21 Knowledge Transfer and Shared Learning among Armed Groups

James J. F. Forest

Knowledge is a vital resource for anyone or any organization, and can make the difference between success and failure, right and wrong, or even life and death. Knowledge is generally defined here to mean information that becomes useful upon human interpretation. Whether this knowledge is developed from within the organization or acquired by studying others that have developed useful expertise, organizational leaders must continually obtain, analyze, assimilate, and operationalize certain kinds of knowledge in order to effectively achieve the organization's goals. Thus, in both the private and public sectors, how an organization views knowledge and learning is critical to its success.

Knowledge and learning are also important in the world of armed groups. "No one is born with the knowledge of how to build bombs, use a pistol, conduct surveillance, or hijack airplanes," explains Larry C. Johnson, former deputy director of the State Department's Office of Counterterrorism. "These are skills that must be taught and practiced."[1] All armed groups of many types need to scan their environments and look for ways to sustain or enhance their operational capabilities. In other words, they need to learn. Armed-group learning can be facilitated by different means, from key individuals within the organization to open-source materials and lessons derived from the experiences of others. Understanding how and where critical knowledge is acquired, and how it is shared within and between various kinds of armed groups, brings an important level of analysis to our understanding of the contemporary global security environment. In exploring these issues of learning in the world of armed groups, this chapter will first describe their need for certain kinds of knowledge, and then focus on similarities among the sources

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James J. F. Forest, PhD, is director of terrorism studies and associate professor of political science at the U.S. Military Academy, where he teaches undergraduate courses in terrorism, counterterrorism, comparative politics, information warfare, and political development in sub-Saharan Africa. He also directs a series of research initiatives for the Combating Terrorism Center at West Point, covering topics such as recruitment, training, and organizational knowledge transfer. Prior to this position, Dr. Forest served for three years as assistant dean for academic affairs at the U.S. Military Academy and has worked for several other educational, nonprofit, and government organizations. He has published nine books, including *Teaching Terror: Strategic and Tactical Learning in the Terrorist World* (Rowman & Littlefield, 2006), *Homeland Security: Protecting America's Targets* (three volumes: Praeger Security International, 2006), *Oil and Terrorism in the New Gulf: U.S. Policy in West Africa and the Gulf of Guinea* (Lexington Press, 2006), *The Making of a Terrorist: Recruitment, Training and Root Causes* (three volumes: Praeger Security International, 2005), and *Homeland Security and Terrorism: Readings and Interpretations* (McGraw-Hill, 2005, with Brigadier General Russell Howard and Major Joanne Moore). Dr. Forest received his graduate degrees from Stanford University and Boston College, and undergraduate degrees from Georgetown University and De Anza College.

and pathways of knowledge transfer both within and between groups, to include leaders, training camps, places of conflict, and the Internet. The discussion will conclude with a review of implications and suggestions for countering the threat to civil societies posed by armed groups.

ARMED-GROUP LEARNING

The successful employment of violence toward political or criminal objectives requires a broad range of knowledge that incorporates skills, competency, and creative thinking. An armed group needs to learn how to evade the efforts of local government authorities to penetrate the group, gather intelligence, and arrest its members. Leaders must ensure that the group's members can use their weapons accurately and effectively, and can reliably execute particular operations. Armed groups need to conduct their own surveillance and target identification, gather intelligence, acquire weapons and materiel, move money and people from one location to another—including across borders—without detection, and maintain covert communication (for example, changing frequencies when using electronic communications during a fight with government troops). Their members may need to learn how to identify the risks and advantages of using certain kinds of vehicles over others, how to mount rocket launchers in the beds of pickup trucks, how and where to launder money, how to successfully conduct a kidnapping, how and where to build camouflage-covered trenches, and how to plan escape routes once an act of violence has been carried out.[2] Without such learning and knowledge, armed groups are more easily thwarted, apprehended, or otherwise likely to fail.

Of course, within a particular armed group, there are certainly different levels of knowledge attained and used by different members for different purposes, and the patterns and pathways of knowledge acquisition and transfer vary significantly among groups. But in general, an armed group needs to learn in order to be effective, to attract new recruits, and to avoid stagnation and complacency of the group's members. They also recognize the need to learn and adapt in order to be successful against their more powerful government adversaries. A recent example of learning and adaptation is seen among the myriad groups in Iraq, whose improvised explosive devices (IEDs) have evolved over the last several years. According to one account,

> The first IEDs were triggered by wires and batteries; insurgents waited on the roadside and detonated the primitive devices when Americans drove past. After a while, U.S. troops got good at spotting and killing the triggermen when bombs went off. That led the insurgents to replace their wires with radio signals. The Pentagon, at frantic speed and high cost, equipped its forces with jammers to block those signals, accomplishing the task this spring. The insurgents adapted swiftly by sending a continuous radio signal to the IED; when the signal stops or is jammed, the bomb explodes. The solution? Track the signal and make sure it continues. Problem: the signal is encrypted. Now the Americans are grappling with the task of cracking the encryption on the fly and mimicking it—so far, without success.[3]

