



December 2015



The State of the Department

Rebecca Anne Boylan Professor in Education and Society and Psychology Department Chair Susan C. Levine highlights some of the department's most important news- from new faculty hires to graduate student and faculty accomplishments to new research collaborations. **Full Story»**



The Department Welcomes Two New Faculty

Ed Awh and Ed Vogel, internationally known scholars in the cognitive neuroscience of attention and memory, have brought their research programs and collaboration to the University of Chicago. **Full Story»**



How Language Affects Decision Making

Boaz Keysar's Multilingualism and Decision Making (MuDM) Lab, in collaboration with a research team in Barcelona headed by Albert Costa, recently made a surprising discovery about making moral decisions when using a foreign language. **Full Story»**



In Press: Recent Graduate Student Publications

Graduate student research forges exciting new directions as a result of collaborations across labs and across areas. By forming research teams, graduate students are pursuing innovative ways to address complex and important questions. **Full Story»**



Friends and Alumni Support the Department

Several gifts to the Psychology Department have allowed us to continue to offer an alumni lecture series, support graduate student research and conference travel, and support undergraduate research during the summer quarter. **Full Story»**



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Gifts from alumni and friends enrich the intellectual life of the Department and provide critical opportunities for our students. We are grateful for your support.





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Greetings from the Department of Psychology at the beginning of the 2015-2016 academic year. I am honored and excited to be back in the Chair's Office after a two-year respite. Amanda Woodward has accepted a position as Deputy Dean for Faculty Affairs in the Social Sciences and as chair, it has been a pleasure to work with her in this new position. We are off to a running start this year, welcoming fifteen new graduate students to the Department and three new faculty members. The faculty

members are Ed Awh, Ed Vogel, whose research is featured in this newsletter, and Alex Shaw, whose research was featured in the previous newsletter. The expertise of these new faculty members contribute greatly to the intellectual vitality of the Department, enhancing our research and teaching.

At the same time we welcomed these new faculty members, we said a sad goodbye to a valued colleague, Katherine Kinzler, who is now a professor in the Departments of Psychology and Human Development at Cornell University. Several of Katie's students remain at Chicago and she has active collaborations with many faculty in the Department. We wish Katie and her family all the best in their new adventure.

This year, we are searching for a new faculty member with a specialty in developmental psychology. Having received more than 150 applications, we are about to start interviewing a handful of candidates. Our ability to attract outstanding new faculty members and graduate students to the Department is fundamental to our mission to build the Department and remain one of the premier psychology programs in the country.

I continue to be awed by the success of our faculty and graduate students, as they publish important research in leading journals in the field. In this newsletter, you will see examples of this work. Notably, many of these efforts involve team science, which is a hallmark of our departmental culture. In recent discussions of what makes our Department unique, the faculty identified three signatures of our departmental culture – interdisciplinarity, collaboration, and a research focus on big questions. These characteristics permeate our approach to research as well as our teaching and mentoring of students.

This past year, many of our faculty were recognized for their contributions to the field. To cite a few examples, Sian Beilock was elected Fellow in Division 3 of the American Psychological Association; John Cacioppo received the Distinguished Scientist Award from the Society for Experimental Social Psychology, was elected Inaugural Fellow by Society for Social Neuroscience, and was listed as one of the top 50 "most eminent psychologists of the modern era" in a report published by the American Psychological Association; Daniel Casasanto was awarded the Psychonomic Society's Early Career Award for Exceptional Research Contributions to Scientific Psychology; Susan Goldin-Meadow was the 2015 recipient of the Association for Psychological Science's William James Award for a Lifetime Achievement in Basic Research and she was elected a Fellow in the highly selective Society of Experimental Psychologists; and Amanda Woodward was inducted into the American Academy of Arts and Sciences.

As always, we welcome all of our alumni and friends to stop by and visit our Department, and to attend Departmental colloquia, which are posted on our [website](#).

Susan C. Levine
Rebecca Anne Boylan Professor in Education and Society





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The Department Welcomes Two New Faculty

Ed Awh and Ed Vogel, internationally known scholars in the cognitive neuroscience of attention and memory, have brought their research collaboration from the University of Oregon to the University of Chicago.



