Director's Message Introducing Discovery

We use the expression "Unlocking the Mysteries of Development and Learning" to capture the essence of our work at the John F. Kennedy Center. Ironically, the Kennedy Center itself has been a mystery to many people in our community. I have been engaged in one of my highest priorities as director—dispelling this enigma as quickly as possible—using many different platforms to share our Center's rich history and enormous potential.

To that end, I am pleased to introduce the inaugural edition of Discovery, a comprehensive news publication of the John F. Kennedy Center. Discovery will be produced quarterly, and it will consolidate information formerly contained in three Center publications: Kennedy Center News, Kennedy Center Banner, and the Susan Gray School's TOP talk. The unique strength of our Center is its collaborative and interdisciplinary nature. It seems appropriate that our primary publication should embody this philosophy and convey the breadth of our Center's work to friends, parents, colleagues, and supporters. In addition to timely news and information about the Center and the Susan Gray School, each issue of Discovery will feature research topics, human-interest stories, investigator profiles, and much more.

We chose the name "Discovery" because we felt it best describes the spirit of our Center. Each day—in the classrooms and playground of the Susan Gray School—in the laboratories, clinics, and lecture halls across the Vanderbilt campus—discoveries are occurring. These discoveries are rarely newsworthy in the traditional sense, but they are nonetheless remarkable. They are the many small steps that precede "giant leaps" in the field of developmental disabilities, and they are the "everyday victories" that children and individuals with disabilities can claim.

Discovery provides a window into the life of our Center, and in doing so, provides you with a glimpse of the work and activities of our talented scientists, teachers, and staff. As always, I invite your feedback and encourage your engagement with our Center and the Susan Gray School.

Imitation—A Window Into Autism

Imitation. From infancy to adulthood, it’s a basic way we learn. A parent and child spontaneously communicate through imitation—rolling a ball, making a sound. This skill—so natural we rarely think about it—is a challenge for many children with autism. Kennedy Center researchers have been studying imitation in young children with autism as a way to diagnose the disorder early and as a predictor and treatment for teaching communication.

"Children with autism are not just delayed; they’re different," explains Paul Yoder, Ph.D., Kennedy Center investigator and professor of special education. "Before three years old, the attributes that distinguish children with autism from other children with delays are all social, and motor imitation is one of those behaviors."

What is motor imitation? Typically, it may involve a child’s use of objects like toys and it produces an effect. It can be a sound or words, a single behavior or a sequence of behaviors. Imitations of actions that don’t involve objects are especially difficult for children with autism. Recent studies by Wendy Stone, Ph.D., Kennedy Center investigator, professor of pediatrics and psychology, and director of the Treatment and Research Institute on Autism Spectrum Disorders, as well as studies by other researchers, have shown a deficit or delay in imitation in children with autism. Motor imitation by itself is effective in distinguishing children with autism.

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Satcher Urges Action

At the John F. Kennedy Center’s Martin Luther King, Jr. Commemorative Lecture on January 22, Dr. David Satcher, M.D., Ph.D., 16th U.S. Surgeon General, called for a national commitment to addressing the disparities in health and health care for persons with mental retardation and other developmental disabilities. One of the goals addressed in the Surgeon General’s Report, Closing the Gap: A National Blueprint to Improve the Health of Persons with Mental Retardation, was to increase knowledge and understanding of health and mental retardation, “and make that practical and easy to use,” Satcher said in his talk. "We need to ask tough questions and do research to answer them."
Imitation from page one

autism from children with developmental delays without autism. In one of her studies, Stone found motor imitation was the best discriminator among social and play measures between the two groups. It is consistently one of a few skills, along with joint attention, that distinguishes autism from other developmental disorders in children under 3 years.

"In children with autism, motor imitation is important in predicting whether a child is likely to be able to speak a year later," Yoder said. Spoken language by age 5 generally is an indicator of a better prognosis. Estimates of children with autism who don't learn to speak vary widely, ranging from 10% to 50%.

"We want to know why some kids learn to speak and some don't," Yoder said. "One way is to look for early predictors of that ability, and one of the predictors of language is motor imitation."

Verbal imitation is an even more powerful predictor of later language. In a study that Yoder directed of children with autism who were minimally verbal (using under 25 words), verbal imitation by itself explained 50% of the individual differences in oral language one year later. An influential researcher considered a "large" effect as explaining 25% of the individual differences. Therefore, the association between verbal imitation and early oral language is an enormous effect.

The combination of verbal imitation, chronological age, and IQ explained approximately 80% of the individual differences in later language.

Stone is leading a new research program to study imitation and its developmental precursors that recently was funded by National Institute of Child Health and Human Development. Other Kennedy Center investigators include Yoder, Mark Wolery, Ph.D., professor of special education, and Ann Garfinkle, Ph.D., assistant professor of special education.

