Public and Nonprofit Management
Doug Kiel, Professor of Public and Nonprofit Management

Dr. Doug Kiel’s primary research efforts over the last three years fall within the domain of social neuroscience. Social neuroscience seeks to discover the biological and neural substrates of the gamut of human social behavior. Social neuroscience is an inherently interdisciplinary endeavor requiring the expertise of both social scientists and neuroscientists. Dr. Kiel’s co-principal investigator in these efforts is John Hart, Jr., M.D., neurologist, Jane and Bud Smith Distinguished Chair in Neuroscience and medical director of the University’s Center for BrainHealth.

This collaboration has focused on identifying some of the neural substrates relevant to the behavior of both government and business leaders. The results of these efforts form a study entitled “The Brains of Leaders.” The participants in the study match the profile that Dr. Kiel and Dr. Hart know to be consistent with leaders with regard to personality attributes and intelligence. The business leaders ranged from Executive Vice President to CEO and the government leaders ranged in title from assistant city manager to federal GS-15. The study was vetted through both the UTD and UT Southwestern Institutional Review Boards (IRBs) and followed all relevant Health Insurance Portability and Accountability Act (HIPPA) rules.

The study is comprised of two central elements. These elements are a battery of paper-based assessments and three specific experiments conducted within a Functional Magnetic Resonance Imaging (fMRI) scanner, a machine that measures brain activity by detecting changes associated with blood flow. First, several paper-based tests were conducted to explore certain personality and reasoning attributes of their test subjects. These well-validated paper-based tests included the Wechsler Abbreviated Scale of Intelligence (IQ), the NEO-PI personality assessment (five-factor model), the Personality Assessment Inventory (personality and psychopathology) and measures of social dominance and empathy. Naturally, the authors also gathered a large body of demographic and personal data on each study participant. There are 300 data points for each participant from the paper-based assessments alone.

Additionally, each participant also spent approximately one hour in the fMRI scanner at UT Southwestern Medical Center. Three specific well-validated experiments were run and we also gathered resting state data on each participant. One of the experiments is referred to as the monetary incentive delay (MID) and asks participants to respond to anticipated financial rewards while in the scanner. This experiment allowed the authors to address an enduring question in public management concerning how government and business leaders differ in their attitudes toward financial incentives. The results of this experiment are quite exciting. In particular, the behavioral results show that the business leaders were significantly faster than government leaders in responding to monetary incentives while inside the scanner. At the neural level business leaders showed greater levels of excitation in relevant regions of interest in the brain relative to their government counterparts. There are now five neuroscientists examining both the paper-based data and the relevant scans.
Dr. Bruce Jones contributed greatly to this study. Dr. Jones directly conducted the paper-based assessments and tended to the participants during all fMRI scans. It took approximately two years to get the 17 business leaders and 13 government leaders participating in the study through the paper-based testing and fMRI scans. Dr. Jones used the aforementioned monetary incentive delay study for his dissertation research and in March 2015, presented a poster of his findings at the Cognitive Neuroscience Society (CNS) conference in San Francisco. Dr. Kiel is quite confident this is the first time a student in the field of public affairs/administration has presented a poster at the CNS conference. Dr. Jones will present a paper that is in production with Dr. Kiel concerning the relevance of neuroscience research to the field of public management at the NeuroEthics Conference in Paris, France this June.

It is likely of some value to note that the fields of economics and criminology already evidence the influences of neuroscientific research. Dr. Kiel believes this general body of knowledge will continue to expand. Caveats, as usual, are in order. In leadership studies, some scholars argue that the dyadic and contextual nature of leadership limits the benefits of data derived from individual behavior inside the “artificial” confines of the scanner. The challenge of finding neuroscientists interested in collaborating with social scientists may also serve as an inhibition to further developments in this field.

Dr. Kiel also has ongoing projects with Meghna Sabharwal and Imane Hijal-Moghrabi (workplace wellness) and Euel Elliott and John McCaskill (simulating bureaucratic budgetary battles). Finally, Dr. Kiel continues to work on a book length manuscript tentatively entitled, “Complexity, Cognition and Leadership.” This manuscript is an effort to assemble what he has learned about these fields over the last 30 years.

