Decision Science Meets National Security: A Personal Perspective

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I am honored to contribute to this special issue on using psychological science to make a better world.

A Psychological Scientist in the Pentagon

I share my story knowing that I stand on the shoulders of giants. Many researchers of judgment and decision making (JDM) have also worked in a dedicated way with government agencies on problems of human security, broadly defined. To name but a few, Baruch Fischhoff, Danny Kahneman, Elke Weber, Paul Slovic, Ellen Peters, Eric Johnson, Craig Fox, Barb Mellers, Phil Tetlock, Carey Morewedge, and undoubtedly others have all worked with federal government agencies on matters that affect human security.

That said, it is an especially exciting time in the field of decision science (otherwise known as JDM). The general public is increasingly recognizing that, in order to thrive in such areas as medicine, finance, and national security, we need to make smart decisions—and that decision science, as a field, can help us do just that.[1] Coincidentally, the day I began writing this, I had just finished a video call with the U.S. Chief of Naval Operations (CNO). The CNO is the most senior military (i.e., noncivilian) officer in the Navy; he serves as a member of the Joint Chiefs of Staff and is a military adviser to the National Security Council, the Homeland Security Council, the Secretary of Defense, and the U.S. President. Our call focused on ways I might increase my involvement advising Navy leadership.

Many weeks later, as I write the final revision of this document, I have accepted a 1-year assignment within the Pentagon. Specifically, I serve as the Navy's first Chief Decision Scientist and as Special Advisor to the Chief of Naval Operations. Through a useful law known as the Intergovernmental Personnel Act, organizations in the federal government can, among other possibilities, "buy out" a portion (or all) of a faculty member's time for a specified time frame. In my case, I retain my position at Harvard but devote approximately half of my time to the Navy.[2]

My job description includes such objectives as increasing the use of evidence-based decision making within the Navy and increasing the use of experimentation (i.e., scientific method) to increase organizational learning and operational effectiveness. A smaller set of specific objectives in this position needs to remain undisclosed, at least for now.

Readers may wonder how all this came about. Working at the Pentagon or in national security was not a specific goal I set for myself. Rather, at each stage of my career, I have merely been excited by opportunities to improve human judgment and decision making, especially decisions made for the common good. Moreover, I have gravitated toward decision domains characterized by small margins for error and high stakes, such as in health/medicine, finance, and especially national security—three areas in which I have concentrated my applied efforts.

Corny though it may seem, I draw inspiration from John F. Kennedy's inaugural address, which also happens to be the motto for the Harvard Kennedy School: "Ask not what your country can do for you—ask what you can do for your country." I came by this conviction naturally, growing up in a patriotic, liberal-activist household. My parents believed deeply in—and experienced for themselves—the power of democracy to create equality of opportunity. The children of immigrants, they themselves grew up one generation away from living under oppressive regimes. About the time I learned to read, my parents put me to work leafletting for their candidates and causes. It seemed normal to me to carry a clipboard and petitions around my neighborhood, normal to help my parents set up for near-nightly committee meetings, and normal for me to serve as a U.S. congressional intern in Democratic Representative Barney Frank's office while I was still in high school.

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Although government and policy have long intrigued me, I discovered in college my chief fascination: understanding how the human mind works. I set out to become a basic psychological scientist, studying mechanisms in human JDM.[3] I am particularly interested in asking fundamental questions about the effects of emotional and social factors on decision making. My work has been broadly aimed at expanding the evidentiary base for designing policies that maximize human well-being. Gradually, however, I sought to do more than just provide evidence.

Even as an untenured professor, I could not resist opportunities to present scientific findings to public leaders who could make maximal use of them. For example, I presented the results of a nationwide field experiment on emotion and perceived risks of terrorism (Lerner, Gonzalez, Small, & Fischhoff, 2003) to officials at the headquarters of the North Atlantic Treaty Organization (NATO) in Brussels. I also began teaching executive-education courses on such topics as the psychology of risk perception and risk taking (e.g., Lerner & Keltner, 2000, 2001) to United Nations senior leaders.