"We are examining different types of motor imitation skills in an effort to understand the contributions of social interest, object play, and visual attention to the development of these skills," Stone said.

"Our project has two phases," Wolery explained. "One is the predictive study. We hope to be able to identify which children will be more susceptible to imitation training than other children. Then the second phase is to conduct two experimental studies to test whether our prediction tools are feasible."

"We want to teach children to imitate for two reasons," Wolery continued. "One is to allow children to learn new behaviors simply by watching others and also to learn the context in which particular behaviors occur. The second reason is that much of a child's instruction or education is through providing models."

The Kennedy Center research team brings a variety of scientific approaches to a complex issue. The research on the link between difficulties in imitation behavior and autism is one that will lead to new concepts regarding diagnosis and intervention.

Searching for the Genetic Address of Autism

What are the basic biological causes of the wide range of behavioral differences seen in autism? Scientists at the John F. Kennedy Center are part of the nationwide search for the answers.

Jonathan Haines, Ph.D., Kennedy Center investigator, director of Vanderbilt’s Program in Human Genetics, and professor of molecular physiology and biophysics, is seeking to understand the genetics of autism.

"One indicator of autism being caused in part by a genetic mutation," Haines said, "is that the likelihood of occurrence is higher in siblings of a child with autism than in the general population. Moreover, the likelihood of occurrence in identical, or monozygotic, twins, when one twin has autism is significantly higher than in fraternal, or dizygotic, twins."

The statistics indicating a familial association in autism are higher than those in known genetic diseases. "At least two genes have been identified for ALS [amyotrophic lateral sclerosis, or Lou Gehrig's disease], one gene for MS [multiple sclerosis], and four different genes for Alzheimer's," Haines said. "Yet we haven't found an underlying gene for autism, even though it's right up there at the top in disorders where a genetic relationship is really strong. We've concluded that autism is quite a complex genetic condition, where probably many genes contribute to its occurrence."

Haines compared looking for the genetic markers of autism to trying to find an individual house or person on the face of the earth among 4 billion people when you don't know the name or address.

Genes can be found in two basic ways, Haines explained. One is a genome screen, which tries to find a gene by its location on a specific chromosome. "We work with families where there are multiple cases of autism and look to see what parts of which chromosomes are shared by the affected individuals." This approach allows geneticists to narrow the search to 500 to 1000 genes out of the approximately 30,000 genes in the human genome. A second approach is to examine

A Primer on Autism

Autism is a complex developmental disability that typically appears during the first three years of life. The result of a neurobiological disorder that disrupts the development and the functioning of the brain, autism affects as many as 2 to 6 in 1,000 individuals (Centers for Disease Control and Prevention 2001). Autism is four times more prevalent in boys than girls and knows no racial, ethnic, or social boundaries. Family income, lifestyle, and educational levels do not affect the chance of autism's occurrence.

Individuals with autism demonstrate characteristics in three areas:

- Difficulty forming social relationships
- Impaired understanding and use of language
- Restricted patterns of activities and interests

Although all three features must be present for a diagnosis of autism, the specific behaviors exhibited can vary widely from person to person.

Neurological involvement in autism is indicated by frequency of:

- Mental retardation (about 75% of all cases)
- Seizures (15 to 30% of all cases)
- EEG (brain wave) abnormalities (20 to 50% of all cases)

Increased brain size and increased brain volume during early childhood are positively associated with autism; reasons why are not understood. Post-mortem studies suggest that abnormal neuronal development is occurring in selective brain areas.

Autism is a spectrum disorder because characteristics can be present in different combinations and at different levels of severity. Disorders on the autism spectrum are autistic

Continued on page 3
Welcome to the Neighborhood

Kennedy Center is benefiting from its inclusion in interdisciplinary research at the John F. Kennedy Center. This “scientific neighborhood” is located in MRB III. The center has a new Biological Sciences/Medical Research Building III, which includes neuroscience, genetics, developmental biology, structural biology, and evolutionary biology. The 365,000-square-foot building houses more than 60 research labs, four teaching labs, an 8,650-foot greenhouse, one large lecture hall, and administrative space.

Edward G. Smith

Lee Limbird, Ph.D., associate vice chancellor for health affairs for research, professor of pharmacology, and a Kennedy Center investigator, said that the building “celebrates an interdisciplinary environment for both research and education. It has been said that it is impossible to distinguish where research leaves off and training begins. This building affirms that truism.”

In addition to the collaborative environment fostered by the building itself, a new bridge for pedestrians that spans 21st Ave. South and links the Kennedy Center to MRB III serves as a tangible and symbolic reminder of how our research efforts are interconnected.

