New Directions for Experimental Work in International Relations

Rose McDermott

Brown University

This paper provides an overview of some previous important experimental work in international relations. New substantive domains and methodological innovations for approaching innovative experimental work in international relations will each be discussed in turn. These areas of exploration include research into cross-cultural manifestations of basic psychological processes, investigations into the underlying dynamics of identity construction, transformation and rejection, and experimental explorations into such topics as regime type, coalitions and alliances, status competition, time horizons, and emotion.

Experimental methods have a long and distinguished history in the discipline of psychology and other hard sciences. Economics represents only the most recent field to embrace their utility wholeheartedly. Yet experimental inroads into political science in general, and international relations in particular, have progressed in a more tentative and halting manner, although their use appears to be on the rise in some subfields (Druckman, Green, Kuklinski, and Lupia 2006). Still, their use remains far from commonplace in international relations; a recent survey of international relations scholars conducted by the editors of *Security Studies* found that only 4% of over 1,000 respondents used experimental methodology at all (Peterson, Tierney, and Maliniak 2005). Experimentation has infiltrated some aspects of political science, most notably with the use of field experiments in the realms of public opinion and voting behavior (for reviews, see Gerber and Green 2008; de Rooij, Green, and Gerber 2009) and economic games in comparative perspective (Bahry, Kosolapov, Kozyreva, and Wilson 2005); less work has explicitly examined topics of interest to international relations scholars.

Although some interesting and important experimental work in international relations has been conducted in the past, and increasingly provocative work has appeared recently, many opportunities remain for interested scholars to undertake innovative research in this area. Perhaps one of the reasons more researchers may not have fully exploited the promise of experimental methods results from uncertainty about the range of topics and methods which can be used to gain additional insight or purchase from their invocation. This article attempts to delineate some of the most promising new directions for experimental work in international relations for that purpose, in order to encourage their more widespread use in the sub-field.

Before exploring the way that experiments have been used in international relations, it is worth considering why their use has not become more widespread, as has occurred in the subfield of American politics in particular. Why has mainstream international relations largely rejected experimentation as a useful, if not

invalid, method for examining phenomenon of interest in the international environment? Realists do not use experiments, nor do constructivists, and yet both have theoretical roots in disciplines, economics and sociology respectively, which rely heavily on experimentation to test central hypotheses. Liberalism, which arguably should find experiments most sympathetic because of their utility in manipulating fine grained aspects of trade and financial policy, has rejected the method as well.

Traditionally, the major concern raised about the use of experiments in political science regards perceived problems related to achieving acceptable levels of external validity and generalizability (Campbell and Stanley 1963; Cook and Campbell 1979; McDermott 2002). While many international relations scholars find laboratory experiments intriguing or instructive, they may not readily see how controlled laboratory studies translate into a more comprehensive understanding of the complex political and social world they seek to explain. Some political scientists have tried to get around this problem by designing effective field experiments (Gosnell 1926; Gerber and Green 2008) or experiments embedded in large, representative national surveys (Kuklinski, Sniderman, Knight, Piazza, Tetlock, Lawrence, and Mellers 1997); however, most recent efforts in this area have focused on voter choice, public opinion, and collective action involving domestic issues, and not on questions centrally related to international relations topics of common concern. Instead, more often than not, most scholars find that either qualitatively oriented case study work or large-n quantitative studies appear to provide more obvious ways to investigate such phenomena of interest. And yet this need not be the case. Experiments can offer unique advantages to international relations scholars.

They can provide precise methodological control, unparalleled causal insight, and innovative theoretical clarification and direction. As a recent review in *Science* argues, ''There is also a widespread view that the lab produces unrealistic data, which lacks relevance for understanding the 'real world.' This notion has its basis in an implicit hierarchy in terms of generating relevant data, with field data being superior to lab data… this view… has it basis in a misunderstanding of the nature of evidence in science and of the kind of data collected in a lab'' (Falk and Heckman 2009). Data from the field may be no more realistic than data generated in a laboratory given the many confounding variables at work in a larger environment. Rather the key concern revolves around the ability of the investigator to isolate and control the variables of interest in order to determine their influence on outcome, and often the laboratory offers a much better environment in which to assert such control. Moreover, questions surrounding populations or incentives merely represent empirical questions like any other that can be systematically explored within the context of sophisticated experimental paradigms.

Some scholars may not like experiments because they perceive them to be unrealistic. Yet such a position does not prevent advocacy for the use of experiments not to test real-world empirical outcomes, but rather to test theoretical models as behavioral economists do. Yet experiments in international relations theory can be used not only to test game theoretical models as regularly occurs in economics, but also to generate data as has been done in the past, and help develop policy programs that will generate a responsive electorate for the future.

Mainstream international relations scholars may have traditionally been uncomfortable with experiments for a variety of reasons, not least of which may have been simply unfamiliarity and lack of training. But it may also be the case that international relations has tended to find a home in debates over grand theories, where experiments may not provide decisive advantages. Rather, experiments excel in slowly cumulating knowledge concerning specific domains across various populations and situations over time. Eventually, such information may serve to falsify aspects of particular grand theories, or to present alternate

constructive models, but rarely will this occur with the single decisive statement which has traditionally captured the attention of scholars in international relations. But this does not mean that such work lacks comparative advantage in terms of its ability to control the variables of interest and make compelling causal inferences about the critical theoretical constituents of these larger grand theories, including notions of status and reputation, the influence of fear on decision making, the basis and endurance of alliances, and other crucial foundational aspects of international relations.

However, starting from the belief that the past can both inform and direct the future, the following discussion proceeds with an overview of some previous important experimental work in international relations. In the following sections, new substantive domains and methodological innovations for pursuing experimental work in international relations in the future will each be discussed in turn.

Past Experimental Work

Several scholars have conducted significant experimental work in international relations. Rather than provide a mere chronology of experimental findings, this discussion will primarily center on basic topics of research undertaken using this method in this area. This organization reflects not only the accomplishments of particularly dedicated experimenters, but also emphasizes the critical way in which experimental research aggregates and accumulates reliable findings as experimenters replicate, vary, extend, clarify, and refine basic experimental paradigms in order to uncover the dimensions and contexts of human decision-making processes in particular.

Simulated Arms Races, Negotiations, and Prospects for Conflict or Cooperation

One of the earliest scholars to undertake experimental research in the area of international politics was Morton Deutsch (Deutsch, Epstein, Canavan, and Gumpert 1967). In work that presages subsequent game theory in many ways, Deutsch and his colleagues were particularly interested in learning ways to encourage cooperation between individuals and states. This explicit concern with applied questions reflected an early defining characteristic of political psychology (Deutsch 1983); the often liberal bias inherent in the nature of these questions has remained a recurrent cause of concern for some (Tetlock 1994). Nonetheless, several characteristics of Deutsch's early studies carried forward to heavily influence the nature and topics explored in future experiments in this area by others. Specifically, Deutsch et al. (1967)'s early work investigated five different behavioral strategies in a two-person laboratory game using a confederate responder. Subsequent researchers did not commonly employ accomplices to conduct their experiments, especially once the nondeception norms favored by behavioral economists, but continually rejected by psychologists, came to the fore. However, the use of dyadic games became a quickly established mechanism by which to study individual decision making in conflictual situations.

