Simulating Terrorism: Credible Commitment, Costly Signaling, and Strategic Behavior

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ABSTRACT We present two simulations designed to convey the strategic nature of terrorism and counterterrorism. The first is a simulated hostage crisis, designed primarily to illustrate the concepts of credible commitment and costly signaling. The second explores high-level decision making of both a terrorist group and the state, and is designed to highlight scarce-resource allocation and organizational dynamics. The simulations should be useful both in a traditional classroom setting as well as to the larger public. We provide a primer on the subject matter, and all the material necessary to run the simulations.

With ever-growing interest in the topic of terrorism has come a concomitant student interest in terrorism as an academic subject. This is a development that we, as educators, should welcome, both for its own sake and as a prescription against facile policy responses to terrorist activity from all political angles. Yet this development presents particular pedagogical problems for those conducting courses in terrorism: students typically come to class with strong views on the subject, colored by media attention that rarely if ever addresses the topic in a balanced manner. Further complicating matters is the disconnect between public discussions of terrorism, focusing on the apparent perpetrators, death tolls, and the "strength" of state responses, and the academic literature, which in recent years has addressed the role of such complex concepts as credible commitment, costly signaling, and agency problems. Students expecting atheoretical descriptions of attacks and outcomes are not only likely to be disappointed by an abstract discussion of the commitment problem; they are also likely to experience diminished learning outcomes.

We believe one solution to this unfortunate response is the in-class simulation, in which students take on the roles of terrorist group members, state officials, members of the media, and the public at large. Placed at the beginning of a class unit, these simulations can provide an accessible motivation for the more abstract material to follow. Placed as a coda to conceptual material, they can provide reinforcement and an illustration of how said material affects real-world decision making and outcomes.

Both of these roles become particularly important when discussing strategic concepts, often based on game-theoretic reasoning.[1] Most political science undergraduate majors will not have had prior training in game theory, and many instructors will not want to take the class time to provide this training, resulting in either student confusion about concepts, or the absence of these concepts from the curriculum. In-class simulations elide this problem by introducing students to the practical application of strategic notions in precisely the context in which they arise in the real world, giving students a referent when discussing strategic theories in the abstract.[2] Beyond these positive attributes, classroom simulations can also increase student learning and interest in core concepts of international relations. Using student evaluations, Shellman and Turan (2006) find that a simulation increased student interest in topics in international relations. In addition, a vast majority of participants reported that participating in a simulation enhanced their understanding of international relations. Using control and treatment groups, Powner and Allendoerfer (2008) find that active learning (i.e., either discussion or simulation) improved student performance on assessments.[3]

In what follows, we present two in-class simulations that we hope will be useful to instructors of terrorism courses. The first is a simulated hostage crisis, designed primarily to convey the concepts of credible commitment and costly signaling. Students are broken up into groups corresponding to a band of terrorists, governmental leadership for two different states, two or more media groups, and the public of the state whose nationals have been kidnapped. Within each group are roles that are further specified, making this simulation effective for even large (50-plus person) classes.

The second simulation examines high-level decision making of both a terrorist group and the state. The former seeks to

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accomplish successful attacks, while the latter looks to prevent the same. Each group is able to specify strategic decisions such as the modes of attack or counterterrorism and the distribution of resources assigned to different aspects like propaganda or intelligence. The conceptual focus here is on agency problems, organizational inefficiencies, and game theory more generally. As there are only two groups this simulation works best with smaller (20–30 person) sections, but a larger class can easily be accommodated by breaking it up into subgroups of this size, with several simulations occurring simultaneously.

For both simulations we open by presenting a brief sketch of the conceptual material being tested, follow with a description of the setup and progression of each simulation, and conclude with suggestions of topics for debriefing and of extensions of the simulation. An online appendix, available on each author's Web site, contains the text of all documents to be provided to the class.[4]

HOSTAGE-CRISIS SIMULATION

Concepts

This simulation is designed to address issues of credible commitment and costly signaling within the complex interplay of terrorist groups, governments, the media, and the public. Both the terrorist group and the state that its actions affect desire to force the other to capitulate and grant the demander the concessions it desires. A terrorist group might want the release of fellow group members from state imprisonment, for example, while a government might want the group to release all hostages without harm or preconditions. To accomplish these goals, each side must convince the other that it is willing *not* to capitulate. If one side fails to do this, the other can simply wait for the inevitable and reap the rewards.