Similarly, authorities in Thailand are growing increasingly concerned about how the IEDs used by the Muslim insurgents there have grown in size and complexity. According to Southeast Asian terrorist expert Zachary Abuza,

It took insurgents almost two years to develop IEDs larger than five kilograms. This year has already witnessed 15 and 20 kilogram devices used several times a week, causing much higher casualty rates, especially among police and soldiers. Many of the devices are similar to the one found and defused on May 28: a 20 kilogram ammonium nitrate bomb constructed in a fire extinguisher, stuffed with bolts, nuts and pieces of rebar and hidden on the side of the road awaiting an army convoy. . . . The bomb was command detonated, but cell phone detonators are still currently used. Casio watches, which have been used routinely in Iraq, are now also regularly employed in southern Thailand.[4]

This phenomenon of adaptation has been a hallmark of the most effective armed groups in history. For example, the engineering teams of the Provisional Irish Republican Army (PIRA) demonstrated a clear aptitude for learning new ways of employing technology for violent means. According to one analysis, "A key development in PIRA timer technology was the adoption of the Memopark timer, a small pocket timer marketed to help people track the time remaining on their meter when they parked their car. The timers were very accurate, and the group acquired a large number of them. Because of the suitability and availability of the Memopark timers, PIRA relied on them for an extended period and was not forced to innovate as dramatically in timer technology."[5]

Technological innovation and adaptation were hallmarks of the Irish Republican Army (IRA) and the splinter groups it spawned, providing an important model for other groups to follow. In doing so, they demonstrated why organization learning is so important to armed groups. A recent study by RAND identified several characteristics that affect a group's learning abilities:[6] group culture, structure and command relationships, nature of communications mechanisms, absorptive capacity for new knowledge, stability of membership, group operational environment, connections to knowledge sources, and resources devoted to learning. Only a few of these characteristics relate to the group's external environment or relationships, and are addressed later in this chapter, while most learning-related characteristics are internal to the organization. In fact, armed groups can become smarter simply by adopting organizational structures that encourage and sustain learning both within the group and through interactions with other groups.

While some groups are hierarchical and traditional (like the FARC [Revolutionary Armed Forces of Colombia] in Colombia), others have embraced a more dynamic, networked approach that provides for a faster, more successful sharing of important knowledge. In essence, they form transnational networks unconstrained by state or geographical boundaries, "living, breathing organisms" that have proved to be enormously resilient despite the post-9/11 efforts of the United States and its allies to change the global security environment, and demonstrate the type of leadership and organizational structure that allows for adaptation and absorption of new knowledge.[7] They organize themselves in such a way that encourages broad participation in meeting the group's need to scan the operating environment for threats and vulnerabilities, acquire and process information, and distribute new knowledge to others in the group.[8] In doing so, they provide multiple pathways for knowledge transfer—that is, more individual nodes can contribute to the collective knowledge base, like a Wikipedia or CompanyCommand.com sort of approach.[9] Further, the web-like structure of communication channels within such organizations allow for faster identification and sharing

of knowledge that could prove useful for achieving their own and other groups' objectives.

KNOWLEDGE TRANSFER AMONG ARMED GROUPS

Tactical or strategic innovations developed by one group or within one theater of conflict are often adapted by other groups in other theaters of conflict. For example, prior to the 2006 Israeli-Hezbollah conflict, rockets were rarely used by Palestinian militant groups against Israel (though mortars and suicide bombers have been common for several years). But since late 2006, Hamas has learned from Hezbollah's example (and perhaps even teaching or other direct forms of technology transfer from the Lebanese militants) and is now constructing and deploying rockets against Israel with increasing frequency and lethality—this despite the expectation that Shiite Muslims and Sunni Muslims rarely cooperate.

Shared learning is particularly common among armed groups whose members see themselves as "freedom fighters," where a common ideological alignment (the struggle against a perceived oppressor) leads to bonds that facilitate knowledge transfer. For example, the IRA is known to have nurtured international links with paramilitary organizations, including ETA in Spain and Palestinian terrorist groups, and in August 2001 Colombian authorities arrested three members of the Provisional IRA who (a subsequent investigation revealed) had spent five weeks in a remote part of the country, where they were teaching bomb-making techniques and urban guerrilla warfare tactics to members of the FARC.[10] According to press reports and court records, James Monaghan—a former member of the Sinn Fein Executive Council—is an explosives expert and the designer of a long-range mortar; Martin McCauley, commander of the IRA's engineering department, is an expert in using and producing weapons and mortars; and Niall Connolly, also a weapons expert, is thought to have first made contact with the FARC five years ago through a Basque terrorist group that specializes in bombings and assassinations of Spanish government officials. All three were convicted in 2004, and in March 2007 their convictions were upheld by the Colombian Supreme Court.[11] Meanwhile, expert testimony at a congressional hearing in April 2002 suggested that as many as 15 IRA members had visited Colombia within the previous five years, and counterterrorism experts believe that members of the Northern Irish paramilitary community may have engaged in such knowledge transfer activities in Colombia and elsewhere for decades.[12]