The substantive domain in which this kind of study found its most common expression lay in the area of arms race simulation, arms control negotiations, and other related bargaining issues. An early experimental study by Bonham (1971) simulated international arms control negotiations. Bonham used all male subjects in a study, which experimentally manipulated the degree and type of disagreement between participants; in one condition, subjects were asked to emphasize arms reductions, in another to focus on verification issues, while a third condition remained a neutral control. In an innovation that became common in subsequent experimental work, Bonham asked subjects to role play

leaders in particular positions of decision-making influence, in this case arms control negotiators for Great Britain, the United States, and the Soviet Union. Although participants in this study interacted as teams rather than individuals, this study was noteworthy for the lengthy span of interaction; each run lasted 4 hours or so. In this day and age of the standard 1-hour experiment, more extended engagement offered the opportunity for real histories between actors to develop over the course of play. Bonham found that participants who received instructions that differed in their emphasis increased the negative affect and hostility between them and were less likely to make concessions, or reach agreement, than groups which espoused similar emphases.

Subsequent work by Pilisuk (1984) also experimented with a simulated arms race dilemma. Reflecting the model established earlier by Deutsch et al. (1967), Pilisuk employed a modified two-person prisoner's dilemma game, which allowed participants to request, as well as refuse, inspection by the other side. In this experiment, players were allowed the opportunity to engage in a ''sudden death'' pre-emptive surprise attack. Five different conditions manipulated the extent to which a subject could control these options. Again drawing on the example provided by Deutsch et al. (1967), Pilisuk additionally introduced a stooge respondent to better control subjects' behaviors in some rounds. This study found a tendency for subjects to engage in a pre-emptive attack out of fear of their adversary, even when their chances of successful attack were essentially nil. Further, validating Axelrod's (1984) famous computer tournament, Pilisuk reported that consistent tit-for-tat or conciliatory strategies on the part of the confederate did in fact encourage cooperation on the part of the subject. He surmised that ''the desire for competitive advantage frequently found useful in explaining game data…may actually be fear of the other's taking competitive advantage of oneself'' (1984:313). He concluded by advocating the importance of full communication between participants to reduce the chances for unintentional conflict. Although he does not discuss his findings in terms of its implications for a realist world vision, the analogies seem clear.

The nature and importance of communication between participants have concerned others who have conducted experimental tests in international relations as well. Combining traditions by investigating groups, as Bonham (1971) did, with a modified prisoner's dilemma game, like Deutsch et al. (1967) employed, Majeski and Fricks (1995) examined the effect of communication on participants' willingness to cooperate. In findings that reflect Pilisuk's (1984), these authors report that communication encourages group cooperation and decreases defection. In addition, also mirroring Pilisuk (1984), they argue that subjects appear motivated by fear of their opponent, and communications function to reduce that level of fear. However, interestingly, they also note a small subset of groups who seem motivated by greed, and these groups remain less positively effected by communication. Further experimental characterization of the sources for the individual variance between those motivated to attack based on fear as opposed to greed offers an intriguing possibility for future research; a study might combine formal modeling with experimental testing and refinement to determine differential genotypes of actors.

In a sophisticated variant on these negotiation experiments, Druckman (1993) conducted a simulated international negotiation on environmental regulation. In this study, participants were asked to negotiate the regulation of greenhouse gases that contribute to the depletion of the ozone layer and thus stimulate global warming. Druckman ran his experiment using two international groups: one composed of scientists and a second comprised of diplomats. Obviously, the representative, highly placed nature of this subject pool allows for higher levels of generalizability to real-world proceedings. Druckman's primary concern centered on the influence of various factors in encouraging flexibility in negotiation; these

factors included issues, background, context, structure of the conference, the negotiating team, and the immediate situation. Druckman was able to vary several of these factors in concert, obtaining strong effects of these variables on bargaining position across several stages of decision making.

Experiments in War and Crisis Simulations

The attempt to understand the psychological processes and predispositions leading to cooperation or conflict in experimental contexts has been broadened by several researchers to examine how similar dynamics come into play in the context of crises or decisions to go to war. Francis Beer and his colleagues and Jonathan Wilkenfeld and his collaborators have conducted an impressive accumulation of studies in this domain.

In experimental studies that seek to examine the interaction of personality variables with the international environment, Beer and colleagues have conducted several studies that manipulate priming in the context of simulated international crises and explore the interaction of this effect with certain personality predispositions. In one study, Beer, Healy, Sinclair, and Bourne (1987) employed a fictional dispute between two countries modeled after the Falklands–Malvinas crisis. The experimenters administered a standard personality test designed to elicit differences on a dominant-submissive continuum. In one condition, they presented a prime reminiscent of World War I, and to a second group, they offered an alternative prime evocative of World War II, while a third group received no vignette. They reported an interesting interaction effect in their findings, such that personality differences proved significant only when activated by a corresponding prime. In other words, dominant personalities became more conflictual, and submissive personalities more cooperative, when primed by corresponding war-related materials.

In a second variation on this paradigm, Beer, Sinclair, Healy, and Bourne (1995) reported provocative gender differences in examining the impact of a peace treaty on the likelihood of subsequent conflict. Using a priming manipulation that simulated ''news flashes'' concerning conflict between two fictional countries, Afslandia and Bagumba, the experimenters informed subjects of continuing hostile action between these belligerents. In one condition, subjects were told that these countries had signed a prior peace treaty, while in a second condition no such information was given. Subjects were asked to make a decision about an appropriate foreign policy action over the course of five rounds, each interspersed with a news flash indicating continuing hostile action between the countries. Interestingly, the existence of the peace treaty had little overall influence on subject choice. However, a significant gender interaction emerged. Women confronted with a situation of conflict in the absence of a peace treaty and men presented with the same conflict in the presence of a prior peace accord advocated more conflictual action, while women in the peace treaty condition and men in the condition without one urged greater cooperative action. This study also replicated the authors' earlier findings concerning personality, with more dominant subjects making more conflictual choices in general.

In a more recent variant of this study, Healy, Hoffman, Beer, and Bourne (2002) applied their earlier experimental paradigm to the new domain of terrorism. In examining individual reaction to international terrorist attacks, the authors reported that participants escalated conflict in response to repeated attacks, but such response was greater in the case of a terrorist attack as opposed to a military attack; when terror attacks were made against military as opposed to civilian targets, such response was exacerbated. Another intriguing gender difference emerged in this work as well, with men responding more forcefully to a terrorist attack by a democratic country than a nondemocratic one, and women

demonstrating the reverse effect. Again, dominant personalities showed more conflictual responses. Beer and colleagues' research nicely reflects one of the comparative values of experimental research. Specifically, these authors have replicated findings concerning gender and personality effects, while extending the applicability of the relevant psychological processes into wider domains, from decisions to initiate or escalate conflict to responses to terrorist attacks.