In strategic terms, this convincing can be broken down into two parts: signaling and commitment. Each group must *signal* its seriousness, and *commit* to the actions it has signaled it will take. Of course, individuals at any time can say anything that they want, but the ability to do this does not imply that these statements, or signals, are at all meaningful (see, e.g., Fearon 1995). This is true as well for the terrorist group; any ragtag bunch could signal its intent to commit an atrocity, but thankfully most do not have the wherewithal to do so, and so most of these signals should be ignored so as not to cause a panic. Such free signals are known as "cheap talk" within game theory, and they typically only affect one's strategic considerations when both the signaler and the receiver have aligned preferences, so that they more or less desire the same outcome. This is rarely the case in terrorism, and thus cheap talk by either side is usually worthless.

To achieve greater effectiveness, both groups therefore must utilize more effective signals. This can be accomplished via a costly signal: an action that a side would rather not take, all else being equal. For the terrorist group, the seizing of hostages is a costly signal, in that the terrorist group puts itself at risk by doing so. If it is willing to do this, the costs that it will pay must be less important than what it believes it might achieve, and hence it is likely to be the kind of group willing to go to extremes, despite the risk. Due to the costs these types of groups can inflict on their perceived enemies, their demands should be considered seriously. Groups not willing to go as far are likely to view the costs of such actions as more prohibitive, and thus will be less willing to take the threat as far as it could go, making them less a risk to the state. The state, in turn, would like to signal its strength; this often takes the form of statements that it will not negotiate with terrorists. Not negotiating is costly to the state, as it risks the hostages' lives, which, if nothing else, is likely to upset the public, particularly in democracies (which are the most frequent targets of hostage taking). Short term, the state would rather just get the hostages back; by not giving in to achieve this, it signals that it is the kind of state for which concessions, both immediate and expected in the future, are too much for it to grant.[5]

These signals help determine each actor's perception of the strength of the other: the more costly the signal, the more the actor appears to be willing to give up to get its way. But this is only half of the puzzle: each actor must also be able to commit to the course of action it proposes. The terrorist group must commit to keep holding the hostages until its full demands are met, and return them unharmed if it has achieved its desired concessions, lest the state decide that the hostages are doomed regardless of the outcome of the negotiation.

In turn, the state must convince the terrorists that to do as the state requires will not immediately doom them, rendering negotiation pointless, and that any other action than that which the state requires will yield them no benefits. For these commitments to be believed, they must be *credible*. States can achieve such credibility through consistency of action over time, and the kind of costly signaling that exhibits their strength. Terrorist groups have the same opportunities; for example, they can harm hostages to show that they are willing to escalate in order to achieve their goals. Thus both costly signaling and credible commitment are important aspects of the negotiation process, but intertwined in a complicated fashion. Understanding the concept of credible commitment and how it relates to hostage negotiations can also help students understand why agreements in these scenarios are so hard to reach. If either side has the incentive to defect after the agreement is reached, then agreement is doomed to failure.[6] The simulation is designed to get at these complex dynamics. Additionally, the simulation mirrors some past incidents such as the 1972 Munich Olympic Games crisis or the 2002 Moscow Theater hostage crisis.

Setup

At the beginning of the first class assigned to this simulation, the following instructions, common to all roles, are read. (Phrases encased in square brackets may be replaced with more appropriate ones, as desired.)

> **Scenario:**
> Individuals from an unknown country of origin have kidnapped a number of Americans in Lebanon. The terrorist group, which has not made its provenance known, threatens to kill the hostages—Christian missionaries from [Anywhere, USA]—if their demands are not met. Through a letter sent to global media outlets, the terrorist group stipulates that Israel must remove the restrictions on Palestinians working and moving through Israel, and that the Unites States must end monetary and military support for the Israeli government. The world awaits further communication from the group holding the hostages, while the American and Israeli governments plan their responses.
> **Rules of the Scenario:**
> The simulation consists of [three] periods of [20 minutes] each, during which time you will play out this hostage crisis. At the beginning of the simulation you will be divided into four groups:

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(1) terrorists and their hostages, (2) government officials, (3) media outlets, and (4) the public, including families of the hostages. These groups must remain physically separate, and may not communicate during the simulation except as follows. Media outlets may talk to any group at any time [but only to one at a time]. At the end of each period, they must make a [three-minute] report on the crisis simultaneously to all groups. In addition to the media, both the spokespeople and the leaders of the groups may send written notes to each other; these are to be viewed as back-channel communications and are not made public. The public's only outlet is the media.