Once tenured at Harvard in 2007, my work with practitioners began to take off. I created an in-depth executive-education program at the Harvard Kennedy School called Leadership Decision Making (LDM). The program runs day and night for a week, three times per year, and enrolls a wide array of senior leaders from the public, private, and nonprofit sectors, including military leaders (about 20%), diplomats, intelligence agents, law-enforcement personnel, physicians, bankers, elected officials, and so on. Keeping senior leaders (each of whom faces high opportunity costs) engaged for 6 straight days and nights is one of the greatest challenges I have ever undertaken, as well as one of the most rewarding. The participants are all in a position to immediately put into practice what they learn in the course. For example, their new knowledge of the psychological levers that drive human risk perception has enabled some to immediately enact risk-communication strategies that help the public better appreciate underperceived risks (e.g., driving) and stop avoiding exaggerated risks (e.g., flying). As part of this course, my doctoral students and I have developed a choice-architecture exercise in which participants get to test empirically how much they have learned about debiasing by attempting to debias the choices made by online respondents. With grant funding, we are writing the simulation up for dissemination to other educational institutions.

In addition to running LDM, two important events pushed me deeper into national security contexts. One day in 2013, I received a phone call out of the blue from a U.S. Army Special Forces soldier at Fort Bragg, North Carolina, inviting me to come teach their division of elite airborne troops "the science of emotion and decision making." I asked the soldier if he really wanted the actual science as opposed to some summary tips. "No, ma'am; we want the science," he answered without hesitation. "We want you to come down here to base and teach us for a few days as soon as our group returns from Afghanistan. We too often find ourselves making decisions in combat that we don't know how to explain, and we want to understand why we are making them." The soldier's candor, humility, and motivation to learn had a profound effect on me.

I accepted the invitation and, after conferring with unit leaders, designed a customized training program for elite Special Forces soldiers. The program aimed to highlight the sources of error and bias in their decision making as well as how to avoid falling victim to such biases. It was incredibly rewarding to see the "A-ha!" moments on the soldiers' faces when they learned about such phenomena as the sunk-cost bias—the tendency to escalate commitment to existing courses of action even when the existing course is failing. These soldiers had experienced the irresistible urge to escalate commitment even when it led to additional loss of life. They also nodded in recognition when I presented evidence that even incidental anger can carry over from one situation to the next, diminishing the perception of risk (Lerner & Keltner, 2000, 2001), reducing precautionary behavior (Lerner et al., 2003), and increasing risk-taking behavior, especially among men (Ferrer, Maclay, Litvak, & Lerner, 2017). These soldiers were more grateful to learn strategies for avoiding such widespread tendencies than any other audience I have taught in my 21 years as a professor. In turn, they taught me something: In their environment, improving the accuracy of their judgments, even by 10%, translates into lives saved. Each time I have a Navy SEAL or an Army Special Forces soldier in my classroom, I remember the stakes involved in reducing bias and improving accuracy.

In 2015, a Navy captain and alumnus of LDM nominated me to serve on the advisory board for the Secretary of the Navy—a pro bono role, even though my title is "Special Government Employee."[4] Secretary Ray Mabus, an Obama appointee, reviewed nominations and selected me to serve. Secretary Richard Spencer, a Trump appointee, has since reappointed me. Thus, I serve, as do most civil servants and military personnel, in a politically neutral position. (It is unclear at this time whether I will continue to hold this advisory board position in addition to my role as Chief Decision Scientist; the two may become incompatible.)

Working at the Pentagon and observing the culture thus far has been fascinating. A substantive high point was when I chaired a task force and cowrote a report on ways to increase the use of evidence in decision

making across the Navy and Marine Corps. Working alongside a highly regarded three-star admiral on the task force, I felt that, at least in this small way, the historic civilian-military divide (Holsti, 1998/1999) might be narrowing.

Defense and intelligence go hand in hand, and I have been grateful for opportunities to present findings not only to U.S. intelligence agencies but also to intelligence services of our allies.