Other scholars have also sought to experimentally examine the effects of priming and terrorism. Schafer (1997) experimentally manipulated priming images to examine the impact of history and perceived cultural differences on propensities for cooperation and conflict in subsequent attitudes and behaviors. Schafer found that such priming images do make a difference. Specifically, he reported that in situations where the historical relationship appeared hostile, subjects held more negative attitudes toward their adversaries and engaged in more conflict with them. Similarly, cultural differences also led to more negative attitudes but only resulted in more negative behavior in the context of a hostile historical relationship. The discovery of a contingent relationship, uncovered by controlling each element individually, demonstrates one of the comparative advantages of the experimental method.

Although they did not use priming, Herrmann, Voss, Schooler, and Ciarrochi (1997) also experimentally examined the impact of images on policy decisions involving issues in international relations. By exploring the impact of four specific images—enemy, ally, colony, and degenerate—these authors found that three of these images represented powerful cognitive schemas which, in combination with affect, did exert an impact on policy choices directed toward those who activated the enemy image in particular.

In a recent experimental study of the influence of personal experience in responding to terrorist attacks, Yechiam, Barron, and Erev (2005) found that local residents of an attacked area appeared less sensitive to the risk of terrorist attack than international tourists. Interestingly, they also found that the already diminished sensitivity of local residents to attacks declined even further over time, even when such attacks persisted. Based on an experimental rendering of this basic phenomenon, the authors posited that single-shot decision making renders individuals more risk averse, at least in this context of personal security in the face of terrorist attack. Iterated exposure appears to ameliorate this caution.

Jonathan Wilkenfeld, along with students and colleagues, has also undertaken an ambitious experimental agenda designed to investigate negotiation within a crisis setting. In one study, Kraus, Wilkenfeld, Harris, and Blake (1992) explored the dimensions of time, information, and the various preferences of participants in a hostage crisis simulation. The crisis simulation involved a commercial airline from Egypt to Israel that was hijacked with American passengers aboard. Subjects were then asked to negotiate a resolution to this crisis based on a choice between specific options. One of the findings that the authors reported was that subjects with access to decision support systems outperformed those without such support. In a later attempt to develop an automated negotiator for research and training purposes, Kraus and Wilkenfeld (1993) reported a strategic negotiation model which they used to test the influence of conflicting objectives and time pressures on bargaining. In this model, players had the option to opt out of play if they so desired. Wilkenfeld and Kaufman (1993) also advocated the use of the negotiation simulators like ICONS (International Communication and Negotiation Simulation) for teaching as well as for experimentation and training purposes. In a more recent investigation into crisis negotiations, Santmire, Wilkenfeld, Kraus, Holley, Santmire, and Gleditsch (1998) examined the impact of cognitive complexity on negotiated outcomes. Using a version of the earlier-mentioned hostage crisis simulation, subjects used a computer decision support

system to make their decisions. The authors reported that homogeneity in cognitive complexity significantly related to positive outcomes in crisis negotiations. This reflects the invocation of similar decision board platforms in other subfields, such as that pioneered by David Redlawsk and Richard Lau in the area of American politics and voting decisions.

Rose McDermott and Jonathan Cowden have also conducted a series of experiments using simulated crisis games. In many ways, this work can be seen as an intellectual grandchild of the pioneering experiments conducted by Deutsch et al. (1967). These simulations examined individual decision making within dyadic contexts and asked participants to role play leaders of countries involved in a territorial dispute. In this paradigm, subjects could buy weapons or invest in industrial infrastructure as they negotiated to resolve a crisis over several rounds of play. They were allowed to communicate with each other through written messages. They could negotiate or fight, and dependent variables included the rate of arms acquisition and whether participants resolved the conflict through negotiation or war. There was no dominant strategy for victory in the game.

Initial work demonstrated sex differences in aggression, reflecting similar differences found by Beer et al. (1987). In these experiments, women spent less money on weapons and were less likely to go to war (McDermott and Cowden 2001). In a subsequent experiment, McDermott, Cowden, and Koopman (2002) demonstrated the impact of framing and communication on hostile interactions between participants, validating earlier work by Pilisuk (1984) and Majeski and Fricks (1995) which demonstrated the impact of communications on prospects for cooperation. Later work refined and contextualized the sex differences found in earlier work by examining hormonal indicators such as testosterone and cortisol levels in saliva as subjects responded to the crises and challenges they confronted (Johnson 2006).

Foreign Policy Analysis Decision-Making Experiments

Several scholars have attempted to broaden experimental work in international relations to examine the process of foreign policy decision making itself. In this area, Alex Mintz, Nehemiah Geva and their students and colleagues have established themselves as leaders, although others have conducted interesting and important work in this area as well. Notable in this area is a study conducted by Sylvan, Ostrom, and Gannon (1994) examining individuals' preferred reasoning strategies in foreign policy decision making. Comparing case-based, model-based, and explanation-based styles using creative thought checking and think aloud experimental protocols, the authors found that explanation-based reasoning emerged as the most common form of foreign policy choice.

Experimental investigations into broader concepts in foreign policy decision making have tended to examine various aspects of the cognitive calculus and poliheuristic models. In one experimental test of the cognitive calculus of foreign policy decision making conducted by Geva, Mayhar, and Skorick (2000), subjects confronted a crisis based on the 1975 Mayaguez incident. The authors found that, not surprisingly, subjects paid more attention to relevant than irrelevant factors in making their decisions, and, more surprisingly, that relevance increased the speed of decision making. Further, they reported that the valence (i.e., for or against) of relevant factors encouraged corresponding items to be chosen. In related work, Astorino-Courtois (2000) experimentally manipulated salience in the form of decision stakes and potential threat to examine how decision makers decided to obtain information using four different foreign policy scenarios. Interestingly, she found that higher stakes imposed more rational decision-making strategies among decision makers, whereas more heuristic decision

making predominated under lower stakes conditions. In addition, high stakes exacerbated threat effects.

Additional work undertaken by Mintz and Geva (1993) also experimentally examined the democratic peace paradigm. The democratic peace, along with other regime type influences, offers an ideal opportunity for experimental methodology to help resolve ongoing debates concerning underlying causal processes. Since the democratic peace literature offers competing reasons for why democracies do not fight each other, experimental tests can help clarify these alternative explanations. In this study, American students, American adults, and Israeli students participated in three experiments exploring their willingness to use force against a democracy or a nondemocracy in a crisis setting. The authors found that support for the use of force against a democracy proved much less robust than support for action against a nondemocracy across subject pools, suggesting that at least part of the reason democratic leaders do not fight against other democracies is because leaders have little political incentive to do so. In a follow-up study, Geva and Hanson (1999) examined the impact of cultural factors and foreign policy actions on subjects' perceptions and willingness to use force. In this variation, the authors reported that cultural factors did exert an influence on subjects' perception of a particular regime. In particular, the perceived similarity of the target state and their foreign policy actions significantly predicted not only perceptions of the regime, but also willingness to use force against it.