Class members can either be assigned to roles within these groups, or allowed to volunteer. We believe the latter may make for more lively simulation exercises, but the inherent self-selection involved might leave some shyer or less-motivated class members out, so there is a tradeoff. The available roles within each group are: (1) three to five hostages, three to five "ordinary" terrorists, one terrorist leader, and one terrorist mouthpiece; (2) one American president, one American secretary of defense, one American secretary of state, one American press secretary, one Israeli prime minister, one Israeli defense minister, one Israeli foreign minister, one Israeli press secretary, and one United Nations secretary general; (3) two to three media outlets [such as CNN, a broadcast network like ABC, FOX news, BBC, or Al Jazeera, depending on the interactions one desires to highlight] consisting of three to five members each; (4) three to five family members of the hostages. This covers a class of up to 41. Larger classes can easily be accommodated by increasing the number of terrorists, hostages, or family members. Other options include adding members of the public who are not family members, additional media outlets, or additional terrorist groups, but these change the nature of the game somewhat. We discuss this more below in the section on extensions.

Once roles are assigned, each participant is provided with an instruction sheet containing the earlier quoted material for reference, as well as a private statement of the particular goals for that role. These statements appear in their entirety in the online appendix. In general, hostages want to stay alive; terrorists want their demands met while remaining free; different government officials place different weights on ending the crisis without loss of life, and on not giving in to terrorists; the media wants to maximize ratings; and the public wants the hostages to return alive. Participants are then split up physically by group and the simulation begins.

Progression

Once initiated, the simulation is fairly simple to manage. Each group is left to its own devices during the period, and the main conceptual issues of credible commitment and costly signaling arise naturally as government and terrorists respond to each other's threats and offers. Moderation is only necessary to ensure that participants are staying within the parameters of the simulation—playing their roles and keeping within the allotted time—and to resolve any outcomes resulting from actual actions taken by any group. For example, terrorists might choose to take more hostages, or government might send in the military.

Throughout the course of the simulation, other topics surface that tend to be more factual in nature, or diversions from the concepts that the instructor hopes to convey. These are opportunities to provide students with information that they would otherwise not be interested in knowing, but that they desire to know in the context of the simulation. In education, these instances are sometimes called "teachable moments" (Hansen 1998), and we have found that these simulations often lead to mini-lessons on topics like: Who is Hezbollah . . . really? What is the UN Security Council and how is it organized? Why can't the UN just tell the parties to cease hostilities? While these discussions should not be allowed to lead to significant diversions, they often help stimulate interest in a topic that might be dull to students in a different context.

Debriefing

The debriefing should occur either directly following the last period, or at the beginning of the next class. Precisely because the participants tend to get into the simulation, it is necessary to ensure that they understand what lessons to take from it. The primary focus of this debriefing should be on the two core concepts of credible commitment and costly signaling, and events that occurred during this simulation should be framed in light of these concepts, as detailed under the section-header concepts. (First-time users of this simulation may, therefore, want to debrief during the following class, in order to have time to perform this framing.) Sample questions include: How did you try to commit to your chosen course of action? How well did it work (for the president, the prime minister, and the terrorist leader)? "What did you think of your opponents and why? Were they strong or weak (for both the government and the terrorist groups)?

Subsidiary concepts may be discussed as well, if desired. Most terrorist groups will likely moderate their behavior, not simply killing all the hostages immediately. This indicates the goal-oriented, strategic nature of their actions; they are not merely out to create maximal chaos. The role of the media's reporting can also be probed, to illustrate how the media's market incentive can at times distort events. A simple way to get at this is to ask each group individually, "What happened?" beginning with the public, who has the least additional knowledge outside what the media has reported. Explaining what actually happened to the class can then lead into a discussion of how the media can alter perceptions, and why they might choose to do this. The related question of "If the media does not report something, can it be terrorism?" can be raised subsequently, to illustrate the difference between terrorist actions under democracies and autocracies. Finally, both government and terrorists can be asked how well they liked to deal with the media. In our experience both government and terrorist groups utilized selective media freezes, refusing to talk after a while to one or more media outlets, and the class can be asked how this behavior alters outcomes.