In the world of armed groups, strategic, tactical, and operational knowledge transfer activities also transcend a variety of ideological categories. For example, Indonesian radical groups with links to the Jemaah Islamiyah (JI) terrorist network have been found with videos documenting how Chechen separatists make and use land mines.[13] Trigger switches developed by the IRA for IEDs have been adapted for use by Hamas and other military groups in the Palestinian territories, as well as by many insurgent groups in Iraq. In a June 2005 *New York Times* article, Lieutenant General John Vines, a senior American ground commander in Iraq, reported that Iraqi insurgents were probably drawing on bomb-making experts from outside Iraq and from the old Iraqi Army.[14] The IRA's instruction manuals on counterforensic activities—extensive advice on how to create a "clean room" to ensure no DNA or other forensic evidence is left behind—have been

nearly duplicated in training manuals developed by the Earth Liberation Front, an environmental terrorist organization based in the United States.[15]

Through these and other examples, a pattern emerges of adaptation and emulation among armed groups, regardless of their specific strategic objectives. The places and pathways through which this knowledge transfer occurs range from demonstrations of effective tactics by other groups to an impressive array of training camps, places of active conflict, prisons, and the Internet. Learning is at its core a human endeavor, thus it should come as no surprise that one of the most important sources of armed-group learning is found among a group's leadership and the knowledge resources it produces and makes available. Identifying these "learning leaders"—individuals committed to increasing the technical sophistication of their respective organizations—is an important aspect of our understanding of this knowledge transfer phenomenon. Further, it is through the global distribution of the materials they author that a primary means of knowledge transfer between armed groups takes place.

Learning Leaders and the Availability of Open-Source Resources

Most organizations have key individuals who are seen as particularly trustworthy sources of strategic and tactical guidance. For example, Gabriel Cleary, the director of engineering in the PIRA, was considered by many within the organization (and among Scotland Yard detectives) as their most knowledgeable master of homemade weaponry and bomb-making instruction, including Semtex, long-delay timers, and mortar components.[16] Two members of the Earth Liberation Front (and later, its splinter group the Family), William Rodgers and Stanislas Meyerhoff, collaborated to author "Setting Fires with Electrical Timers: An Earth Liberation Front Guide," a widely available guide that contains extensive instructions on creating and placing incendiary devices.

Within the al Qaida terror network, few learning leaders have been more prolific than Mustafa Setmariam Nasar—also known as Abu Musab al-Suri or Umar Abd al-Hakim—who is considered the principal architect of the network's post-9/11 structure and strategy, transforming al Qaida from a hierarchical organization into a resilient decentralized movement.[17] A warrant for his arrest issued in 2002 by the U.S. government accused Nasar of running training camps located in Afghanistan that allegedly specialized in imparting training and expertise on toxic materials and chemical substances.[18] Until his capture in Pakistan in November 2005, Nasar is credited with authoring scores of books, strategic analyses, guidance documents, and videotaped lectures that significantly expanded the network's base of operational knowledge.[19] For example, in a 15-page Arabic-language document titled "Biological Weapons" posted on his Web site during the summer of 2005, Nasar described "'how the pneumonic plague could be made into a biological weapon,' if a small supply of the virus [*sic*] could be acquired." Nasar's guide "drew on U.S. and Japanese biological weapons programs from the World War II era and showed 'how to inject carrier animals, like rats, with the virus [*sic*] and how to extract microbes from infected blood . . . and how to dry them so that they can be used with an aerosol delivery system.'"[20] According to Jarret Brachman, a professor at the Combating Terrorism Center at West Point, al-Suri also authored "one of the most expansive investigations of contemporary jihadist thought produced. . . . [A] single ideological

reference for past, present and future information about how and why Muslims must wage violent jihad."[21]

Another prominent source of knowledge within the al Qaida network was Muhammed Atef (a.k.a. Abu Hafs al-Misri), an Egyptian national and former Egyptian police officer who assumed control of al Qaida's training camps in 1996 after the former commander, Abu Ubaida al-Banshiri, was drowned in Lake Victoria, Uganda. Atef is widely believed to have been an operational mastermind behind al Qaida's terror attacks of September 11, 2001 (9/11). And a key contributor to the success of the 9/11 attacks was a Jordanian named Abu Turab al-Urduni, who taught several of the attackers how to hijack planes and trains, control passengers and crew during a hijacking, neutralize air marshals, build and use explosives, gain strength by weight lifting, and speak basic English. At one point, his trainees were forced to butcher sheep and camels with pocketknives to desensitize them to cold-blooded killing and to prepare them for any contingencies in which passengers needed to be subdued.