Some of the most extensive, important, and sophisticated experimental work in international relations has been conducted by Alex Mintz and his collaborators in explicating the poliheuristic theory of decision making (Mintz and Geva 1993; Mintz, Geva, Redd, and Carnes 1997; Mintz 2003, 2004a). Mintz (2004b) conducted an experiment with high-ranking military officers at the US Air Force Academy to examine their decision-making strategies in familiar and unfamiliar situations. He found that these leaders proved quite sensitive to negative political advice in accordance with the noncompensatory principle of political decision making, even when such sensitivity precluded making the optimal choice. In addition, Mintz found support for his poliheuristic theory of decision making through a careful demonstration of the way that decision makers engaged in a two-step process by which they evaluated various dimensions of a problem first (i.e., political, military, etc.) and then searched for specific alternatives second. Unfamiliar settings exacerbated these tendencies. This work is especially noteworthy for its use of a subject pool, which clearly represents the very people whose decisions foreign policy analysts hope to explain and predict.

New Directions

This section discusses promising areas for further future experimental exploration of important dynamics in international relations in two arenas. First, new substantive domains in experimental work in international relations are explored. In particular, research into cross-cultural manifestations of basic psychological processes, investigations into the underlying dynamics of identity construction, transformation, and rejection, and experimental explorations into such topics as regime type, coalitions and alliances, status competition, time horizons, and emotion appear to be particularly promising. Second, several methodological innovations now allow unprecedented access to basic biological, genetic, and neuro-cognitive processes. To the extent that scholars are interested in beginning to explore these areas more fully, many new opportunities and possibilities for interdisciplinary collaboration await. Finally, theoretical cohesion is coalescing across many areas of the social sciences around the influential role of evolutionary pressures on basic human decision-making strategies and phenomenon. This theoretical perspective offers a novel lens through which to generate

new hypotheses and research ideas The new techniques offer novel possibilities for *how* to do experimental research, an evolutionary approach provides a different perspective on *why* individuals may think and act as they do, and the new substantive domains explore *what* scholars might study experimentally.

Exploring New Substantive Domains

This section suggests some interesting topics for future exploration by those interested in developing new experimental domains in international relations. Not all of these topics need to be investigated using sophisticated methodologies, nor does any one of them need to reflect any particular theoretical perspective. Many of these topics reflect important phenomenon in international politics that simply have not been previously explored using experimental methodology. Experimental methodology proves most useful when investigators desire the ability to draw clear causal inferences, seek to resolve discrepancies in findings reported using alternative methodologies, or wish to uncover underlying micro-foundational psychological processes in particular (McDermott 2002). Topics ripe for greater experimental attention, and those which might benefit most from its application, include cross-cultural work, research in identity, explorations into the effect of regime type on foreign policy outcomes, alliances and coalition politics, investigations into the impact of status competition and time horizons on decision making and the effect of emotion on decision making. Each of these will be discussed in turn below.

Much has been made in the popular press about the so-called clash of civilizations between Middle Eastern and Western cultures as a potential source of conflict underlying terrorism (Huntington 1998). Yet little experimental work has been done in this area. Some experimental research has been conducted in psychology examining differences between Eastern and Western cultures, but inconsistent findings in this regard call into question the generalizability of the results. Most notably, Richard Nisbett and colleagues conducted a clever experiment on the culture of honor, which demonstrated that Southern white men in the United States were more reactive to verbal and physical insults than their Northern counterparts (Cohen, Nisbett, Bowdle, and Schwartz 1996). Their study showed that Southern men demonstrated increased cortisol and testosterone levels after being bumped and insulted by a confederate, and were more likely to respond in aggressive and dominant ways to this staged humiliation. Cohen and Nisbett speculated that this culture of honor among Southern men derived from their heritage, since most descended from pastoral farmers in Northern Scotland and Ireland; this interpretation has encountered criticism. But the experiment itself represents a very intriguing operationalization of a cultural phenomenon that can prove challenging to define and explicate (Nisbett and Cohen 1996). Nisbett (2003) has gone on to conduct experimental research designed to compare East Asian, particularly Japanese, and Western cultures. He suggests that Westerners tend toward an analytic mode of thought while Japanese and other East Asian cultures espouse what he terms holistic modes of thought. This work too has met with some fierce criticism. Further research into how particular cultural conditions may affect the expression of certain emotions and decision-making styles and processes could help inform international relations scholars about such topics as bargaining and negotiating styles. In addition, such research can also help illuminate the ways in which leaders and states learn appropriate strategies, behaviors, tactics and responses from various aspects of the international environment, including other states, non-governmental organizations, multi-national corporations, and more informal advocacy networks.

Similarly, work on identity has historically been under-theorized in general. While experimental work in social psychology has developed a model of social

identity theory (Tajfel 1982), which explicates certain facets of the relationship between in-group and out-group members, little experimental work has been conducted concerning how people choose their identities to begin with from among different possibilities, how they transform those identities in the wake of experience and relationships, how they weigh the relative importance of competing identities, and how they discard identities that may cease to be useful at some point. Social identity theory postulates that individuals join groups at least in part to bolster self-esteem, garnering a sense of belonging by shared communities with others. These basic identities then lead individuals to simultaneously over-value in-group members, while tending to discriminate against out-group members. But if social and political scientists are to understand the relative import of overlapping identities on individual or group attitudes and behavior or leader decision making, for example, a great deal more work needs to be undertaken to examine these dynamics. Do some identities, for example, trump others in capturing individual loyalty? Are some identities more immutable than others? Can changes in the external environment precipitate shifts in identity which lead to the advocacy of different positions in policy choices, attitudes, and behavior? Systematic experimental work, refined and aggregated across different aspects of identity, could help illuminate some of these dynamics more fully.

One of the kinds of identity that may hold particular interest for international relations scholars relates to regime type. As noted above, Mintz and Geva (1993) have conducted experimental research into some of the foundations of the democratic peace. But related work could be conducted to further explore the important reciprocal relationships between regime type and individual behavior. A classic experiment in social psychology illustrates the potential offered by this kind of work. In 1939, Lewin, Lippitt, and White sought to explore the impact of leadership style on individual behavior. He and his colleagues divided boys into three groups, and a confederate leader was put in charge of each group to direct them in differing ways. In one group, the experimenters imposed a totalitarian leader, who closely supervised all the boys' actions. In a second group, a laissez-faire leader let the boys do whatever they wanted. The third group had a democratic leader, who allowed the boys a certain amount of decision-making autonomy. The results were striking. While boys in the authoritarian group indeed worked the hardest, they did so only when under surveillance by the group leader. More significantly, boys in this condition displayed over thirty times more aggressive behavior than boys in either of the other two conditions. In particular, boys in the totalitarian group scapegoated weaker members in their own group and destroyed their own property. Boys in the democratic group showed the most creativity and group loyalty. Experimental work, which builds on similar strategies designed to explore the impact of leadership style and regime type on various political outcomes, could prove similarly stimulating and insightful.

Another area worthy of experimental exploration in international relations concerns the establishment and maintenance of alliances and coalitions, both between individuals and groups. For example, it should prove profitable to experimentally test hypotheses derived from work with non-human primates on coaltionary killing to investigate some of the motives for group conflict in humans as well. In particular, Wrangham (1999) has suggested that two conditions appear necessary and sufficient to prompt intergroup coalition killing in chimpanzees and wolves. These include a state of hostility between groups, often founded on conflict over scarce resources, as well as a sufficient imbalance of power so as to allow such killing with impunity. The critical ratio appears to be three to one to prompt such coalitionary aggression. While obviously it would be impossible and unethical to test such extreme outcomes experimentally, it is not difficult to construct proxies for such outcomes, which in the real world may

take the form of a coup or other kind of forced overthrow of leadership through elections. Specifically, an experimental adaptation of the popular television ''survival'' paradigm might work to examine how individuals decide to eliminate other group members by voting them out of the group, or otherwise affect their decisions regarding the distribution of resources within the group. Such an experimental program could provide a great deal of insight into the processes involved in the formation, maintenance, and dissolution of all kinds of coalitions and alliances, including those in domestic political institutions, such as Congress.