Searching from page two

“Candidate genes.” Geneticists piece together what is known about the function of a gene and what is known about the biology of autism to decide to do research on a specific gene that may be involved in autism.

“What we’ve tried to do,” Haines continued, “is to use both of these approaches to focus our efforts. We’ve pursued genomic screening to see if we could focus on one or two different regions and then focus on genes within that region.”

The most consistently identified region for a gene in studies of families with a child who has autism is on chromosome 7. “We took all our data and looked specifically at what parts of chromosome 7 were shared among affected individuals,” Haines said. “We identified a relatively small region that most of the families seem to share.”

“Next we looked at genes in that region and identified which ones were good candidates, using a number of the databases that have come out of the Human Genome Project. There are about 50 different genes in that region. We then prioritized the genes based on what is known about their function.”

Four genes were identified as the highest priority to examine, but analysis did not result in a striking discovery of a mutation.

Next the search turned to another gene in this region, Reelin (RELN), a signaling protein that plays a role in the migration of neurons in brain regions affected in autism, such as the cerebral cortex and cerebellum. Working with collaborators and combining data sets to obtain more statistical power, there was some, but not overwhelming, evidence for an effect.

“The next step in this search,” Haines said, “is to attempt to better identify subsets of children with autism who have similar clinical traits to help focus our genetic research; for example, a subset where language is the major dysfunction or a subset where repetitive behaviors is the major dysfunction. We’re close to pulling together about 800 to 1000 families from many different research groups to apply our approach with far greater detail and more power than any individual research group has done. This kind of major project has not been done before, as far as I know, in any disease this early in the process.”

The excitement of identifying new genes that may be involved in causing autism is on the horizon.

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Autism Primer from page two

disorder, Asperger’s disorder, Rett’s disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS).

NATIONAL RESOURCES
Autism Society of America www.autism-society.org
Cure Autism Now Foundation www.canfoundation.org
KidsHealth (Nemours Foundation), for facts aimed at parents, teenagers, and young children www.kidshealth.org
National Alliance for Autism Research www.naar.org/

LOCAL RESOURCES
Autism Society of Middle Tennessee autismmiddletn.org
TRIAD—Vanderbilt Treatment and Research Institute on Autism Spectrum Disorders www.vanderbiltchildrens.com/interior.php?id=302
Vanderbilt Bill Wilkerson Center www.vanderbiltbillwilkersoncenter.com

BOOK
Legislative Education Staff Visit Kennedy Center

Education staff from the offices of U.S. Senators Lamar Alexander and Bill Frist visited the John F. Kennedy Center on March 10. The group included Andrea Becker, Education Advisor in the Office of Senator Frist, Kristin Bannerman, Education Assistant, Office of Senator Alexander, and Anne Locke, State Director, Tennessee Office of Senator Alexander. Stephen Camarata, Ph.D., Kennedy Center deputy director of communication and learning, and professor of hearing and speech sciences and special education, and Kendal Broadie, Ph.D., Kennedy Center investigator and professor of biological sciences, and Ann Kaiser, Ph.D., Kennedy Center investigator and professor of special education, briefed the legislative staff on Kennedy Center education-related research, ranging from communication and learning intervention, to test and technology development, families and siblings, and brain science.

Spotlight

Novel Gene Therapy Approach Shows Promise

Working with cells grown in the laboratory, the research group led by Alfred L. George, Jr., M.D., is the first to repair a defective gene and to demonstrate that the resulting protein product is functional.

Although the results are promising, use of the novel gene therapy in patients is still years in the future, George said. A new Kennedy Center investigator, George is Grant W. Liddle professor of medicine and director of the division of Genetic Medicine. The findings were reported in the Dec. 15, 2002, issue of the Journal of Clinical Investigation. Other contributors include Carlos G. Vanoye, Ph.D., and Bruce A. Sullenger. The work was supported by the National Institutes of Health and the Muscular Dystrophy Association. For details see Dec. 20, 2002, VUMC Reporter, www.mc.vanderbilt.edu/reporter.

Brains Experience Perceptual Traffic Jams

One of the research goals of Isabel Gauthier, Ph.D., Kennedy Center investigator and assistant professor of psychology, is to understand face processing in persons with autism spectrum disorders in the context of face processing in typically developing individuals. Gauthier’s findings, reported March 10 online in Nature Neuroscience, showed that the process of holistic identification of faces takes place very early in the sequence of visual processing and that at least some of the same neural circuitry must be involved in identifying faces and other objects of extreme interest, e.g., of cars by car aficionados. Co-authored with Tim Curran (University of Colorado), the study compared how the brains of auto experts and novices process pictures of cars and faces. They found that viewing cars elicits signals from the brains of car experts that are just like the signals evoked by viewing faces in other brains. Moreover, the experts’ skill interfered with their ability to identify faces when they were forced to process cars and faces simultaneously. These findings have been reported by The New York Times, BBC News, The Daily Telegraph [UK], Science Daily Magazine, CNN.com, New Scientist.com, and United Press International. The research was funded by the James S. McDonnell Foundation, the National Institutes of Health, and the National Science Foundation. For details see Exploration, exploration.vanderbilt.edu.