Ed Awh comes to the University of Chicago from the University of Oregon where he spent his first 16 years as a professor in the Department of Psychology and the Institute of Neuroscience. Awh's research program focuses on the cognitive neuroscience of memory and attention. His lab uses a combination of behavioral measures, functional MRI, and EEG to understand how the brain supports our ability to hold relevant thoughts in mind while suppressing the influence of distracting stimuli or thoughts. These basic abilities are strong predictors of broad measures of intellectual function such as fluid intelligence and scholastic achievement. Thus, Awh is interested in the factors that determine individual differences in these abilities, and the neural processes that support these basic mental functions.

Recent work in the Awh lab has employed fMRI and EEG to decode the content of mental representations during storage in short term memory or while observers are actively attending the environment around them. These new methods provide new opportunities to understand the neural circuits that enable core cognitive functions, as well as enhance our understanding of the role of memory and attention in human thinking. Awh is excited to join a thriving community of psychologists and neuroscientists within the Psychology Department, the Institute for Mind and Biology, and the Grossman Institute for Neuroscience, Quantitative Biology and Human Behavior.



Ed Vogel joined the Psychology Department after spending 14 years as a Professor of Psychology and Neuroscience at the University of Oregon. He completed his postdoctoral training at UCSD's Institute for Neural Computation after receiving his PhD in Cognitive Neuroscience at the University of Iowa. His research program examines the neural mechanisms of Attention and Memory. His lab has expertise in EEG, psychophysical, and neuroimaging approaches to examining the capacity limits of attention and working memory in humans. Much of this work involves investigating how individual differences in these factors determine how people vary in their fluid intelligence and overall cognitive ability.

Recent work in the Vogel lab has centered on characterizing neural mechanisms that underlie brief lapses of attention, in which task performance fails because attentional control appears to "coast on auto-pilot." Lapses of attention are frequent, often go unnoticed by the individual, and have consequences that can range from mere nuisance (e.g., mindless reading) to catastrophic events (e.g., mindless driving). Vogel's lab has recently discovered neural markers that appear to detect the mind entering into one of these lapse states, even before a performance failure has occurred. They are hopeful that these tools could be developed to detect lapses in real time so that an observer can be alerted and regain control of attention to minimize performance failures and accidents. Vogel is very pleased to join the community of psychologists and neuroscientists in the Department of Psychology, the Institute for Mind and Biology, and the Grossman Institute for Neuroscience, Quantitative Biology and Human Behavior.



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How Language Affects Decision Making



Would you sacrifice one person to save many? Imagine you are standing on a footbridge over rail tracks. An approaching trolley is about to kill five people farther down the tracks. The only way to stop the trolley is to push a very large man off the footbridge and onto the tracks below. This will save the five people but kill the man. (It will not help if you jump; you are not large enough). Do you push him? Although no one approves of killing an innocent person, sacrificing one person to save five has its own compelling moral logic. But according to a variety of studies only 10-20% of people chose to push the man.

Boaz Keysar's Multilingualism and Decision Making (MuDM) Lab recently made a surprising discovery in collaboration with a research team in Barcelona headed by Albert Costa. When the same people consider this moral dilemma in a foreign language, more than twice as many decide to sacrifice the one person to save the five. About 40-50% choose this utilitarian option, preferring to act in the benefit of the greater good rather than the moral rule against killing. This was replicated with more than 2000 people with languages as diverse as English, Korean, Spanish, Japanese, Hebrew, Italian and German.

The moral choices we make in our native tongues are suffused with emotions that can prevent us from taking the utilitarian option. Using a foreign language provides a psychological and emotional distance, which allows individuals to make different, and often more reasoned decisions across a variety of domains. In finance, the lab team has discovered that people using a foreign language are less averse to taking monetary risks relative to those using their native tongue, allowing them to make bolder decisions that could benefit them in the long run. In medicine, people using a foreign tongue have more consistent choices regarding treatment and are less swayed by the way choices are framed relative to native language users. The lab team is also examining situations in which decision making benefits from an emotional gut reaction, where one could use a foreign language to reduce the optimality of choice.

To study the implications of using a foreign language for individuals and society, the lab team has initiated a large-scale, multi-disciplinary project in collaboration with economist Ali Hortacsu, sociologist James Evans, political scientist Eric Oliver as well as psychologists Howard Nusbaum, Greg Norman and Albert Costa. The project will explore the implications of foreign language use for pertinent issues such as creativity in science and patents, economic distortions in auctions, and magical thinking in politics. The National Science Foundation recently funded this multidisciplinary project with a 5-year grant, and the team is very excited about the

opportunity to better understand the role of language in cognition, through which it hopes to provide policy makers with useful tools to better understand decision making. Most importantly, the research findings promise to be relevant for millions of people who use a foreign language on a daily basis such as immigrants, international business people, and diplomats.