Status competition provides another opportunity to explore a universal phenomenon with implications for international political rivalries. While it may prove difficult to examine the effect of status competition on state behavior directly, it is not unusual for international relations scholars to talk about reputation (Mercer 1996), an assessment that is obviously linked to status. And status competition can be studied in individuals, groups, and organizations (Tiedens, Unzueta, and Young 2007), which provides important insights into leaders' behavior. Specifically, the literature in this area indicates that particularly men in unstable social situations appear to be more likely to engage in dominance behaviors when challenged or threatened, at least partly as a result of elevated testosterone levels (for a good review, see Rosen 2005). Successful domination then results in a subjective sense of well-being, precipitating a greater desire to engage in subsequent conquest in the future. Such a dynamic can stimulate a self-reinforcing cycle of status competition, which manifests more intensely in groups without a stable leader than in individuals acting alone.

Why does this matter for scholars of international relations? First, many unstable groups of men often organize into mercenary groups, which can then easily threaten the stability of the larger nation. Second, unstable social hierarchies provide models for understanding states trying to achieve greater status in the international environment; countries such as Iran and North Korea provide examples of nations trying to achieve these goals in ways which pose a threat to other states. Status hierarchies and competition for primacy at an individual level can provide heuristic models of the kind of jockeying for power that commonly appears among rising states in the international arena. Furthermore, some leaders may seem more likely to react to threats and challenges to their states with aggression and violence than others; insights derived from models of status competition might help illuminate the sources of such individual variance in behavior.

These kinds of dynamics can readily be investigated in experimental contexts. In particular, experimenters can design conflict scenarios that precipitate threats and challenges between participants. Comparing how people may respond differently to challenges they confront alone vs those they face in the context of larger groups can help illuminate the impact of status competition on the propensity for risky or aggressive actions.

Another area where experimental work can help glean insights into decision making involves time horizons, and the propensity for individuals to engage in hyperbolic discounting in intertemporal choice (Loewenstein and Prelec 1992, 1993; Loewenstein 2005). This literature has several interesting and inter-related aspects. First, contrary to normative expectations, people prefer to spread positive outcomes over time, while often demonstrably preferring to receive all their bad news at the same time, or engage in all their bad behavior, sooner. Simply think about how easy it is to finish a carton of ice cream once the diet is broken with the first spoonful. Second, people prove disastrously bad at predicting their future preferences and feelings, particularly if they make a judgment about how they will feel in an emotional state that differs from the one they experience when they are asked to predict their responses; so, for example, it is hard for many to understand in the cold, hard light of the morning with the room spinning around why they engaged in so much debauchery the night before, when

they were no doubt effected by drink, drug, or sexual attraction at the time (Gilbert, Pinel, Wilson, Blumberg, and Wheatley 1998; Loewenstein 2005). Finally, because people tend to focus on the most extreme emotional aspects of an experience, its so-called peak, as well as its endpoint in memory, the length of experience receives less attention than might appear normatively warranted. This bias has been labeled duration neglect (Fredrickson and Kahneman 1993) and will appeal to any scholar seeking to understand how leaders might ignore the expected duration of war by focusing on all the good (peak) that will arise in the wake of victory (end).

The importance of the dynamics underlying relevant perceived time horizons in international relations should appear self-evident to anyone who has followed the difficulty of resolving internecine conflict between groups that hold divergent views of their historical rights and past sufferings and indignities. In Ireland and in the Middle East in particular, it is not unusual for interested parties to discuss events over a 1,000 years ago as immediate and obviously relevant to current negotiations over territorial boundaries, for example. Experimental work can attempt to simulate the momentum of history, memory, and time horizons on processes of bargaining, negotiation, and conflict resolution in particular. While no one can recreate millennial hatreds in the space of contained experimental time, several strategies might overcome this limitation to at least explore some of the more proximate underlying factors spawning conflict. First, iterated experiments can generate internal resentments between participants over time, especially if real resources of value build up over the course of longer periods of time. Second, subject pools with pre-existing strong biases and feelings on particular issues, such as Arabs and Israelis, can be differentially recruited for participation. This strategy imposes more inherent problems because of the potential for contamination within the population, but this technique can offer unique insight into the perceptions of those whose behavior may most likely generalize to larger antagonistic groups. Nisbett, for example, used such a strategy in separating out Northern and Southern men in his culture of honor study. Finally, for more daring experimenters, hypnosis offers a technique that can be used to alter time perspective and other perceptual processes in susceptible populations. Since hypnotizability reflects an inherent characteristic like eye color that varies across individuals, highly hypnotizable individuals would need to be recruited; one of the benefits of utilizing this population is that subjects can then serve as their own controls across mental states in testing various factors.

Finally, examining the impact of specific emotion on decision making represents one of the current state-of-the-art topics of interest in psychology and the cognitive neurosciences. Past assumptions posited emotion as a fly in the ointment of rational decision making, while more recent studies have demonstrated the speed, accuracy, and efficiency that emotion and intuition bring to decision making (Kahneman 2003; McDermott 2004). Conducting experiments that explore the influence of emotion can prove challenging. One of the standard ways to explore the impact of emotion on attitudes and behaviors of interest involves mood manipulation. In these strategies, experimenters employ various techniques to induce particular mood states in subjects. In order to make subjects happy, for example, candy, soda and funny movies can work fairly effectively. Music, movies, or other vivid imagery on computer screens offer alternative ways to induce various mood states in subjects. One of the other standard manipulations designed to put subjects into a particular mood state involves asking people to remember a time in their past that they felt a particular emotion as strongly as they ever have and then ask them to write about the experience, remembering every detail, for about 10–15 minutes. Two common difficulties arise with such strategies. First, investigators need to make sure that subjects actually adopt the mood state of interest by conducting careful

manipulation checks, most often mood questionnaires, in order to properly assess the quality of the induction. Those subjects who are not sufficiently induced should be eliminated from subsequent testing and analysis. Another problem arises because the manipulation check itself can contaminate various aspects of some studies, depending on what is being investigated. Furthermore, mood states induced by these mechanisms can prove relatively short lived, and so manipulation checks should be administered as closely in time as possible to the measure of interest. On the other hand, sometimes bad moods can persist, and experimenters have an ethical obligation to ensure that all subjects leave the experiment in a stable mood; some emotion researchers do this by ending each study with a ''happy'' mood induction, for example by giving out candy at the end of an experiment. Although this is certainly not necessary in all circumstances, adequate debriefing remains a critical component of an ethical study.