Challenges in Doing National Security Work

Early in my career, I occasionally worried that devoting extensive time to translating findings for policymakers would impede my chances of getting tenure in my home department at Carnegie Mellon. Theory-driven research publications mattered most to the promotion committees at Carnegie Mellon, and both time and energy (especially for me as a new mother with lupus, a serious, lifelong chronic disease) were scarce resources. Supported by wonderfully encouraging senior colleagues, I eventually let go of the worry, realizing that I had to make a broader contribution for my work to have meaning, to sate my curiosity, and to honor the public funds I had received via the National Science Foundation. Now tenured at the Harvard Kennedy School, I still love theory and I actively conduct basic, theory-driven studies—that is my primary work in life. However, I find that I can balance such work with government service. Indeed, I am honored that they let me do so.

I confess that, so far, the challenges have not been severe. I have intentionally never drawn any additional salary from the Pentagon, and this helps me avoid potential conflicts of interest. I have never been in a position in which I needed to work on something in which I did not believe. I am acutely aware that there is a sordid history of psychologists who were willing to violate ethical bounds while serving national-security agencies. It was not long ago that a few psychologists were advising on torture techniques—and being handsomely compensated for doing so. I remain ready to walk away if ethics demand it, but I have been pleased so far to work with military officers who themselves adhere to admirably strong ethical codes.

If pressed to describe challenges, I would say that the challenges revolve around overcoming social and cultural factors in U.S. national security settings. No film director would cast me—a short woman with long, untied hair, wearing clogs (for orthopedic support)—in the role of senior military advisor at the Pentagon. Partly because having Lupus precludes me from spending much time in the sun, I also look younger than I am (or so I am told). This has not been a problem with members of the board or with the CNO and his staff. They are all professionals who treat me just as they treat others. It is not uncommon, however, for Navy leaders to brief our board without knowing our individual bios beforehand. When I ask a question of whomever is briefing us, I sometimes receive the elementary school version of the answer. The same is not true when men on the board ask questions. The language at the Pentagon also departs from the language I am used to in academia. For example, I regularly review reports that contain what most academics would consider exclusionary terminology. For example, reports describe how to "man" tactical initiatives even though both men and women will conduct the initiative. The term *manning* is even used in the context of plans to improve the recruitment and retention of personnel—an area where increased participation of women is a stated goal.

I have also been publicly introduced as this "little lady" by my Pentagon escort. I still remember the day when I entered the VIP line at the Pentagon to obtain my badge as a "special" (i.e., unpaid) employee. The clerk conducting retinal scans and dispensing VIP badges had to squelch a chuckle when the tall man in front of me stepped away and she saw my face more than a foot lower—definitely a departure from the norm. There is hope for the future, however. The Navy and the other service branches are making sustained efforts and deep investments in changing its culture, aiming toward diversity and true inclusion at every rank. I myself already notice significant improvements. As with any organization, one individual in the right leadership position can make an enormous difference. The CNO and his leadership team are making significant strides with an evidence-based, multifaceted, and intentional plan. Many others are as well. I have found it most useful to find male allies (there are many) and then jointly point out the ways in which language, conduct, and policy could become more inclusive. The more we fully affirm all members of the national-security effort, the better our national security will be.

A final challenge has come from fellow academics. Some look with disdain at my Pentagon work, assuming it means that I personally support all the policies of the current administration—an administration to which many academics are opposed. I can appreciate that view. But my service to our Department of Defense does not necessarily reflect my personal political views. We would be in trouble as a country if the military changed each time political power changed. I have sworn the official oath of loyalty to our country under a Democratic president and again under a Republican president. I do not want to stand outside and criticize our Department of Defense. I want to dive in and make it better. Despite the dated (gender-limiting) language,

a quote by Sir William Francis Butler (1901) best conveys what is at stake: "The nation that will insist on drawing a broad line of demarcation between the fighting man and the thinking man is liable to find its fighting done by fools and its thinking done by cowards" (p. 85).