Biologists Discover a Mechanism of Biological Clocks

Biologists know that biological clocks play a critical role in most living organisms including humans but, despite an abundance of theories, they don’t really know why. A Vanderbilt research team led by Carl Johnson, Ph.D., Kennedy Center investigator and professor of biological sciences, and from the University of Wisconsin-Madison and Harvard Medical School, has taken a significant step toward answering this question. In the Dec. 2 online edition of the Proceedings of the National Academy of Sciences, they report having successfully determined the structure of a biological clock protein for the first time. The research was funded by the National Science Foundation and the National Institutes of Health. For details see Exploration, exploration.vanderbilt.edu.

Toddlers Don’t Understand Relationship Between Video and Reality

When 24-month-olds watch a live video of an event happening in an adjoining room, they don’t comprehend that it is a representation of what is happening right then. But when children look through a window at a similar scene, they seem to understand that what is happening across the glass is real. “We’re learning how children become symbolizers,” said Georgene Troseth, Ph.D., Kennedy Center member and assistant professor of psychology. Her study “TV Guide Two-Year-Old Children Learn to Use Video as a Source of Information” was published in Developmental Psychology. For details see March 10-23, 2003, Vanderbilt Register, www.vanderbilt.edu/register.

Research News
Take Part in Research

AUTISM STUDIES

Understanding How Children with Autism Recognize Faces and Objects
(7 to 13 years)
Isabel Gauthier, Ph.D.  615-322-1778

Adult Sleep in Autism
(18+ years)
Mark Harvey, Ph.D.  615-322-8177

Imitation in Autism
(24 to 47 months)
Wendy Stone, Ph.D., Paul Yoder, Ph.D., Mark Wolery, Ph.D., Ann Garfinkle, Ph.D.
TC Ulman  615-936-0265

Genetic Studies in Autism and Related Disorders
(4-22 years)
James Sutcliffe, Ph.D.
Genea Crockett 615-343-3855
www.autismgenes.org

Symbol Use in Young Children with Autism
(2 to 5 years)
Georgene Troseth, Ph.D. 615-322-1522
Ann Garfinkle, Ph.D.

Communication Therapy for Young Children with Autism Spectrum Disorders
(18 to 60 months)
Paul Yoder, Ph.D., and Wendy Stone, Ph.D.
Melanie Jarzynka, M.A. 615-343-2941

COMMUNICATION STUDIES

Vocal Communication
(8-9 years, 16-17 years)
Jo-Anne Bachorowski, Ph.D.
Kerstin Bliomquist 615-343-4229

Child Language Intervention Program (CLIP)
(18 months-6 years)
Stephen Camarata, Ph.D.
Mary Camarata, M.S. 615-936-5125

Childhood Stuttering
(3-5 years)
Edward Conture, Ph.D.
Judy Warren 615-936-5103

Talk, Talk, Talk: The Emergence of Language
(12-16 months, 2.5 to 4 years)
Megan Saylor, Ph.D. 615-343-8721

Intervention Studies in Children with Minimal to Mild Hearing Loss
(6-12 years, hearing loss)
Anne Marie Tharpe, Ph.D.  615-936-5109

Emotion Regulation and Child Speech
(3-5 years)
Tedra Walden, Ph.D.  615-322-8141

DEVELOPMENTAL DISABILITIES STUDIES

Genetic Studies of Attention Deficit/Hyperactivity Disorder
(4-14 years with a family history of ADD/ADHD)
Steve Couch, M.D., and Randy Blakely, Ph.D.
Elizabeth Roof, M.A., 615-322-0335

Sleeping and Developmental Disabilities
(18-50 years)
Mark Harvey, Ph.D.  615-322-8177

Magnetic Resonance Imaging of Head Banging
(18-50 years)
Mark Harvey, Ph.D.  615-322-8177

Linking Health Care and Functional Behavioral Assessments
(5 to 22 years)
Craig Kennedy, Ph.D. 615-322-8178

INFANT AND YOUNG CHILDREN STUDIES

Infant Cognition Lab
(3 to 12 months)
Sue Hespos, Ph.D.  615-343-7973

Use of Symbols: Words, Pictures, Video Images
(2 to 3.5 years)
Georgene Troseth, Ph.D., 615-322-1522
Megan Saylor, Ph.D., 615-322-5567