Second, as any researcher who has conducted experiments in this area will note, differentiating mood states can prove enormously difficult. Fear often comes mixed with anger, as does sadness. Generating a ''pure'' mood state, in order to ascertain the impact of specific mood states on particular attitudes and behaviors, can prove daunting even under the best of circumstances.

Nonetheless, experiments that examine the effect of mood on various aspects of decision making are possible and worthwhile. Surveys that embed experimental manipulations of various mood indicators may prove illuminating. With large samples, for example, it may be possible to determine the differential impact of mood states on certain demographic populations, such as women, or certain ethnic, religious, or political groups. Are certain groups more likely to support war if they are angry, or other groups if they are afraid? Preliminary evidence indicates, for example, that fear and anger generate different risk acceptance profiles and that these responses often differ by gender as well (Lerner and Keltner 2001). Obviously, further explorations of the way in which specific emotions influence decision making holds much promise for scholars of international relations, not only to examine dimensions of public support and media spin for policies such as war, but also for investigating the ways in which emotion influences the reactions of leaders under conditions of stress and crisis.

Methodological Innovations

Technological advances across a wide array of dimensions in the cognitive neurosciences in particular offer previously unimagined opportunities to open the black box of decision making in revealing ways. These methodological innovations in brain imaging, hormonal analysis, and genetic mapping can be adapted for investigations into important questions in international relations. Much of the application of this technology to this area is relatively new, and scientists are only in the early stages of beginning to employ it for anything but the most simple and basic experiments; nonetheless, progress is being made rapidly, and knowledge of basic brain behavior from the hard sciences will continue to disseminate into the social sciences, including international relations. Clearly, few scholars or experimenters in international relations will necessarily want to avail themselves of these new technologies, or want to invest the time and effort it may take to learn how to use them. However, start-up costs should not preclude interested scholars from engaging in effective collaborations with those who are trained in the proper use of these methods to study topics of mutual interest, such as the nature and structure of trust, deception, cooperation, or aggression. The marriage between economics and neurosciences, resulting in the birth of neuroeconomics, provides a model for the productivity that can be achieved through such an intellectual love affair.

The most important of the technical advances in the area of brain mapping comes from the explosive increase in functional magnetic resonance imaging (fMRI) technology to better understand where in the brain people generate particular kinds of responses, or instigate particular kinds of decisions. Electroencephalogram (EEG) and positive emission topography scans provide alternate and additional ways to map brain functions as well; EEG provides superior temporal resolution to data, while fMRI proves more accurate in specifying the terrain of brain geography. Darren Schreiber and colleagues have used fMRI technology, for example, to investigate the differences in thinking between political novices and sophisticates (Lieberman, Schreiber, and Ochsner 2003). Similarly, Rick Wilson and colleagues have used EEG technology to explore the cognitive differences found in subjects playing dominant and mixed strategy games (Wilson, Stevenson, and Potts 2006).

Other kinds of methodological innovations offer promise for additional advances into the biological and genetic underpinnings of human decision making and behavior. Such opportunities include assays of saliva to ascertain levels of critical hormones, such as testosterone and cortisol. New noninvasive urine tests have recently become available to assess levels of certain hormones as well. In addition, European scholars such as Ernst Fehr, who remain less constrained by the institutional review boards that oversee American studies, manage to administer hormones to subjects in order to watch the impact of such neurochemical modulation on economic game play (Kosfeld, Heinrichs, Zak, Fischerbacher, and Fehr 2005). Such assays may help analysts to understand, for example, how threats to status may provoke aggressive responses toward challengers, depending on both the stability of the social and institutional structure in which leaders operate, as well as individual differences in hormonal levels (Rosen 2005). In addition, such studies can begin to examine more systematically how stress impacts decision making, and whether different forms of stress might differentially affect decision-making processes depending on the nature of the social hierarchy within which leaders and their nations operate (Abbott, Keverne, Bercovitch, Shively, Mendoza, Saltzman, Snowdon, Ziegler, Banjevic, Garland, and Sapolsky 2003). For example, is stress from time pressure equivalent to the kind of stress imposed by decision making which risks high costs to important values? Hormonal studies can also begin to uncover the micro-foundational bases of sex differences in aggression, cooperation, and other behaviors as well.

New technologies also offer the prospect of extracting genetic polymorphisms from saliva samples as well. In particular, biologists can now extract monoamine oxidase and dopamine receptors. The former has been associated with violent and antisocial behavior (McDermott, Tingley, Cowden, Frazzetto, and Johnson 2009), and the latter with personality traits related to novelty seeking. The latter may prove important in the tendency for positive illusions, or optimistic overconfidence in the face of battle in particular (Johnson 2006). In any such study, careful attention to anonymity remains essential in order to guard against the misuse of genetic information; questions of notification of subjects upon the incidental discovery of genetic illnesses or deformities must be resolved prior to subject recruitment.

In addition, it may be possible to experimentally examine the impact of particular genetic components on the kinds of cooperative and competitive behavior of most interest to international relations scholars. For example, if only a minority of military recruits enjoy the more destructive aspects of the job, including killing, while others prefer more constructive re-building tasks, perhaps it might prove advantageous, it not easy politically, to separate these participants into groups tasked with different operations; those who prefer more aggressive action will be less likely to cause havoc if they become bored with nation-building tasks,

while those who might suffer serious mental illness from being forced to kill could find less taxing work. Eye tracking software and other physiological measures such as skin conductance technology can offer similar advantages exploring some additional biological correlates of decision making.

A final technological innovation worth mentioning does not necessarily relate to biological or genetic processes. Morphing technology has been used by Shanto Iyengar and others to investigate how familiarity and similarity affect voter predispositions (Bailenson, Garland, Iyengar, and Yee 2006). Such technology might prove especially beneficial to those wishing to study socially sensitive topics such as racial identity issues in a less obtrusive manner. This technology, which can seamlessly blend images together using computer software, may be profitably employed by experimenters in international relations to examine the way in which various images influence policy preferences and behavioral choices among leaders. Such technology not only offers a more immediate and sophisticated opportunity for scholars to further study the importance of images in international relations, but also offers new ways to examine the impact of particular images, such a flags, or scenes of battle death, or important historical leaders, in generating support for particular policies.

Obviously, technology alone does not a research agenda make, nor should fascination with new toys or methods drive substantive ideas. And I do not advocate such a strategy here. Rather, I suggest that new technology can offer a wider repertoire of methodological options for investigating substantive phenomenon of interest that may have been more difficult to access directly in the past using more obtrusive and blunt means of measurement. Again, most scholars in international relations may not wish to pursue this work in isolation, but collaborative efforts can prove fruitful for all involved, as has already proven to be the case in neuroeconomics.