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In Press: Recent Graduate Student Publications

Studies have shown that natural environments can enhance health. A new study led by graduate student Omid Kardan and Professor Marc Berman built upon that work by examining the associations between comprehensive greenspace metrics and health. The study focused on a large urban population center (Toronto, Canada) and related the two domains by combining high-resolution satellite imagery and individual tree data from Toronto with questionnaire-based self-reports of general health perception, cardio-metabolic conditions and mental illnesses from the Ontario Health Study.



Results from the analyses, published in *Scientific Reports*, suggest that people who live in neighborhoods with a higher density of trees on their streets report significantly higher health perception and significantly fewer cardio-metabolic conditions (controlling for socio-economic and demographic factors). More specifically, having 10 more trees in a city block, on average, was related to improved health perception in ways comparable to an increase in annual personal income of \$10,000 and moving to a neighborhood with \$10,000 higher median income or being 7 years younger. In addition, having 11 more trees in a city block, on average, was related to decreases cardio-metabolic conditions in ways comparable to an increase in annual personal income of \$20,000 and moving to a neighborhood with \$20,000 higher median income or being 1.4 years younger. Results from the study, though correlational, provide preliminary evidence for the importance and independent effect of trees on subjective and objective health. This study was funded in part by a private foundation grant from the TFK Foundation and an internal grant from the University of Chicago.



Recent research by doctoral students Samantha Fan and Zoe Liberman in collaboration with Dr. Boaz Keysar and Dr. Katherine Kinzler investigated the impact of exposure to a diverse linguistic environment on early social communication. Much of Dr. Keysar's work focuses on the difficulty of communication: people tend to be egocentric and overconfident in their communicative abilities. Here, the research team asked whether being regularly exposed to multiple languages influences communicative development.

Their findings, published in *Psychological Science*, show that children raised in a multilingual social environment have extensive practice with linguistic perspective-taking: they must track who speaks each language, and who can understand which content. These social experiences may lead to enhanced communication. Thus, children raised in monolingual and multilingual environments were tested on a social communication task that required taking an experimenter's visual perspective in order to interpret her intended meaning. Monolingual children failed to take the speaker's perspective dramatically more often than children who were exposed to a multilingual environment. Children who were merely exposed regularly to a second language, but only spoke English themselves, performed as well as bilingual children, despite having lower executive-function scores. Thus, this research suggests that communicative advantages do not require speaking multiple languages, and are likely social in origin, rather than due to cognitive differences. For millennia, multilingual exposure has been the norm. This study shows that this type of linguistic environment may facilitate the development of perspective-taking tools that enhance communication skills.

For the past two and a half years, graduate students Talia Berkowitz and Marjorie Schaeffer have been collaborating on the Bedtime Learning Together (BLT) project, funded by an Overdeck Family Foundation grant to Drs. Susan Levine and Sian Beilock. This project aims to evaluate whether parent-child interaction around fun and interesting math problems results in positive changes in children's math learning and math attitudes compared to a reading control group. The project, which is currently in Year 3, is following over 750 students in the Chicago area from preschool through 5th grade.



Their findings from Year 1 of the study, which have recently been published in *Science*, show that children who use the math app more with their parents, grow more in math over the course of first-grade than do students who use the math app less (and than students in the reading control group). Most interestingly, they found that the app is particularly helpful for students with high-math-anxious parents. By providing an engaging way for math

anxious parents to share math with their children, the math app may help cut the link between parents' high math anxiety and children's low math achievement. The app may give parents – especially high-math-anxious parents who may have less math skill and interest in engaging in math – more and better ways to talk to their children about math not only during app usage, but also during everyday interactions.



Keith Yoder, a fourth year graduate student under the supervision of Dr. Jean Decety, recently published a study that reports how individuals with psychopathy process morally relevant information. Psychopathy is a personality disorder characterized by a lack of guilt, empathy, and remorse, callous disregard for others, as well as abnormal emotional processing. This study is part of a long-term collaboration between the Decety Lab and Kent Kiehl at Mind Institute, New Mexico. Recently, they showed prisoners scenarios depicting interpersonal harm or assistance, who were requested to make judgments about either the moral or non-moral (physical location) content of the social interaction.