MENTAL HEALTH STUDIES

Development in Children of Physically and Emotionally Healthy Parents
(children 7-17 years and their parents)
Judy Garber, Ph.D.  615-343-8714

Treatment of Depression
(persons 18 years and above with depression)
Richard Shelton, M.D.
615-343-9669

VISION STUDIES

Alphabetic Braille and Contracted Braille
(ABC Braille Study)
children with light perception only or no light perception, English as primary language, potential to read Braille
Anne Corn, Ed.D.  322-2249
www.vanderbilt.edu/kennedy/services/takingpart.html

Transportation to and from campus can be provided if that would allow your family to take part in research. Some studies pay participants a modest amount for their time.
Inclusive Early Education for Children with Autism

Three Perspectives

PARENT
Mary Harrell

Ethan was diagnosed with moderate autism at 26 months. He began early intervention at the Susan Gray School about 2 months later. He entered a preschool classroom with 6 typically developing children and 6 with special needs, attending 3 days a week. Within 6 months, he showed a lot of improvement. He was able to stay on task and was learning things, although he was still behind peers.

When he turned 3, we asked that he stay at the school because we knew he was well cared for and his progress was monitored well. Dr. Garfinkle had student aides take data that indicated in what areas he was gaining strengths and where we needed to make improvement. That's just such an asset that you're not going to find in just any preschool setting.

Now Ethan's in the preschool class for the 4- to 5-year-olds, attending 5 days a week. In addition, he receives speech and occupational therapy provided by Metro Nashville Public Schools. He's made remarkable gains in his social and communication skills. His teachers let us know the next task to incorporate for him and work closely with us and the outside professionals so that the umbrella of services work most effectively for him. Ethan's teachers create an inclusive environment, so that it's not as if something special is done just for him but that his needs are met within the whole environment.

We're really pleased not just with the school but the entire Kennedy Center, with the additional services available through research programs like CLIP [Child Language Intervention Project], not just for Ethan but also for our other children. Our son Justin had an articulation delay and was

“Every day is a new experience with Ethan,” said preschool teacher, Michelle Bryant. “It is being around other kids has helped him a lot, and he helps the other kids learn, too.”

in the TAG project. Instead of having services scattered and looking everywhere else, you have the supports right here.

PROGRAM DIRECTOR
Ruth Wolery, Ph.D.
Susan Gray School director and assistant professor of the practice of special education

One of the major benefits of having an inclusive program is providing lots of opportunities for children to socialize, since children with developmental delays or disabilities, and especially children with autism, have difficulty making social contact and playing with other children. Children with autism enter about age 2, the earliest point at which autism is typically diagnosed. The school shares the building with Kennedy Center faculty researchers in Special Education with expertise in autism and graduate students with interests in autism who can provide consultation and support in our classrooms and outreach program. All our teachers have BA degrees in a field related to early childhood education and currently seven teachers are working on a master's degree in early childhood special education at Peabody.

Transitions from one activity to another and changes in routines are difficult for children with autism, so schedule predictability is important. Board maker, a software program, allows teachers to create picture symbols that help children with autism, and other disabilities, understand what's going to happen next—for example, a circle for circle time, or a food symbol for snack time. A teacher can prompt a child to move the symbol on the schedule as a way of communicating the transition that is coming.

Teachers organize activities to avoid situations where a child is likely to be in isolated play. If it should happen, a teacher redirects the child's attention or joins the child in an engaging activity that draws other children into play with them. The goal is to promote peer interaction so that the child with autism gains social skills.

Language development is an emphasis for all children. Our teachers talk with children, not at them, sitting down, engaging in play, modeling how to talk and then encouraging peers to talk. Some strategies are used formally and others more informally. For example, one of our teachers who audited a class in milieu language instruction, led by Kennedy Center investigator Ann Kaiser, Ph.D., uses this research-based approach. We aim at a language-rich classroom, and having a child with autism use language as much as possible.

An issue that needs local, state, and national solutions, especially for children with autism, is the transition from early intervention services, from birth to 3, and the transition to school-based special education services at 3 years. Continuity of care is important for all children and especially children with special needs. This transition in the service system creates real difficulty for children with autism, since a diagnosis comes about age 2, then early intervention placement, and in under a year they may have to move to a different program—when changes in routines are especially difficult for children with autism.

Continued on page 7
The Susan Gray School provides inclusive education for young children with and without disabilities and support for their families. Its fourfold mission is providing high-quality service, supporting research, contributing to the training of future teachers and researchers, and demonstrating recommended practices as a national model. It is a program of the John F. Kennedy Center and Peabody College.