Conclusions

The rich but relatively limited history of experimentation in international relations demonstrates the real and potential promise of the use of this methodology for interesting and important problems within this substantive domain. New techniques such as functional MRI offer the prospect for increasingly sophisticated investigation into the inner workings of the human brain, offering implications for the study of leadership, followership, religious conviction, and other phenomena of interest. Experimentation offers the opportunity to explore many important substantive new domains which remain either unexplored, or undertheorized, in international relations. Such topics include the impact of cross-cultural variations on political outcomes of interest, including the influence of various regime types on political attitudes and behaviors in certain populations. In addition, experimenters might examine the formation, maintenance, and dissolution of identity, alliances, and coalitions in various group contexts. Investigations into status competition suggest new ways to understand and analyze old questions concerning leader and state conflict. How leaders assimilate the meaning and memory of time, both past and future, can illuminate processes of bargaining, negotiation, and conflict resolution. Such processes likely influence a leader's selection of appropriate historical analogies in making and justifying his decision concerning future action. Leaders who find themselves ill, for example, may try to accomplish too much too quickly in order to leave a lasting legacy, thus precipitating the destruction of their dream, as occurred with the Shah of Iran. On the other hand, leaders mired in the past may prove unable to overcome history to build a more beneficial future, as may have been the case with Arafat toward the end of his life. Finally, although many political scientists have assumed that emotion exerts deleterious effects on decision making, little

systematic work has been conducted to illustrate and document the impact of specific emotions on particular decision. Good experimental work in this area promises a true contribution in understanding how human decision making potentiates certain skills and abilities, while ameliorating others, in the presence of specific emotions. In this way, experimenters can begin to delineate the microfoundational basis of both cooperation and conflict, which constitute the basic psychological mechanisms underlying peace and war.

References

Abbott, D. H., E. B. Keverne, F. B. Bercovitch, C. A. Shively, S. P. Mendoza, W. Saltzman, C. T. Snowdon, T. E. Ziegler, M. Banjevic, T. Garland Jr, and R. M. Sapolsky. (2003) Are Subordinates Always Stressed? A Comparative Analysis of Rank Differences in Cortisol Levels Among Primates. *Hormones and Behavior* 43 (1): 67–82.

Astorino-Courtois, Allison. (2000) The Effects of Stakes and Threat on Foreign Policy Decision-Making. *Political Psychology* 21 (3): 489–510.

Axelrod, Robert. (1984) *The Evolution of Cooperation.* New York: Basic Books.

Bahry, Donna, Mikhail Kosolapov, Galina Kozyreva, and Rick Wilson. (2005) Ethnicity and Trust: Evidence from Russia. *American Political Science Review* 99 (1): 521–532.

Bailenson, Jeremy, Philip Garland, Shanto Iyengar, and Nick Yee. (2006) Transformed Facial Similarity as a Political Cue: A Preliminary Investigation. *Political Psychology* 27 (3): 373–385.

Beer, Francis, Alice Healy, Grant Sinclair, and Lyle Bourne. (1987) War Cues and Foreign Policy Acts. *American Political Science Review* 81 (3): 701–716.

Beer, Francis, Grant Sinclair, Alice Healy, and Lyle Bourne. (1995) Peace Agreement, Intractable Conflict, Escalation Trajectory: A Psychological Laboratory Experiment. *International Studies Quarterly* 39 (3): 297–312.

Bonham, Matthew. (1971) Simulating International Disarmament Negotiations. *The Journal of Conflict Resolution* 15 (3): 299–315.

Campbell, Donald T., and Julian Stanley. (1963) *Experimental and Quasi-Experimental Designs for Research.* Boston: Houghton Mifflin.

Cohen, Dov, Richard Nisbett, Brian Bowdle, and Norbert Schwartz. (1996) Insult, Aggression and the Southern Culture of Honor: An ''Experimental Ethnography.'' *Journal of Personality and Social Psychology* 70 (5): 945–960.

Cook, Thomas, and Donald Campbell. (1979) *Quasi-Experimentation: Design and Analysis Issues for Field Settings.* Boston: Houghton Mifflin.

Deutsch, Morton. (1983) What Is Political Psychology? *International Social Science Journal* 35: 221–236.

Deutsch, Morton, Yakov Epstein, Donnah Canavan, and Peter Gumpert. (1967) Strategies of Inducing Cooperation: An Experimental Study. *The Journal of Conflict Resolution* 11 (3): 345–360.

Druckman, Daniel. (1993) The Situational Levers of Negotiating Flexibility. *The Journal of Conflict Resolution* 37 (2): 236–276.

Druckman, James N., Donald P. Green, James H. Kuklinski, and Arthur Lupia. (2006) The Growth and Development of Experimental Research Political Science. *American Political Science Review* 100 (4): 627–636.

Falk, Armin, and James Heckman. (2009) Lab Experiments Are a Major Source of Knowledge in the Social Sciences. *Science* 326: 535–538.

Fredrickson, Barbara, and Daniel Kahneman. (1993) Duration Neglect in Retrospective Evaluation of Affective Episodes. *Journal of Personality and Social Psychology* 65 (1): 45–55.

Gerber, Alan S., and Donald P. Green. (2008) Field Experiments and Natural Experiments. In *Oxford Handbook of Political Methodology*, edited by Janet M. Box-Steffensmeier, Henry E. Brady, and David Collier. New York: Oxford University Press.

Geva, Nehemia, and Christopher Hanson. (1999) Cultural Similarity, Foreign Policy Actions, and Regime Perception: An Experimental Study of International Cues and Democratic Peace. *Political Psychology* 20 (4): 803–827.

Geva, Nehemiah, James Mayhar, and J. Mark Skorick. (2000) The Cognitive Calculus of Foreign Policy Decision Making: An Experimental Assessment. *The Journal of Conflict Resolution* 44 (4): 447–471.

Gilbert, Daniel, Elizabeth Pinel, Timothy Wilson, Stephen Blumberg, and Thalia Wheatley. (1998) Immune Neglect: A Source of Durability Bias in Affective Forecasting. *Journal of Personality and Social Psychology* 75: 617–638.

GOSNELL, HAROLD F. (1926) An Experiment in the Stimulation of Voting. *American Political Science Review* 20 (4): 869–874.

HEALY, ALICE, JOSHUA HOFFMAN, FRANCIS BEER, AND LYLE BOURNE. (2002) Terrorists and Democrats: Individual Reactions to International Attacks. *Political Psychology* 23 (3): 439–467.

HERRMANN, RICHARD, JAMES VOSS, TONYA SCHOOLER, AND JOSEPH CIARROCHI. (1997) Images in International Relations: An Experimental Test of Cognitive Schemata. *International Studies Quarterly* 41 (3): 403–433.

HUNTINGTON, SAMUEL. (1998) *The Clash of Civilizations and the Remaking of World Order.* New York: Simon and Schuster.

JOHNSON, DOMINIC. (2006) *Overconfidence and War: The Havoc and Glory of Positive Illusions.* Cambridge, MA: Harvard University Press.

KAHNEMAN, DANIEL. (2003) Maps of Bounded Rationality: Psychology for Behavioral Economics. *American Economic Review* 93 (5): 1449–1475.

KOSFELD, MICHAEL, MARKUS HEINRICHS, PAUL ZAK, URS FISCHERBACHER, AND ERNST FEHR. (2005) Oxytocin Increases Trust in Humans. *Nature* 435 (7042): 673–676.

KRAUS, SARIT, AND JONATHAN WILKENFELD. (1993) A Strategic Negotiations Model with Applications to an International Crisis. *IEEE Transactions on Systems, Man and Cybernetics* 23 (1): 313–323.