The results of the study, published in *Translational Psychiatry*, indicate that while psychopathy does not impact the accuracy of simple judgments, higher levels of psychopathic traits lead to a shift in network neural activity. Specifically, inmates with low levels of psychopathy show enhanced neuronal coupling between regions involved in automatic aversive responses to interpersonal harm (e.g., posterior temporal sulcus, amygdala, anterior insula). Individuals with higher trait psychopathy lack this response, and so must rely on regions such as anterior cingulate to correctly apply explicit rules to label interpersonal harm as morally wrong. This study was funded in part by an NIMH RO1 grant to Dr. Decety.

Based on Jean Decety's extensive work on empathy, doctoral student Kim Lewis and the Decety lab performed an EEG study aimed at dissociating specific components of empathy. They recruited and ran young adults through the study to examine the neural differences of empathic concern and affective sharing in response to viewing others in pain. The results of this study, published in the *Journal of Neurophysiology*, showed that these two empathy components were dissociable on a neurophysiological level. The study was funded by grants awarded to Dr. Decety from the John Templeton Foundation and NIH.



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Friends and Alumni Support the Department



Norman H. Anderson Awards

For the fifth year, the Department of Psychology awarded Norman H. Anderson funds for domestic conference travel and research-related expenses. This past year thirty-four awards were made to graduate students and three to undergraduates. Students presenting their research at nine different conferences across the country including meetings for the Society for Research in Child Development, the Cognitive Neuroscience Society, and the Association for Psychological Science to name a few. Fourteen graduate students had the opportunity to pursue original lines of research in their labs. Some of the projects this past year included a study on the nature of pitch perception in individuals with and without absolute pitch, a study on whether certain experiences can enhance communication, an examination of how perspective-taking influences the link between moral evaluation and moral behavior, and a study on the motives underlying status seeking. We are excited to see the many publications that have come from this opportunity for graduate students to explore independent research programs.

Earl R. Franklin Fellows

Earl R. Franklin, an alumnus of the College, established a fellowship in 2006 that awards students in the Departments of Psychology and Comparative Human Development merit based funding to conduct summer research. The Psychology Department selected four Franklin Fellows for 2015. This summer George Abitante looked at whether an acute bout of aerobic exercise can enhance consolidation of participants' learning to comprehend a synthetic speaker. The study did not find significant differences between the exercise and no exercise conditions, which raises important questions about what kinds of learning do and do not benefit from aerobic exercise. Sherry He's project looked at the effects of the Thirty Million Words intervention, an intervention that teaches parents of low socioeconomic status about the benefits of and strategies for increasing the quantity and quality of linguistic input they provide to their young children. The study asked whether the intervention increased parents' use of math vocabulary – their use of spatial and number word – and is finding positive results. Evelina Sterina's research is examining the mechanisms that generate and sustain ultradian rhythms. Specifically, the work investigates whether the striatal dopamine system and the arcuate nucleus work as a neural network to modulate ultradian rhythms of activity. Finally, Nathan Vasquez is exploring the effects of group membership on recall of moral and conventional actions in young children. His results suggest that children believe that those who are more "like them" are more likely to behave in conventionally acceptable ways.



Hanavi-Montgomery Summer Fellowship

In 2011, Ron Hanavi and Lisa Montgomery made a generous gift to the Infant Learning and Development Lab to support summer research projects related to child development. The Hanavi-Montgomery Summer Fellowship awards a summer research stipend to one undergraduate each year to support a student's research in an area of interest without having the burden of needing to find additional summer employment. This year, the Hanavi-Montgomery Summer Fellowship supported third-year Emily Adler whose project looked at the relationship between motor experience and action anticipation in infants.

Starkey Duncan Alumni Lecture

This past Autumn marks the third annual Starkey Duncan Alumni Lecture. A generous gift from the Duncan family made it possible for us to invite Martha W. Alibali, who received her PhD from the Department in 1991 and is now a professor at the University of Wisconsin-Madison, to give a talk. In her talk, entitled *Understanding Change in Mathematical Thinking: A Perception-Action Perspective*, Dr. Alibali discussed how a focus on perception and action can enrich conceptions of mathematical thinking, learning, and instruction. Alibali considered the learners' perception of mathematics problems and how perceptual encoding guides problem-solving actions and strategy generation. She went on to consider the role of physical actions in mathematical thinking. Finally, she discussed how mathematics instruction guides learners' perceptions of mathematical problems and mathematical actions. Following the talk, the Dr. Alibali and lecture attendees gathered for a lively discussion and refreshments in the Social Sciences Tea Room.



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