More recently, al Qaida operatives have been providing guidance to fighters and new recruits in Iraq. For example, a participant in one of the hundreds of Web forums used by extremists to recruit and raise funding for armed groups in Iraq recently inquired about what sort of materials and equipment he should bring with him when crossing the border from Syria. Another participant, whose online identity is "Terrorist 11," responded by posting a detailed Arabic document from Sheikh Yusuf al-Uyayri, a top al Qaida strategist who was killed by Saudi authorities in 2003.[22] Al-Uyayri recommends a modest "toolkit" should include a pocket Koran, night-vision goggles, shackles for use in abductions, a GPS system, and a video camera for casing targets. He also provides some tactical guidance for conducting the kind of urban warfare that has become all too common in Iraq, outlining how to move in urban areas; methods for clearing rooms and buildings, using hand grenades in cities and rooms, and choosing firing positions in urban centers; and the proper use of camouflage, among other instructions. "The target should be easy and simple, and the security around it should be weak. The combat action against the target should be quick and not be based on a complex plan."[23] He goes on to describe how jihadists should be "like gas or air; present but not seen," and explains how to develop competence in various tactics, such as suicide attacks, sniping, booby traps, improvised explosive devices, poisonings, kidnappings, and assassinations.[24]

The Role of the Internet
Today, instructional materials produced by "learning leaders" are increasingly made available via the Internet. For example, as terrorism expert Chris Heffelfinger recently observed, "online training material has been an essential part of advancing the jihadi movement during the past five years."[25] Further, by publishing these materials online, they become accessible to a much wider audience, contributing to the global transfer of knowledge among armed groups as well as individuals motivated to commit violent acts on their own. Indeed, as Bruce Hoffman aptly observed, "using commercially published or otherwise readily accessible bomb-making manuals and operational guides to poisons, assassinations and chemical and biological weapons fabrication . . . the 'amateur' terrorist can be just as deadly and destructive as his more 'professional' counterpart."[26]

In addition to manuals full of instructional text and diagrams, today's multimedia technologies—including videos, photos, animation, and interactive video games—offer new and exciting ways to support learning, as seen in many of today's university classrooms in advanced industrial countries, as well as in the rapid rise of distance-learning programs worldwide. Several armed groups have embraced the use of this technology for their own purposes. For example, videos posted by insurgents in Iraq to al Qaida's primary online media outlet, the As-Sahab Web site, as well as to mainstream online services like YouTube, demonstrate how to construct and deploy IEDs; how to clean, assemble, and fire assault rifles; how to develop long-range sniper skills; how to conduct ambushes and kidnappings; and how to fire mortars from the countryside into crowded city centers. Further, such videos can be posted online using any number of so-called IP-masking tools or anonymizers, making it all the more difficult to locate the source of these materials or prevent their continued distribution.

Some groups have developed their own video games. In February 2003 the Lebanese militant group Hezbollah launched a new video game called "Special Force," a game that gives players a simulated experience of military operations against Israeli soldiers in battles re-created from actual encounters in the south of Lebanon. The second edition of this video game, released in late 2007, incorporated video footage of the summer 2006 war between Israel and Hezbollah. This follows the example set earlier by white supremacists in the United States and elsewhere, who in the early years of the Internet developed "first-person shooter" games with violent graphics, depicting real-life scenarios in which the player is the central character, killing Jews and other racial minorities.[27] All the games developed by these armed groups can be downloaded from their respective Web sites by anyone, providing new avenues for the group's outreach, indoctrination, and (through virtual combat simulations) some form of knowledge transfer.

Today, there are literally hundreds of gigabytes worth of training manuals, videos, and other resources available online that provide an important and common form of knowledge sharing among terrorist groups. A search for the keyword phrase "terrorist handbook" on the popular Google search engine in June 2007 found over 985,000 Web pages. Several of these sites offer instructions on how to acquire ammonium nitrate and firearms without attracting attention, while others provide instructions on how to build several different kinds of explosives from ordinary household chemicals. As a result of Internet-based sharing of knowledge, cells affiliated with al Qaida throughout the Middle East, Southeast Asia, and Europe that have recently carried out or seriously planned bombings have relied heavily on the Internet.[28] Further, loosely organized groups of al Qaida–inspired (but not necessarily affiliated) individuals have been responsible for recent terrorist attacks in Madrid, London, Istanbul, Riyadh, and elsewhere. Indeed, according to some Western intelligence agencies and terrorism specialists, the "global jihad movement" has become a "Web-directed" phenomenon.[29]