KRAUS, SARIT, JONATHAN WILKENFELD, MICHAEL HARRIS, AND ELIZABETH BLAKE. (1992) The Hostage Crisis Simulation. *Simulation & Gaming* 23 (4): 398–416.

KUKLINSKI, JAMES, PAUL SNIDERMAN, KATHLEEN KNIGHT, THOMAS PIAZZA, PHILIP E. TETLOCK, GORDON R. LAWRENCE, AND BARBARA MELLERS. (1997) Racial Prejudice and Attitudes Toward Affirmative Action. *American Journal of Political Science* 41: 402–419.

LERNER, JENNIFER, AND DACHER KELTNER. (2001) Fear, Anger and Risk. *Journal of Personality and Social Psychology* 81 (1): 146–159.

LEWIN, KURT, RONALD LIPPETT, AND RALPH K. WHITE. (1939) Patterns of Aggressive Behavior in Experimentally Created ''Social Climates.'' *Journal of Social Psychology* 10: 271–299.

LIEBERMAN, MATTHEW, DARREN SCHREIBER, AND KEVIN OCHSNER. (2003) Is Political Cognition Like Riding a Bicycle? How Cognitive Neuroscience Can Inform Thinking on Political Thinking. *Political Psychology* 24 (4): 681–704.

LOEWENSTEIN, GEORGE. (2005) Hot-Cold Empathy Gap and Medical Decision Making. *Health Psychology* 24 (4, Supplement): S49–S56.

LOEWENSTEIN, GEORGE, AND DRAZEN PRELEC. (1992) Anomalies in Intertemporal Choice. *Quarterly Journal of Economics* 107 (2): 573–597.

LOEWENSTEIN, GEORGE, AND DRAZEN PRELEC. (1993) Preferences for Sequences of Outcomes. *Psychological Review* 100 (1): 91–108.

MAJESKI, STEPHEN, AND SHANE FRICKS. (1995) Conflict and Cooperation in International Relations. *The Journal of Conflict Resolution* 39 (4): 622–645.

MCDERMOTT, ROSE. (2002) Experimental Methods in Political Science. *Annual Review of Political Science* 5: 31–61.

MCDERMOTT, R. (2004) The Feeling of Rationality: The Meaning of Neuroscience for Political Science. *Perspectives on Politics* 2 (4): 691–706.

MCDERMOTT, ROSE, AND JONATHAN COWDEN. (2001) The Effect of Uncertainty and Sex in a Crisis Simulation Game. *International Interactions* 27: 353–380.

MCDERMOTT, ROSE, JONATHAN COWDEN, AND CHERYL KOOPMAN. (2002) Framing, Uncertainty and Hostile Communications in a Crisis Experiment. *Political Psychology* 23 (1): 133–149.

MCDERMOTT, ROSE, DUSTIN TINGLEY, JONATHAN COWDEN, GIOVANNI FRAZZETTO, AND DOMINIC JOHNSON. (2009) Monoamine Oxidase A (MAOA) Predicts Behavioral Aggression Following Provocation. *Proceedings of the National Academy of Sciences* 106 (7): 2118–2123.

MERCER, JONATHAN. (1996) *Reputation and International Politics.* Ithaca, NY: Cornell University Press.

MINTZ, ALEX. (2003) *Integrating Cognitive and Rational Theories of Foreign Policy Decision Making.* New York: Palgrave Macmillan.

MINTZ, ALEX. (2004a) Foreign Policy Decision Making in Familiar and Unfamiliar Settings. *The Journal of Conflict Resolution* 48 (1): 49–62.

MINTZ, ALEX. (2004b) How Do Leaders Make Decisions? A Poliheuristic Perspective. *The Journal of Conflict Resolution* 48 (1): 3–13.

MINTZ, ALEX, AND NEHEMIAH GEVA. (1993) Why Don't Democracies Fight Each Other? An Experimental Study. *The Journal of Conflict Resolution* 37 (3): 484–503.

MINTZ, ALEX, NEHEMIAH GEVA, STEVEN REDD, AND AMY CARNES. (1997) The Effect of Dynamic and Static Choice Sets on Political Decision Making: An Analysis Using the Decision Board Platform. *American Political Science Review* 91: 553–566.

NISBETT, RICHARD. (2003) *The Geography of Thought: How Asians and Westerners Think Differently… and Why.* New York: Free Press.

NISBETT, RICHARD, AND DOV COHEN. (1996) *The Culture of Violence: The Psychology of Violence in the South.* Boulder: Westview Press.

PETERSON, S., AND M. TIERNEY, WITH D. MALINIAK (2005) Teaching and Research Practices, Views in the Discipline, and Policy Attitudes of International Relations Faculty at US Colleges and Universities. Available at http://mjtier.people.wm.edu/intlpolitics/teaching/papers.php. (Accessed March 23, 2011.)

PILISUK, MARC. (1984) Experimenting With the Arms Race. *The Journal of Conflict Resolution* 28 (2): 296–315.

DE ROOIJ, ELINE A., DONALD P. GREEN, AND ALAN S. GERBER. (2009) Field Experiments on Political Behavior and Collective Action. *Annual Review of Political Science* 12: 389–395.

ROSEN, STEPHEN. (2005) *War and Human Nature.* Princeton, NJ: Princeton University Press.

SANTMIRE, TARA, JONATHAN WILKENFELD, SARIT KRAUS, KIM HOLLEY, TONI SANTMIRE, AND KRISTIAN GLEDITSCH. (1998) The Impact of Cognitive Diversity on Crisis Negotiations. *Political Psychology* 19 (4): 721–748.

SCHAFER, MARK. (1997) Images and Policy Preferences. *Political Psychology* 18 (4): 813–829.

SYLVAN, DONALD, THOMAS OSTROM, AND KATHERINE GANNON. (1994) Case-based, Model-based, and Explanation-based Styles of Reasoning in Foreign Policy. *International Studies Quarterly* 38 (1): 61–90.

TAJFEL, HENRI. (1982) Social Psychology of Intergroup Relations. *Annual Review of Psychology* 33: 1–39.

TETLOCK, PHILIP. (1994) Political Psychology or Politicized Psychology: Is the Road to Scientific Hell Paved with Good Intentions? *Political Psychology* 15: 509–529.

TIEDENS, L. Z., M. M. UNZUETA, AND M. J. YOUNG. (2007) The Desire for Hierarchy? The Motivated Perception of Dominance Complementarity in Task Partners. *Journal of Personality and Social Psychology* 93: 402–414.

WILKENFELD, JONATHAN, AND JOYCE KAUFMAN. (1993) Political Science: Network Simulation in International Politics. *Social Science Computer Review* 11 (4): 464–476.

WILSON, RICK, RANDOLPH STEVENSON, AND GEOFFREY POTTS. (2006) Brain Activity in Dominant and Mixed Strategy Games. *Political Psychology* 27 (3): 459–478.

WRANGHAM, RICHARD. (1999) Evolution of Coalitionary Killing. *Yearbook of Physical Anthropology* 42: 1–30.

YECHIAM, ELDAD, GREG BARRON, AND IDO EREV. (2005) The Role of Personal Experience in Contributing to Different Patterns of Response to Rare Terrorist Attacks. *The Journal of Conflict Resolution* 49 (3): 430–439.