Assessment

Although the simulation experience can enhance student interest and achievement, professors often overlook valid ways to assess student learning. Debriefing is the most common method for tying the simulation experience to concepts and learning objectives. Making sure that students know that simulation and debriefing address future exam questions is a natural way to ensure that students attempt to integrate the simulation with class material (Asal 2005). Another way to assess their involvement in the simulation is to give them a guided writing assignment that asks them to discuss the simulation, their roles, how it relates to course

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Table 1

Hostage-Crisis Simulation: Learning Objectives, Simulation Goals, and Evaluation

LEARNING OBJECTIVE	HOW SIMULATION TARGETS OBJECTIVE	EVALUATION
Understand the credible commitment problem	Role playing and interaction with actors who have different preferences in a situation that lacks a central authority to enforce agreements	Participate in simulation, exam questions, analytical essay
Understand costly signaling	Sending and receiving communication in the context of the simulation	Participate in simulation, exam questions, analytical essay

concepts, and how the simulation is both similar to and different from actual hostage crises (see Table 1).[7]

Extensions

The simulation as described has a sufficient number of moving parts, in our opinion, to occupy one or more days of class time, but larger classes or longer simulations might benefit from more detail. An easy option for larger classes is to add members of the public who do not have a personal stake in the outcome. Our experience has been that this is less than optimal, as these individuals tend to get less involved in the simulation, but their presence certainly did not break the simulation, and some got involved anyway. Adding another media outlet is also fairly simple to manage, but the media's presentations can get long in this case, so this option is best reserved for longer simulations. Providing the media with cameras, computers, or other means to present their material in a creative way can also aid in stimulating interest in their reports. Additionally, members of the public can become bloggers, create their own reports, and provide written material to the rest of the groups.

An additional terrorist group presents the most interesting change, in that it allows for issues of competition between groups to arise. This works best if the simulation is broken up into multiple stages, of several periods each. For example, if the group that has taken the hostages begins to accrue media attention in the first stage, the moderator could rule that the group grows and increases its financing, potentially driving the other group to become more aggressive in the second and subsequent stages. Again, this would work best in a longer simulation, as the dynamics and lessons to be imparted get fairly complex. As Bloom (2005) suggests, having multiple groups contend for support and media attention leads to more innovative and destructive tactics by the groups involved, including suicide bombing.

COUNTERTERRORISM SIMULATION

Concepts

This simulation is primarily designed to address problems of agency and organizational inefficiencies, as well as strategic interactions more generally. It centers on the interplay of two groups: government officials and a terrorist group. Roles are not differentiated beyond this, though as we discuss under the extensions section below, they can be. The desires of each group are straightforward. The terrorists want to maintain or expand their organization while hitting as many targets as possible; the two objectives are of course interrelated. The government wants to eliminate the organization as a threat and prevent the terrorists' attacks. To accomplish these goals, each side has access to an array of organizational choices, focused on where scarce resources should be allocated, and how these resources should be obtained (denied) by the terrorists (government). These choices include allocations of resources to intelligence, propaganda, direct assaults, and target defense for the government, and to fundraising, recruitment, target choice, and tactics for the terrorist.

In the simulation presented, the terrorist group is the focus for the agency problems the simulation addresses; the government provides the foil, and allows for decisions of a strategic nature to be made. It is beneficial, therefore, to run the simulation at least twice, with all participants playing each group at least once. Allowing students to participate in different roles helps them understand the simulation from both sides, and helps them grasp that the government's best response to the terror group depends on the terror group's decisions and vice versa.

Problems of agency refer collectively to situations in which a principal—the one with the power or the money—and an agent—the one working for the principal in exchange for some kind of benefit—are at odds. If the principal and the agent have different incentives to act, perhaps because the principal desires to see successful attacks, whereas the agent merely wants remuneration, the agent will try to get out of doing what the principal wants. If the principal cannot perfectly monitor the agent for deviations from desired behavior, and cannot perfectly sanction the agent, we have what is known as an agency problem. Due to the monetary incentives of the typical terrorist in charge of logistics, and the reduced ability to monitor or sanction as a result of the covert nature of terrorist groups and the need for security, terrorist groups are particularly susceptible to such problems (Shapiro 2007; Shapiro and Siegel 2007). In short, terrorist middlemen steal money from their bosses.