Contemporary armed groups can also acquire a significant amount of strategic and tactical knowledge via a wide array of open-source materials such as court transcripts, academic publications, government training manuals, and media accounts. Overall, security analysts have grown increasingly concerned about the huge and growing online library of strategic and tactical resources on everything from creating chemical weapons to

assembling and firing a surface-to-air missile against an airline, a tactic seen recently in Kenya and Iraq.[30] There are any number of "learning leaders" within the world of armed groups who have contributed (and continually add) to the expansion of the strategic and tactical knowledge base on guerrilla warfare and terrorist violence, a knowledge base that is increasingly being shared among armed groups regardless of ideological or geographic orientation.

The Demonstrative Dimension of Knowledge Transfer
Imitation and emulation have become honored traditions in the world of armed groups. From the rash of airplane hijackings of the early 1970s to the modern conflict in Iraq, violent nonstate actors (VNSAs) have continually shown a willingness to copy the strategies and tactics of others. For example, in 1987 the Tamil Tigers (LTTE) modeled their attack of Tamil University on the 1983 Hezbollah truck bombing of the U.S. Marine barracks in Beirut. In 1995, this group's destruction of two Sri Lankan naval vessels, using small watercraft loaded with explosives, provided a model for al Qaida's 2001 attack against the USS *Cole* in the Yemeni port of Aden. Similarly, Tamil Tiger separatists carried out a coordinated suicide attack in October 2001 against the MV *Silk Pride,* an oil tanker that was carrying more than 650 tons of diesel and kerosene to the port of Jaffna, in northern Sri Lanka. The attackers used five boats in the attack. One rammed the tanker, triggering an explosion on board, and three sailors died in the attack.[31] A year later, in October 2002, Islamic militants steered an explosive-laden boat into the French oil tanker MV *Limburg* in the port of Ash Shihr, off the coast of Yemen, splitting the vessel's hull, killing one crew member and sending more than 90,000 barrels of Iranian crude oil pouring into the Gulf of Aden.[32]

Often, armed groups will carefully monitor the media coverage a particular act of violence receives and then emulate that act, or attempt to do something even more dramatic. Sometimes, these groups may be competing against each other for the attention and support of a local (or sometimes global) audience, and are therefore compelled to "outdo" one another in order to grab the spotlight. In a way, the media often provide a showcase through which armed groups can learn from each other about successful (or even unsuccessful) attacks and other types of activities.[33] When attacks occur, media companies often compete against each other (and increasingly with Web sites and bloggers on the Internet) to satisfy the public's thirst for news, graphic pictures, and titillating details. In doing so, they often provide ample information for armed groups to learn how to conduct similar attacks in the future. Indeed, as terrorism scholar Cindy Combs has observed, "Showcasing demonstrably effective terrorist actions for an audience of potential supporters and/or collaborators has become an effective and essentially cost-free teaching technique for terrorists today."[34] Overall, the media may be complicit in the demonstrative dimension of knowledge transfer in the world of armed groups. However, their role pales in comparison to that of other avenues of learning, such as training camps and places of conflict.

Training Camps
According to a recent report by the U.S. Department of State, Iran and Syria routinely provide safe haven, substantial resources, and guidance to terrorist organizations.[35] In

particular, Iran has been providing guidance and training to select Iraqi Shia political groups, and weapons and training to Shia militant groups to enable anticoalition attacks. The State Department report notes that "Iranian government forces have been responsible for at least some of the increasing lethality of anticoalition attacks by providing Shia militants with the capability to build IEDs with explosively formed projectiles similar to those developed by Iran and Lebanese Hizballah. The Iranian Revolutionary Guard was linked to armor-piercing explosives that resulted in the deaths of Coalition Forces. The Revolutionary Guard, along with Lebanese Hizballah, implemented training programs for Iraqi militants in the construction and use of sophisticated IED technology. These individuals then passed on this training to additional militants in Iraq."[36]

In Syria, Hezbollah militant leaders have provided training to several Palestinian groups who, in turn, provided training in armed assaults, kidnappings, and demolitions to western European and Latin American extremists, some of whom later carried out attacks in support of their benefactors' causes.[37] According to the U.S. Department of State, several radical terrorist groups have maintained training camps or other facilities on Syrian territory over the last 20 years, including the Popular Front for the Liberation of Palestine (PFLP), the Abu Nidal Organization, and the Palestinian Islamic Jihad (PIJ).[38] One notorious example is the Ayn Tzahab training camp in Syria, allegedly supported by Iran and used for operational training for Palestinian terrorists, including Hamas and Palestinian Islamic Jihad operatives.[39] Similar training camps have been located in the Syrian-controlled Bekaa Valley, in eastern Lebanon, where the Turkish separatist group PKK is also known to have had a training camp.