Impact of the Work

Relative to the potential for our field, impact is only just beginning. That said, I have observed three kinds of impact thus far. The first is a traditional kind. Our publications, especially those examining emotional and political responses to terrorism (e.g., Fischhoff, Gonzalez, Lerner, & Small, 2005; Fischhoff, Gonzalez, Small, & Lerner, 2003a, 2003b; Small, Lerner, & Fischhoff, 2006), have influenced national-security planning. In at least one case, our studies were republished as part of NATO's "Security through Science" program (Lerner, Gonzalez, Small, & Fischhoff, 2005). Our newer work, for example, studies assessing the accuracy of probability estimates made by defense and intelligence officers (Friedman, Lerner, & Zeckhauser, 2017), will hopefully provide useful guidance on when it is effective to express uncertainty using words rather than numbers. Advising Navy initiatives on the basis of decision-science findings, more generally, also falls into this category.

A second impact has been through teaching. At the most intense level, the U.S. Air Force has sent outstanding officers who, as part of their duty assignment, are each completing a 3-year doctoral degree working with me and my decision-science colleagues. At a less intense and shorter level, well over a thousand high-level leaders who, in one way or another, aim to improve the common good have now taken my executive-education program on Leadership Decision Making. They have received not only empirical feedback on their own susceptibility to errors and biases but also empirical feedback on how much they have learned. Most have committed to putting tools into practice that will reduce biases in areas such as forecasting geopolitical events, recruiting, hiring, promoting, setting bail, setting parole, and so forth. Many, such as the district attorney of a large, historically corrupt county in the United States stay in touch with me and send debiasing projects for my Harvard students to work on.

A third kind of impact is only just beginning: It involves embedding decision science into the regular educational and operational activities of national security. We are in very early stages here. As a first step, we are augmenting existing military training to incorporate decision science, not just for those who attend executive-education courses at places like Harvard, but for all senior officers and at existing military training sites. For example, in 2 weeks I will teach decision science

to the Navy's entire incoming class of newly promoted admirals, hoping to inculcate an appreciation for evidence-based practice and the value of conducting experiments. I am also lining up a series of presentations from colleagues around the country who can help train future military leaders and conduct relevant research. With that goal in mind, and working with the CNO, several academic colleagues are already going through the process of becoming Special Government Employees. They may also populate a new advisory board within the Pentagon. Once the training changes, and the skills our field has to offer are more broadly understood, I hope that many decision scientists can increasingly help improve operational effectiveness. This should be especially true in such areas as improving risk analysis, assessing comparative advantages of human and machine capabilities, and so on. I envision a future in which our field shares insights broadly and deeply, applying what we know and letting such application inform our essential pursuit of basic science. If any readers wish to join such endeavors, I encourage you to participate in the Behavioral Science and Policy Association. This organization promotes the application of rigorous behavioral science research that serves public interest, connecting individuals and organizations through conferences, workshops, task forces, and publications. I also encourage you to think deeply about ways in which your own research may have implications for global security. Let us reduce the "broad line of demarcation" between those who think about freedom and those who defend it.

Notes

1. The recognition derives, in large part, from popular books written by luminous decision researchers, including, but not limited to, the following: Dan Ariely (2008), Max Bazerman and

Don Moore (2012), Francesca Gino (2013), Chip and Dan Heath (2007), Daniel Kahneman (2011), Sheena Iyengar (2010), Phil Tetlock (2005), and Richard Thaler and Cass Sunstein (2008).

2. This is designed to be a time-neutral and revenue-neutral agreement, much like working on a project for the National Institutes of Health would be. That is, I am supposed to work the same amount of hours and receive the same compensation as I otherwise would without the Navy. As it turns out, the pay is the same, the hours I work are not. Time demands are far more intense.

3. By "basic," I mean that I study fundamental questions about how the mind works, hoping to provide a foundation of knowledge for the applied science that follows. For example, I have studied the cognitive (e.g., Ferrer et al., 2017; Lerner & Keltner, 2000, 2001), motivational (Lerner, Goldberg, & Tetlock, 1998; Lerner & Tiedens, 2006), and biological consequences (Lerner, Dahl, Hariri, & Taylor, 2007) of anger. Applied researchers use this to understand how anger affects such applied topics as jury decision making (e.g., Bright & Goodman-Delahunty, 2006) and political behavior (e.g., Huddy, Mason, & Aarøe, 2015).

4. The Secretary of the Navy is the civilian head of the Department of the Navy, overseeing both the Navy and the Marine Corps and, unlike the CNO, is considered a political appointee.

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