Two types of agency problems are typically identified: moral hazard problems and adverse selection problems. The first refers to already-hired agents taking actions contrary to the principal's desires, while the second refers to the problem of hiring the best agents. Both types of problems arise in the simulation. The terrorist group must choose between a hierarchical organization and one with a more open, cellular structure. The former allows for more control by the bosses than the latter, but this control comes at the cost of security, as communications between levels of the hierarchy can be exploited by government. The Shining Path (Sendero Luminoso) guided by Abimael Guzman in Peru, for example, built a hierarchical organization with Guzman as the supreme authority. Guzman regulated everything from meetings to marriage and even set wedding dates (McClintock 1998). In the context of the simulation, choosing a hierarchy, for example, increases the effectiveness of both recruitment and the use of funds for the terrorist group, as now terrorist bosses can better control who joins the group, and how they act once within the group.

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However, should the government choose to assault the core of the group directly, a hierarchy proves more vulnerable to the attack, and the group would have been better off with a more open network. Returning to the Shining Path example, in the early 1990s Sendero was close to taking Lima and controlled considerable portions of Peru. After Guzman's capture in 1992, the organization nearly collapsed and never again posed a serious challenge to the state.

This example also illustrates one way in which the simulation gets at general strategic issues. A more direct way is in the choice of targets. Each side has limited resources to place in attacks and defense, and is given five targets from which to choose. Terrorists have the easier job here, trying to attack where the government is not defending. They merely need to be right once, while the government must be right every time. In our experience, the simulation is quite effective in driving this point home.

Setup

Initiating the simulation consists mainly of splitting the class into two equal groups, providing each group with an instruction sheet for each member, and then adjudicating outcomes once the groups have completed their tasks. The instruction sheets for each group can be found in the online appendix, and are included on each author's Web site for convenience.[8] As can be seen, the instruction sheets consist of background information pertinent to each group, and detailed instructions for what decisions the group must make. The simulation itself merely consists of two or more periods of joint decision making within the group. Because it is easy for participants to hang back in such settings, we recommend using smaller groups—or focusing more attentively on larger groups—in this simulation. We suggest 20 minutes per period, with five minutes allotted to adjudication, and an additional five given over to announcing results.

Progression

Group decision making relies less on role playing here than on discussions of strategies. In the first period, participants largely grope around, trying to figure out how all the moving parts fit together. The moderator is often necessary to clarify particular options, or to remind students what some options mean. By the end of the first period, each group should present the moderator with responses to all decisions listed under their group's instructions. It is helpful to assign a single participant to collect this information at the beginning of the period, to ensure that the students don't miss anything. With this information, the moderator uses the suggested payoffs provided in the online appendix to discern an outcome of the period. For example, the terrorists might find that the core of their group has been decimated, but that nevertheless they accomplished two successful, albeit pyrrhic, attacks. These results can simply be read to the class then, or, if the moderator has a flair for the dramatic, we find that the students quite (perhaps disturbingly so) enjoy a blow-by-blow account of the attacks.

The second (and any subsequent) period(s) allow each group—and the groups should remain the same for at least two periods—to discern patterns in their opponents' actions, and to try to come to superior solutions to advance their goals. This lets them see firsthand the limits that organizational and agency problems impose on group functioning, as well as the difficulty inherent in choosing strategy across multiple dimensions simultaneously. Though the agency problems bind mostly for the terrorist group, we find that the message of the simulation gets across well enough for both groups, and can be reinforced during the suggested debriefing. However, it is easy enough to run the simulation again at a later date, this time with group membership reversed. One could follow the other, or the two simulations could bookend a unit of the class. We have used both to good effect.

Debriefing

The debriefing should focus on the core concepts of the simulation: agency problems and strategic action. The suggested payoff matrix in the online appendix can serve as a template for this discussion, allowing the instructor to explain the effect each major decision had on the eventual outcomes. So, to return to the earlier example, the instructor can explain that the choice of hierarchy for the core of the terrorist group would have increased the chance of a successful attack by 20% had the government not chosen to go after the core, but because it did, the terrorists' suffered a 20% reduction in the chance of a successful attack. The natural question to ask after this is, "Why was this the case?" The answer, naturally, gets back to agency problems and the tradeoffs between security and efficiency and security and control discussed above (Shapiro 2007). The difficulty of the government's job and the strategic game in general should also be a focus of discussion.