A state's participation in transferring lethal knowledge to armed groups is not new. During the cold war, for example, the United States and the Soviet Union offered military training—either directly or indirectly through proxies—to a variety of armed groups.[40] In Libya, the government provided safe haven and both ideological and logistical support for a wide variety of groups throughout the 1970s and '80s. In addition to Palestinian and Islamist terrorists, groups that have received training in Libya include the Irish Republican Army, the Basque separatist group ETA, Sierra Leone's Revolutionary United Front, Colombia's M-19, the Haitian Liberation Organization, the Chilean Manuel Rodriguez Patriotic Front, the Secret Army for the Liberation of Armenia, and the Japanese Red Army.[41]

Afghanistan and its border region with Pakistan have also been prominent locations of training camps for armed groups. Government reports and several scholarly books have already provided ample evidence of how the Taliban facilitated a vast enterprise of terrorist training camps for al Qaida and other like-minded entities throughout Afghanistan.[42] Many of these camps existed even before the reign of the Taliban. During the war against Soviet occupation forces in Afghanistan, the U.S. Central Intelligence Agency provided funding and weapons to the Pakistani Inter-services Intelligence Directorate, which distributed them among various resistance groups fighting in Afghanistan. These national resistance fighters, in turn, trained foreign Islamic militants helping them overthrow the Soviets. By some estimates, several thousand camps were established throughout Afghanistan and across the Pakistani border—in and around the city of Peshawar and the tribal region of Waziristan—between 1980 and 1989, providing military training

and seminars in Islamic history and theology to Afghans, Arabs, and others. Training camps in this region have typically been harsh learning environments—mud huts, dusty classrooms, obstacle courses, mazes of barbed wire, trenches, and, of course, no basic utilities.[43] And yet, by one account, upwards of 70,000 militants received weapons training and religious instruction in al Qaida's training camps in this region.[44]

South of Kashmir, the mountainous areas of western Pakistan—a region long known for providing safe haven for bandits and extremists—have also been used for militant training, often by members of several ideologically aligned groups. Experts in ambush tactics and explosives are in high demand in this region, and they typically provide their knowledge to whoever seeks it. Videotapes obtained by ABC News in 2005 contain images of al Qaida training camps inside Pakistan and show fighters conducting a variety of exercises with automatic weapons, as they once did at similar camps in Afghanistan. The fighters are identified as coming from nine different countries in Africa and the Middle East, with many from Saudi Arabia.[45]

After receiving their training in the al Qaida camps of Afghanistan or Pakistan during the 1990s, most militants returned home, some to comfortable environs and regular lifestyles, while others joined Islamist groups elsewhere in the world, including the Chechen Mujahideen, the Armed Islamic Group in Algeria, the Abu Sayyaf Group in the Philippines, and Jemaah Islamiyah in Indonesia.[46] Members of these groups often proceeded to establish their own training camps after returning to their countries of origin. For example, Abu Sayyaf established a central base on Basilan's Mohadji mountain called Camp Abdurajak—one of at least nine Abu Sayyaf camps hidden in the jungles of the Philippines.[47] On the island of Mindanao, in the southern Philippines, three major JI terrorist training camps—Camp Vietnam, Camp Palestine, and Camp Hodeibia—were set up alongside the Moro Islamic Liberation Front's (MILF's) Camp Abu Bakar complex.[48] Mindanao has, in turn, become a hub of knowledge transfer for armed groups throughout Southeast Asia. According to Philippine military intelligence, these camps have played host to several hundred trainers from the Middle East,[49] and security services throughout the region have been concerned about a steady flow of visitors to Mindanao.

In early 2006, Malaysian authorities arrested members of a 12-man logistical cell—composed of Indonesians, Malaysians, and two Filipinos—who were responsible for getting *jihadis* in and out of Mindanao, where they were being trained in MILF camps. The two Filipinos told the Philippine National Police, who were sent to question them, that they were bringing militants to Pattani for training. According to regional expert Zachary Abuza, an undated Thai intelligence report describes how a Pattani Muslim, Ruli (a.k.a. Ahmed), went to Afghanistan in 1998, and upon returning to Indonesia engaged in the sectarian fighting in Ambon and the Moluccas following the fall of Suharto. He is believed to be running training for Pattani militants in Indonesia. This corresponds with the increased small-arms training JI was conducting for itself in 2006.[50] Similarly, Malaysian authorities believe that members of Kumpulan Mujahedin Malaysia (KMM)—a group that favors the overthrow of the Malaysian government and the creation of an Islamic state comprising Malaysia, Indonesia, and the southern Philippines (and southern Thailand)—has close ties to JI, and several arrested KMM militants reportedly received military training in Afghanistan and possibly Mindanao.[51]

In most cases, training camps are used exclusively by members of a particular armed group, but in these cases, members of various groups were welcomed and trained, in the process creating a network of alumni who—having survived a typically grueling experience together—may have formed bonds of friendship that are sustained for many years afterward. It is thus important to learn all we can about the places of armed-group training around the world and, from an analysis of their similarities, develop ways to reduce their potential role in the global transfer of lethal knowledge.

