ **FEBRUARY 19**

Neuroscience Graduate Seminar Series
The Neural Circuitry and Evolution of Sex and Violence

David J. Anderson, Ph.D.
Seymour Benzer Professor of Biology; Investigator, Howard Hughes Medical Institute, Cal Tech. Co-sponsor Vanderbilt Brain Institute. Room 1220 MRB III Lecture Hall. Thurs. 3:00-4:00 p.m.

■ **MARCH 12***

VKC Lectures on Development and Developmental Disabilities
Elucidating the Neural Basis of Affective Pathology in Youth: Neuroimaging Approaches
Mary L. Phillips, M.D.
Professor in Psychiatry and Translational Science; Director of Mood and Brain Laboratory, Western Psychiatric Institute and Clinic, U Pittsburgh. Info at vkc.mc.vanderbilt.edu/events. Thurs. 4:10-5:10 p.m.

■ **MARCH 13***

VKC Community Advisory Council Meeting
Info (615) 936-8852
Fri. 9 a.m.-2 p.m.

■ **BRITT HENDERSON TRAINING SERIES FOR EDUCATORS, FALL 2014***

Conducted in partnership with TennesseeWorks, the series will focus on after-high-school transitions for students with disabilities. Open to high school and transition staff, including educators, administrators, paraprofessionals, and related service providers. Info jennifer.l.rowan@vanderbilt.edu
M Sept 22, M Oct 20, M Nov 17, 4:30-7 p.m.

■ **VOLUNTEER ADVOCACY PROJECT, FALL 2014***

Training program for individuals willing to become advocates for families as they navigate their way through the process of special education. 241 VKC/One Magnolia Circle Bldg. Info vkc.mc.vanderbilt.edu/events. Mondays, 8-11 a.m. CST. Sept. 8 through Nov. 17

■ **ARTS AND DISABILITIES**

EXHIBIT View web gallery vkc.mc.vanderbilt.edu/vkc/artshows
Mon.-Fri. 7:30 a.m.-5:30 p.m.
Vanderbilt University Campus Lobby VKC/One Magnolia Circle Bldg. Info (615) 936-8852

• **NOW THROUGH AUG. 2014**

Grace Walker Goad: **Two Decades in Color**
See also www.GraceGoad.com

• **SEPT. THROUGH DEC. 2014**

Creative Expressions XX
Co-sponsor Mayor's Advisory Committee for People with Disabilities

■ **AUTISM TRAININGS FOR K-12 PERSONNEL**

With the TN Dept of Education, TRIAD offers free autism-specific workshops for school personnel, parents, and the community in locations across TN. For dates/locations, see vkc.mc.vanderbilt.edu/vkc/triad/events/

■ **LEARNING ASSESSMENT CLINIC**

Multidisciplinary academic assessments of students, 5-25 years, to identify learning strengths and challenges and to recommend strategies to improve academic learning. Info LAC@vanderbilt.edu.

■ **NEXT STEPS AT VANDERBILT**

A 2-year certificate postsecondary education program for students with intellectual disabilities providing individualized Programs of Study in education, social skills, and vocational training. Info NextSteps@vanderbilt.edu.

■ **READING CLINIC**

Tutoring students with reading challenges through middle school. Space limited. Info readingclinic@vanderbilt.edu

■ **TABS (Tennessee Adult Brothers and Sisters) Network**

www.facebook.com/tabs.siblings
info.tabs@vanderbilt.edu

■ **TAKE PART IN RESEARCH**

VKC Research Studies
For children and adults, with and without disabilities. Lynnette Henderson (615) 936-0448
Toll-free (1-866) 936-VUKC [8852]

- **StudyFinder**
vkc.mc.vanderbilt.edu/studyfinder/
View lists of studies, criteria, and contact information
 - **Research Match**
www.researchmatch.org
Register and be notified of research studies
 - **See also VUMC Clinical Trials**
www.vanderbilthealth.com/clinicaltrials
 - **See also DS-Connect: Down Syndrome Research Registry**
dsconnect.nih.gov
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■ **TENNESSEE DISABILITY PATHFINDER**

■ **MULTI-CULTURAL OUTREACH**
Helpline, Web-Searchable Database with Calendar and Resource Library, Print Resources. Project of VKC UCEDD and TN Council on Developmental Disabilities. www.familypathfinder.org
English (615) 322-8529
Español (615) 875-5083
Toll-free (1-800) 640-INFO [4636]
tnpathfinder@vanderbilt.edu

■ **TENNESSEWORKS**

Web hub for information related to employment of people with disabilities. Info (615) 322-4999
TennesseeWorks.org

■ **TRIAD FAMILIES FIRST WORKSHOPS, FALL 2014***

Register vkc.mc.vanderbilt.edu/vkc/triad/events/. Info (615) 322-6027
Sat. 9 a.m.-12 p.m.

- **Sept 27:** Increasing Basic Communication Skills
- **Oct 18:** Developing Successful Sleep Habits
- **Nov 15:** Beginning Toilet Training