**AUTISM RESEARCHER**

Mark Wolery, Ph.D.
Professor of special education and Kennedy Center investigator

Research tells us that we can serve children with nearly all types of disabilities as well as inclusive classrooms as we can in separate classes, and that includes children with autism. Since the two primary characteristics of autism are delays in language and social development, inclusion makes a lot of sense in terms of having competent and interactive communicative partners.

We have research-based practices that are effective in well-developed programs with adequate staff-child ratios. Having teachers trained and providing ongoing consultative support is important for success, for example support from speech and language therapists, and having early childhood educators with training in autism. The National Academy of Science and National Research Council report on educating children with autism did not advocate for or against inclusive classes, recognizing the training context is so important, and the child and family context.

Families of children with autism need information, what it is, what it means now and in the future, how to explain it to others from grandparents to strangers in a grocery store. We’ve also found they often need help with daily routines, such as bathing or tooth brushing, or sleep routines.

Another issue is the conflict that too often arises between families and school systems about appropriate services and its emotional cost. As a child transitions from the early intervention system to the school system, making that a positive transition for families and schools is an important responsibility of early educators.

**Susan Gray School Honor and Memorial Gifts**

In Memory of Mr. and Mrs. Keith Crabtree
Mr. and Mrs. Stephen E. Dawson

In Memory of Mr. and Mrs. Wallace Dobb
Drs. Mark and Ruth Wolery

In Memory of Mr. and Mrs. Richard Martin Dohrmann
Mrs. Mary Howell Dohrmann

In Memory of Mr. and Mrs. Melody Darnell Fletcher
Mr. and Mrs. Edward J. Hughes
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In Memory of Mr. and Mrs. Loretta Kaiser
Drs. Mark and Ruth Wolery

In Memory of Mr. and Mrs. Patricia Karcher
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In Memory of Mr. and Mrs. Annel M. Pandey
Dr. Deborah Smith

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For information about making Honor or Memorial Gifts, contact the Development Office, 615-322-8244.
An Oasis for Families
The Child Language Intervention Program

Some children, as many as 2 to 5%, have difficulty listening and talking because they have a disorder of communication. Early identification and treatment is necessary to prepare these children for academic and social success and to prevent future problems.

The Child Language Intervention Program (CLIP) provides intervention for children between the ages of 18 months and 12 years who have disorders of speech and/or language.

"CLIP serves children with all kinds of language disorders—children with autism, Down syndrome, global cognitive impairments, children who are talking but are very difficult to understand, and those who are simply delayed in talking," said CLIP’s director Stephen Camarata, Ph.D., professor of hearing and speech sciences and special education and Kennedy Center deputy director.

"CLIP is a National Center for the Study of Language Intervention funded by grants from the National Institute on Child Health and Human Development and the National Institute on Deafness and Other Communication Disorders. Its purpose is to study the most effective therapies for children who are having trouble talking. CLIP is a research clinic of the John F. Kennedy Center and Vanderbilt’s Bill Wilkerson Center for Otolaryngology and Communication Sciences. Families come to CLIP from across the country and the world.

CLIP has several research clinics under its umbrella, and children are directed to the clinic that best meets their individual needs. In addition to Steve Camarata, language intervention projects within CLIP are directed by Ann Kaiser, Ph.D., professor of special education and psychology, and Paul Yoder, Ph.D., professor of special education.

Children referred to CLIP projects receive funded, individualized services under the direction of certified speech-language pathologists. CLIP services include diagnostic testing and treatment, as well as community screenings and informational programs.

"We’re committed to serving families," said CLIP coordinator Mary Camarata, M.S., a speech-language pathologist and assistant professor of hearing and speech sciences. "Once a family is in CLIP, a parent can always call us for consultation.

"We want to know what's going to help kids talk best," Mary Camarata continued. "We monitor each child’s profile, what happens in therapy sessions, what improvements result. So then we can look at a child with a similar profile and have a better sense of which intervention might be most effective for that particular child.

CLIP receives referrals from a variety of sources—families, physicians, child care providers or school system personnel. Sometimes a parent and pediatrician may be concerned about a child’s language development but not to the extent that clinical intervention is warranted—yet. In such cases, CLIP will provide enrichment activities and monitor the child periodically.

"Increasingly, CLIP researchers in speech and hearing sciences and special education are working with other Kennedy Center researchers with expertise such as genetics and brain imaging, using these methods to investigate language development and intervention."

"CLIP provides a refreshing oasis on a road otherwise plagued with anguish and despair."

—Carlos Gallastegui, San Clemente, California

Stephen Camarata said. “The long-range goal is to use converging sources of information, including behavioral profile, genetic traits, and neuroimaging to gain an accurate diagnosis and to design effective treatment. That’s what makes our clinical work so innovative.”