Places of Conflict

While formal training camps have historically served an important role in facilitating knowledge transfer between armed groups, places of conflict can be seen as a hub of on-the-job training. While Afghanistan during the 1980s provided many opportunities for individuals and groups from around the world to learn basic irregular warfare tactics while fighting the Soviets, at present no other country in the world offers a more active place for urban guerrilla-warfare training than Iraq. A report released by the Central Intelligence Agency on 21 June 2005 even suggested that "Iraq may prove to be an even more effective training ground for Islamic extremists than Afghanistan."[52] Terrorism experts Daniel Benjamin and Gabriel Weimann have described Iraq as "a theater of inspiration"[53] where foreign fighters and Iraqi insurgents are learning how to manufacture improvised explosive devices (as described earlier) and to use light weapons with increasingly lethal effect. As David Brooks observed in a recent *New York Times* report, "The landscape of insurgency in Iraq is comprised of disparate groups that share information, learn from each other's experiments and respond quickly to environmental signals."[54]

In fact, knowledge transfer in Iraq is taking place in several ways simultaneously: insurgents (secular and Islamists) are learning from foreign Islamist militants; foreign fighters are learning from local Iraqi insurgent groups; and armed groups worldwide are learning from the successes and failures of all the violent nonstate actors currently engaged in this theater of conflict. But perhaps more important, foreign fighters who have come to Iraq and engaged in the conflict are returning to their countries of origin, having gained valuable experience in urban guerrilla warfare—the kind of strategies and tactics that would prove more useful in contemporary Western cities than anything that could have been learned in Afghanistan. In some ways, Iraq has become a graduate school of jihadist studies, and those who survive the conflict and return home are viewed with some admiration by their local extremist colleagues as having both luck and specialized, useful knowledge.

In general, the migration of fighters from one operational theater to another (e.g., from Afghanistan to Bosnia or Iraq) may be one of the most important historical forms of organizational knowledge transfer among armed groups. During the early 1990s, thousands of mujahideen left Afghanistan and other parts of central Asia to fight alongside Bosnian Muslims against the Serbs. Weapons and fighters were smuggled through Croatia and other locations to support the Muslims in their struggle, and "on the job" combat training for new fighters was common. By 1994, major Balkan terrorist training camps included Zenica, Malisevo, and Mitrovica in Kosovo, where experienced veterans taught new recruits.[55] After the war, some stayed in the country and settled in, and some returned home to their countries of origin, but many foreign Islamist extremists took

their experience in search of a new place to continue the jihad. Today, the conflicts in Iraq and Afghanistan—as well as lower-level terrorist activity in Pakistan (and Kashmir), India, Indonesia, Algeria, Morocco, Egypt, and elsewhere in Africa, the Middle East, and Southeast Asia—offer these wandering extremists the opportunity they seek to engage their perceived enemies in combat.

Because of the increasingly violent conflict in the southeastern region of the country, Afghanistan has once more become an important hotbed for militant training and knowledge sharing among insurgents (like the Taliban and the rebels loyal to warlord Hekmatyr Gulbuddin) and other armed groups, including those involved in the enormously lucrative opium trade. Further, there is mounting evidence that strategies and tactics developed in the Iraqi theater of conflict are being transferred to Afghanistan. According to Afghanistan's defense minister Rahim Wardak, there are "strong indications" that al Qaida has brought in a team of Arab instructors from Iraq to teach the latest insurgent techniques to the Taliban.[56] Other researchers have described what could be called "learning missions" to Iraq by various Taliban and al Qaida fighters.

For example, Hamza Sangari, a Taliban commander from Khost Province, described to *Newsweek* reporters a trip to Iraq he took with a small group of fighters in 2005, where they learned how to make armor-penetrating weapons by disassembling rockets and RPG rounds, removing the explosives and propellants, and repacking them with powerful, high-velocity "shaped" charges; how to make and use various kinds of remote-controlled devices and timers; and how to spring ambushes and engage in urban fighting.[57] Sangari told the reporters that the IED training was particularly helpful in replacing the comparatively ineffective use of obsolete land mines left over from the Soviet occupation. The transfer of knowledge from Iraqi insurgents has also been documented in Pakistan, where a sweep of pro-Taliban sites along the Afghan frontier in North Waziristan revealed a mound of Arabic-language training manuals, apparently copies of the ones used by insurgents in Iraq. Sangari commented that he was also impressed by the way Iraqi insurgents created combat videos to help fund-raising and recruiting efforts. It should thus come as no surprise to find that similar videos of Taliban attacks are now showing up in bazaars along the Pakistani border.[58]