Problems of agency refer collectively to situations in which a principal—the one with the power or the money—and an agent—the one working for the principal in exchange for some kind of benefit—are at odds. If the principal and the agent have different incentives to act, perhaps because the principal desires to see successful attacks, whereas the agent merely wants remuneration, the agent will try to get out of doing what the principal wants. If the principal cannot perfectly monitor the agent for deviations from desired behavior, and cannot perfectly sanction the agent, we have what is known as an agency problem.

Assessment

As mentioned in the assessment portion of the previous simulation, the debriefing is an integral time to connect the simulation to future exam material. Beyond exam questions and guided writing, this simulation also provides an opportunity to assign a short paper to students.[9] After the simulation is complete, the instructor can assign students to find a news article that relates to either

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Table 2

Counterterrorism Simulation: Learning Objectives, Simulation Goals, and Evaluation

LEARNING OBJECTIVE	HOW SIMULATION TARGETS OBJECTIVE	EVALUATION
Understand that the allocation of resources for both terror groups and governments requires tradeoffs	Requires students to make choices about how to allocate resources in their interaction with the opposing group	Participate in simulation, exam questions, analytical essay
Recognize that the outcome of each party's choice is contingent upon what the other party chooses.	Groups receive points based upon what they choose as well as what their opponent chooses	Participate in simulation, exam questions, analytical essay

terror or counterterror actions. The students then write a short paper linking the actions of the state and terror groups to the strategic choices available. For example, the recent surge in Iraq devoted more resources to preventing attacks, leading to more decentralized attacks on the periphery of Baghdad (see Table 2).[10]

Extensions

One potential problem in a big class with this simulation is the likelihood that some percentage of each group's members will sit back and free ride off of the work of the others. Insertion of the moderator into discussions can mitigate this, but with two groups this can be difficult, and it is important as well not to quell discussions within groups. A second solution, particularly if more than one moderator is available, is to split the class into two pieces, each with its own two groups. A third and more complete answer, however, would be to assign specific roles to each group member, giving each individual a personal stake in the decision making. The difficulty here is in creating enough roles to get everyone involved.

A second variant has the periods build on each other. Thus, instead of restarting fresh with each period, a degraded or improved terrorist organization would face government in the second period. This adds more realism to the interaction, allowing students to see the longer-term outcomes of their actions, but the path-dependent nature of the interaction potentially diminishes learning outcomes if all options are no longer viable in the second period.

CONCLUSION

The simulations discussed in this article were developed to communicate how credible commitment, costly signaling, resource allocation, organizational dynamics, and strategic interaction influence the likelihood of terror acts, whether terrorism is successful, and whether terrorism will continue. While our primary goal in developing the simulations was to enhance student understanding of these concepts and how they relate to terror, the simulations can additionally aid in achieving a larger public goal. Public health professionals and first responders concerned with public safety often perform simulations of terrorism to prepare an appropriate response to an attack. Schoch-Spana (2003, 119) argues that public health professionals should also "help devise institutional responses that not only anticipate and protect against the negative psychological and social repercussions of terrorism, but also enhance positive public responses." Similarly, we feel these simulations provide students with tools helpful in evaluating and in responding to acts of terror.

Beyond the classroom, these simulations can be useful to the larger public. Participating in terrorism simulations could aid in comprehending why groups use terror, and what the appropriate response of policymakers might be. This is useful both to citizens' groups, whose exposure to counter-terror policy is likely limited to selective media accounts, and to policymakers, who may not have thought through sufficiently what the most likely responses to their actions would be. Since there are divergent policies designed to counter groups that use terror,[11] providing individuals outside of academia with some of the insights from the scholarly study of terrorism could have wide-ranging benefits. While academics, policymakers, and the public often speak past each other, participating in simulations is one way to communicate important information and bridge this divide.[12] ■