For more information, call (615) 936-5125, or email clip@vanderbilt.edu.
Development News

Kennedy Center Loses Close Friend, Supporter in Sam Brooks

Wendy Brooks, who has Down syndrome, in the Susan Gray School's Infant-Toddler Learning Program. Wendy's rewarding experience forged a strong emotional commitment between the Brooks family and the John F. Kennedy Center.

In the early 1970's, Sam and his wife Linda enrolled and the John F. Kennedy Center "grew up" together.

"I think of the Kennedy Center as where my husband's life started. " The Hendersons reconnected with the Kennedy Center and the Britt Henderson Foundation with the fall of 2000, when the Kennedy Center launched its new, state-of-the-art playground for the Susan Gray School.

Even as a toddler, Britt wore a Vanderbilt sweater. Even as a toddler, Britt wore a Vanderbilt sweater. Even as a toddler, Britt wore a Vanderbilt sweater. Even as a toddler, Britt wore a Vanderbilt sweater. Even as a toddler, Britt wore a Vanderbilt sweater.

A Gift of Education

Carol Henderson

"If you do a profile of me, it's really about children and their needs," Carol Henderson said. The story of how she and her husband Bob Henderson came to endow The Britt Henderson Training Series for Educators at the John F. Kennedy Center is the story of Britt, a son with special needs.

"When we were able to do something for the community, education was very important to the both of us," Henderson said. "I think of the Kennedy Center and what they started because of [their daughter and sister] Rosemary. Many things get accomplished through parents and families who have children with special needs."

Bob and Carol Henderson both graduated from Vanderbilt and it seems that almost all the extended family have ties to the Peabody Demonstration School, and its successor, the University School of Nashville, and to Peabody College and Vanderbilt.

In 1968 the Hendersons turned to their church, Westminster Presbyterian Church, for help. A class was started for a small group of children with academic needs. This became the Westminster School of Nashville, and is now the Currey Ingram Academy where Carol serves on the Board of Trust. This class enabled Britt to attend first grade where he did well. "Britt had a wonderful personality," Henderson said. "He was very sociable and loved to laugh." But later experiences in public schools were frustrating.

In 1994 Bob and Carol Henderson discussed their desire to do something beneficial for other children with special needs in Brit's memory.

"It was like, aha!" Henderson described. "If teachers had been trained to know better how to blend students with special needs into classrooms, it may have made a difference in his life." The Hendersons reconnected with the Kennedy Center and the Britt Henderson Training Series for Educators was established.

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The series has been planned collaboratively with general and special educators in Metropolitan Nashville and Williamson County Public Schools and Westminster School of Nashville, now the Currey Ingram Academy. "I feel like we've come full circle and joined together in this wonderful new way," Henderson said.

Posters created by 2002-03 Henderson Series school teams were presented at a reception hosted by the Currey Ingram Academy in April and at the annual meeting of the Tennessee Dyslexia Association, an example of the ever-expanding reach of this training. Led by Kennedy Center researchers, each year the series has brought to the center school teams composed of a principal, general educator, and special educator. In three or four fall sessions, the teams learn effective, research-based methods for improving the reading and math performance of all students (with and without disabilities) in inclusive classrooms and for assessing and positively managing student behavior.

“When I was asked to be on the Leadership Council, I accepted because I wanted to promote an awareness and support of the Kennedy Center," Henderson said. "Fortunately, our grandchildren have not had special needs, but I wanted to be in a position to help others. To me, educating children with special needs as young as possible, educating children we know will have problems if they're not taken care of is so important." 

A heart is like a paper torn into. You put the heart back together but it is torn apart. The heart is like a soul in air that no one can see. In deep dark night you hear thump or bump inside yourself. That no one can hear.

— Britt Henderson, 1961-1994

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<td>Every effort has been made to ensure the accuracy of this report. If an error has been made, we offer our sincere apology and ask that you bring it to our attention by contacting our Development Office.</td>
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Launching “Shape the Future”

On April 24, 2003, hundreds of Vanderbilt alumni and friends joined Chancellor Gordon Gee, Board of Trust Chairman Martha Ingram, and Campaign Chairman Monroe Carell, Jr., to officially launch the most ambitious fundraising effort in the university’s history: “Shape the Future”—a campaign for Vanderbilt. This $1.2 billion dollar effort will impact every facet of the university and medical center, especially the John F. Kennedy Center for Research on Human Development.

“The Kennedy Center has very specific and ambitious fundraising objectives which are part of this campaign,” said Pat Levitt, Ph.D., Center director, "but because of our transinstitutional nature, we also stand to benefit greatly from the success of the overall effort." 