Geospatial Information Sciences
Anthony Cummings, Assistant Professor of Geospatial Information Sciences
Dr. Cummings is currently working on a project aimed at mapping the growth rates of plants in tropical forests in Guyana. The project aims to compare growth rates of mangroves planted along the coast with that of plants that regrow post disturbance from swidden (I.E., cut and burn) agriculture plots, logging gaps and gold mining pits. Using geographical information system methods and in situ data, the project will develop models of above ground biomass and examine correlations with carbon sequestration potential for various forest stands. Using unmanned aerial vehicles (UAVs) and photogrammetric techniques, above ground biomass will be estimated for plants across space and time and the data will be used to understand at what time post disturbance plants within a stand begin to positively contribute to storing carbon. Through collaborative arrangements with Guyana’s Hydrometeorological Division, National Agricultural Research and Extension Institute (NAREI) and the Ministry of Indigenous Peoples Affairs imagery of planted mangroves and swidden agriculture plots are being obtained. During the 2015-2016 winter break Dr. Cummings trained two persons, one at the Hydrometeorological Division and the other at NAREI, to collect data using UAVs and they have begun to transmit data to UT Dallas. The project will continue into the summer of 2016 and will include training a team of Makushi indigenous farmers in the Rupununi, Southern Guyana, to fly UAVs in their respective communities and neighboring villages to collect data on the rate at which vegetation returns to their farms after cutting. Growth rate data will be used to develop estimates of carbon
sequestration potential and above ground biomass for a range of forest covers, from immediately after being cut through forests with characteristics similar to old growth stands. The results of this research will contribute to developing estimates of carbon sequestration for planted forests and other secondary successional stands for the tropics and will allow indigenous communities and other stakeholders to determine at what point post disturbance their forests may be used in payment for ecosystem services.

**Political Science**

**Patrick Brandt, Professor of Political Science**

Dr. Patrick Brandt is leading a team of EPPS political scientists and computer scientists from the Jonsson School of Engineering and Computer Science (in partnership with three other universities) in a new National Science Foundation sponsored project. The three-year project will use automated, computer-based software to code events from news reports in English, Spanish, and Arabic. The coded reports then serve as data to analyze international relations, civil war, drug violence, and the relationships between these phenomena and climate change.

**Public Policy and Political Economy**

**Richard Scotch, Professor of Public Policy and Political Economy**

Dr. Richard Scotch has been involved in a number of activities to mark the 25th anniversary of the Americans with Disabilities Act (ADA). Signed into law in July 1990, the ADA was intended to end discrimination on the basis of disability in employment, public services, private accommodation, and telecommunications, yet its effects have been mixed. Dr. Scotch edited a special 2015 issue of *Disabilities Studies Quarterly* which included eleven analyses of the impact of the ADA. He serves on an Expert Panel for a federally funded systematic review on the impact of the ADA, and has given recent presentations on the ADA and its significance at the Society of Disability Studies, Shippensburg University, UT Arlington, and the Japan Disability Forum as well as several universities in Japan.

**Economics**

**Sherry Li, Associate Professor of Economics**

Dr. Sherry Li is currently working on several projects on public goods provision. In the first project with Shuo Yang, a Ph.D. student in economics, Dr. Li has designed a lab experiment to study the impact of induced group identity on individuals’ cooperation and punishment behavior in voluntary public goods provision. Dr. Li and Mr. Yang found that monetary punishment leads to better cooperation when the community is categorized into groups, compared to when there are no groups. In the second project with Dr. Ernan Haruvy from JSOM, Dr. Li designed a novel lab experiment on a 3D virtual world platform to investigate how communication and visibility of other participants affect individual contributions to public goods. The authors find that while communication helps increase cooperation, visibility does not increase cooperation if participants cannot communicate. In fact, communication and visual monitoring work in a complementary way. An analysis of subject’s virtual location which cannot be done in a traditional brick-and-mortar laboratory shows a general aversion to being geographically close to others when behaving non-cooperatively. In a third project with Dr. Eckel at TAMU and Dr. de Oliveira at UMass Amherst, Dr. Li has designed a field experiment to investigate how commonly shared group identity affects individual contributions to local public goods in two neighborhoods in Dallas. The
authors found that the effect of the common identity prime increases the likelihood of giving in the mid-income neighborhood, but decreases giving in the poor neighborhood. All the three studies shed important light on how social incentives could motivate individual’s cooperative behavior and increase their contributions to public goods.

**Criminology and Sociology**  
**Tom Kovandzic, Associate Professor of Criminology**

Dr. Tom Kovandzic continues to conduct research on crime policy and its effects on crime rates. Recently, he published an article with Dr. Patrick Brandt that examines executions in Texas from 1994–2005. Using different models, the findings demonstrate that executions do not deter homicides, contrary to the results of Land et al. (2009). The findings also shows that other factors, such as the number of prisoners in Texas, may drive the main drop in homicides over this period. Such conclusions, however, are highly sensitive to model specification decisions and as such using dynamic regressions to account for policy changes that may affect homicides need to be done with significant care and attention. Dr. Kovandzic is currently working on research with Dr. Lynne Vieraitis that examines the impact of CompStat on homicide rates in New York City. CompStat is short for Computer Statistics and is an accountability process which is a combination of management philosophy and organizational management tools in police departments. Their findings will be presented at the Law and Society Association Annual Meeting in June.