NOTES

1. For example, see Enders and Sandler (2006) and Bueno de Mesquita and Dickson (2007). Bueno de Mesquita (2008) reviews a selection of recent work.
2. See Young (2006) and Ehrhardt (2008) for examples of practical simulations of international relations using elements of game theory.
3. Powner and Allendoerfer (2008) find that simulations improved scores on multiple-choice questions, and class discussion improved short-answer scores relative to a control group that did not receive either treatment. All three groups (control, discussion, simulation) received a standard lecture.
4. Materials are available at http://mypage.siu.edu/jkyoung/simulations.html and http://myweb.fsu.edu/dsiegel/Research.html.
5. See Fearon (1994) for an illustration of how the response of the domestic audience to a state's backing down can create costs to the state.
6. See Walter (1997) for a discussion of how the commitment problem serves as a barrier to settlements in civil war.
7. Table 1 displays a brief synopsis of the simulation including learning objectives of the simulation, how the simulation addresses these goals, and how to assess students.
8. As stated above, materials are available at http://myweb.fsu.edu/dsiegel/Research.html and http://mypage.siu.edu/jkyoung/simulations.html.
9. Boyer, Trumbore, and Fricke (2006) use a similar approach to assessment.
10. Table 2 displays a brief synopsis of the simulation including learning objectives of the simulation, how the simulation addresses these goals, and how to assess students.
11. See Frum and Perle (2003) and Lennon (2003) for examples of differing perspectives on counter-terror policies.
12. See Mack (2002) for a discussion of how the academic community studying civil war is separated from policymakers and how to bridge this division.

REFERENCES

Asal, Victor. 2005. "Playing Games with International Relations." *International Studies Perspectives* 6 (3): 359–73.

Bloom, Mia. 2005. *Dying to Kill.* New York: Columbia University Press.

Boyer, M., P. Trumbore, and D. Fricke. 2006. "Teaching Theories of International Political Economy from the Pit: A Simple In-Class Simulation." *International Studies Perspectives* 7 (1): 67–76.

Bueno de Mesquita, Ethan. 2008. "The Political Economy of Terrorism: A Selective Overview of Recent Work." *The Political Economist* 10 (1): 1–12.

https://doi.org/10.1017/S1049096509990151 Published online by Cambridge University Press

Bueno de Mesquita, Ethan, and Eric S. Dickson. 2007. "The Propaganda of the Deed: Terrorism, Counterterrorism, and Mobilization." *American Journal of Political Science* 51 (2): 364–81.

Ehrhardt, George. 2008. "Beyond the Prisoner's Dilemma: Making Game Theory a Useful Part of Undergraduate International Relations Classes." *International Studies Perspectives* 9 (1): 57–74.

Enders, Walter, and Todd Sandler. 2006. *The Political Economy of Terrorism*. New York: Cambridge University Press.

Fearon, James D. 1994. "Domestic Political Audiences and the Escalation of International Disputes." *The American Political Science Review* 88 (3): 577–92.

———. 1995. "Rationalist Explanations for War." *International Organization* 49 (3): 379–414.

Frum, David, and Richard Perle. 2003. *An End to Evil: How to Win the War on Terror*. New York: Random House.

Hansen, Edmund J. 1998. "Creating Teachable Moments … and Making Them Last." *Innovative Higher Education* 23 (1): 7–26.

Lennon, Alexander T. J., ed. 2003. *The Battle for Hearts and Minds: Using Soft Power to Undermine Terrorist Networks*. Boston: MIT Press.

Mack, Andrew. 2002. "Civil War: Academic Research and the Policy Community." *Journal of Peace Research* 39 (5): 515–25.

McClintock, Cynthia. 1998. *Revolutionary Movements in Latin America*. Washington, D.C.: United States Institute of Peace.

Powner, Leanne C., and Michelle G. Allendoerfer. 2008. "Evaluating Hypotheses about Active Learning." *International Studies Perspectives* 9 (1): 75–89.

Schoch-Spana, Monica. 2003. "Educating, Informing, and Mobilizing the Public." In *Terrorism and Public Health: A Balanced Approach to Strengthening Systems and Protecting People*, ed. Barry S. Levy and Victor W. Sidel. Oxford: Oxford University Press, 118–35.

Shapiro, Jacob. 2007. "Terrorist Organizations' Vulnerabilities and Inefficiencies: A Rational Choice Perspective." In *Terrorism Financing and State Responses*, ed. Jeanne K. Giraldo and Harold A. Trinkunas. Palo Alto: Stanford University Press.

Shapiro, Jacob N., and David A. Siegel. 2007. "Underfunding in Terrorist Organizations." *International Studies Quarterly* 51 (2): 405–29.

Shellman, Stephen, and Kürşad Turan. 2006. "Do Simulations Enhance Student Learning? An Empirical Evaluation of an IR Simulation." *Journal of Political Science Education* 2 (1): 19–32.

Walter, Barbara F. 1997. "The Critical Barrier to Civil War Settlement." *International Organization* 51 (3): 335–64.

Young, Joseph. 2006. "Simulating Two-Level Negotiations." *International Studies Perspectives* 7 (1): 77–82.

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