The Kennedy Center’s fundraising objectives comprise $64 million of the $1.2 billion goal and were carefully derived from the 5-year strategic plan Levitt developed in consultation with University leaders and Center researchers. The heart of this strategic plan is to use a multidisciplinary approach to research and treatment and propel an already world-class institution to the very top in its field. Philanthropy is needed in four key areas: faculty support, programmatic support, facilities, and training the next generation of scientists. Private contributions to the Kennedy Center are leveraged to maximize impact, often serving as a type of “venture philanthropy”—a catalyst to attract major support from other funding sources. “Gifts to the Kennedy Center truly represent a unique investment in researching and treating children and individuals with developmental disabilities,” Levitt said.

For more information on the “Shape the Future” campaign including giving and naming opportunities of the Kennedy Center, please contact the Development Office at 615-322-8244.
Works by Laura McNellis Donated to John F. Kennedy Center Art Collection

Popsicle Man is one of four works by Laura McNellis donated by the McNellis family to the John F. Kennedy Center’s permanent collection of art by or about persons with disabilities. “Laura’s work is amazing, and these are the most significant gifts we’ve received for the Center’s collection,” said Kennedy Center director Pat Levitt, Ph.D. Begun in 1997, the collection now includes 18 works.

The gifts of the McNellis paintings were marked by a celebratory lunch at the Kennedy Center on December 19. Presenting the paintings, Pat McNellis said, “Laura’s gift acknowledges the important role the Kennedy Center has played in her life and the lives of many other artists with developmental disabilities. The national scope of the Kennedy Center’s arts initiative introduced to Laura the Signature Studio XI artists of the Riddle Institute in North Carolina when their show traveled to the Center five years ago. Laura’s family is grateful that that connection led to her move there where she works fulltime as a painter and sculptor. Such focused efforts as those of the Kennedy Center team support the talents of a huge population of artists whose works often do not otherwise find the audience they deserve.” Laura was born in Nashville in 1957 and has developmental disabilities and autism, although this latter diagnosis was not made until she was an adult.

Mark your calendar: McNellis's work will be exhibited at the Main Library (Downtown Nashville), October-December, in the first exhibit by artists with disabilities co-sponsored by the Nashville Public Library and the John F Kennedy Center.

Support the John F. Kennedy Center through Gift Cards

The John F. Kennedy Center now has available a selection of original cards for honor or memorial gifts and note cards for personal messages. The cards feature original artwork created by artists with disabilities—Kenneth Billingsly, Patricia Brawner, Michael Johnson, and Laura McNellis. The work featured is part of the Center's growing permanent art collection.

The cards provide a wonderful opportunity to promote the artists and the collection while supporting the important work of the John F. Kennedy Center.

Note cards are available in packages of eight for a suggested $10 contribution to the Center. Honor/memorial cards can be purchased for any denomination. The Kennedy Center Development Office will mail one of our cards to the recipient or you can fill out the card. “A gift to the Kennedy Center dedicated in honor or memory of a friend or loved one makes a lasting contribution,” said Elise McMillan, J.D., Kennedy Center director of development.

For more information, please contact Kennedy Center Development, 615-322-8235 or julia.wickerham@vanderbilt.edu.

Who’s in Rabbit’s House? June-August 2003

Based on an African folk tale, “Who’s in Rabbit’s House?” is the theme of the Kennedy Center’s upcoming summer exhibit, created by the artists of Pacesetters, Inc., a Tennessee nonprofit agency with six centers providing services to persons with disabilities. Pacesetters’ art program began in 1996 when visual artist Merritt Ireland volunteered. It expanded in 2000 to also include Ireland and storyteller Marcia Donovan as artists-in-residence, with support from the Tennessee Arts Commission. Visit the exhibit in the lobby of the Kennedy Center or virtually at www.vanderbilt.edu/kennedy.

To reach out into the community, the Center invites organizations and businesses who are interested in displaying an exhibit organized by the Center to contact us. We also invite suggestions for future exhibits. Contact elise.mcmillan@vanderbilt.edu, 615-322-8244.
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The John F. Kennedy Center is among 50 disability-related agencies and organizations sponsoring the

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Discovery is a quarterly publication of the John F. Kennedy Center for Research on Human Development designed to educate our friends and the community, from Nashville to the nation.

National Institute of Child Health and Human Development designated National Mental Retardation and Developmental Disabilities Research Center.

The John F. Kennedy Center is committed to improving the quality of life of persons with disorders of thinking, learning, perception, communication, mood and emotion caused by disruption of typical development. The Center is a university-wide research, training, diagnosis, and treatment institute.

ON THE WEB: www.vanderbilt.edu/kennedy

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