Meanwhile, the Niger Delta region of West Africa has become a training ground for several militias and armed gangs. During 2006, these groups kidnapped more than 150 foreigners, killed unkown numbers of Nigerian armed forces personnel, detonated several car bombs, destroyed various oil pipeline facilities, and crippled the oil production of Africa's largest oil exporter by nearly 24 percent. The larger of these groups—including the Niger Delta People's Volunteer Force, the Niger Delta Vigilantes (a.k.a. Icelanders), and the Movement for the Emancipation of the Niger Delta (MEND)—watch each other closely because of their natural competition for publicity and support. A successful attack by one may inspire a similar attack by another within a short period of time. Insurgents in the Niger Delta region have watched the enormous press coverage given to kidnappings in the Middle East, and have adapted this tactic by kidnapping foreign oil workers to gain the world's attention. These groups in turn are closely watched by smaller players in the region, including the Federated Niger Delta Ijaw Communities (an ethnic militia), the Coalition for Militant Action in the Niger Delta, and the so-called Martyr's

Brigade. And in a situation that is similar to that in Iraq, individuals may be involved in an attack on behalf of one group on one day, and the next day be fighting on behalf of a different group. In short, the region supports a swirling gray cloud of knowledge transfer, often at the individual level. The scope and patterns of this activity are difficult to assess with any real accuracy, but it is certainly a significant contributor to the overall level of violence faced by the Nigerian authorities today.

Knowledge Transfer and the Trusted Handshake

As described earlier, clandestine networks can self-organize and disperse, comprising formal, informal, family, and cultural associations tied by varied and sometimes near-invisible links. The distributed cellular architecture of a network insulates and protects the core, while the links between members provide conduits through which they can publicize, mobilize, radicalize, coordinate, finance, collect, and share information and other vital organizational activities. These links also provide avenues for collaboration with other armed groups, state sponsors, criminal enterprises, and organizations willing to provide support and exchange valuable knowledge. How are these links established? In essence, anyone can become a member of the network, though usually the individual must first establish some form of credentials through which others in the network can then justify membership. I call this "the trusted handshake."[59] Examples of the foundations upon which a trusted handshake is established can include mutual friends or acquaintances who would vouch for you (in the Sicilian Mafia, for example, members vouch for others with their lives); family ties (to include belonging to a specific clan or tribe, by birth or marriage); ethnic ties, often within a diaspora (e.g., Algerians in France and Spain, Pakistanis in the United Kingdom, Tamils in Canada, Turks in Germany); a shared academic/scientific knowledge base; religion (doctrinal knowledge, formal credentials, etc.); and shared experiences (as in a training camp or on a battlefield) that give members a common "veteran" status.

Sociopolitical environments can contribute to the forging of these trusted handshakes. For example, places with a high level of corruption and weak civil society; areas of deep ethnic fissures (where a common animosity toward a distinct "them" drives daily behavior); regions of severe financial or economic desperation and weak border security (usually patrolled by poorly equipped, underpaid guards); states ruled by authoritarian, statist regimes that overly control the local economy; and places with a severe lack of transparency in private- and public-sector finance can all bring like-minded individuals together.

Another prominent place where these trusted handshakes are forged is prison. Places of incarceration produce a similar sort of "veteran status" to that of training camps and places of conflict, and members of armed groups who are released from prison are often treated with additional respect by other members of their cadres. Various forms of knowledge transfer take place in prison. For example, some studies have noted that when members of the IRA were captured and sent to British or Irish prisons, they were immediately debriefed by other inmates, who then smuggled the information (and lessons learned) to IRA members outside the prison walls. Particularly useful information passed on by the imprisoned terrorists could include how they were caught, what information the captors were looking for, what (if anything) might have gone awry with a

planned attack being carried out, and who (if anyone) might have played a role in their capture.[60] More recently, authorities in the U.S. military have grown concerned about the thousands of insurgents in Iraq who have cycled through U.S.-run prisons there. Some U.S. commanders in Iraq have expressed concern that the infamous Abu Ghraib prison has become a "jihad university"—a breeding ground for extremist leaders and a school for terrorists.[61]

In sum, knowledge transfer among armed groups is often driven by individual human connections. Historically, these connections have been forged in person-to-person interactions, whether in training camps, places of conflict, prison, or elsewhere, but we have also seen a rapid increase in knowledge transfer between armed groups via the Internet.

CONCLUSIONS AND IMPLICATIONS

The many examples of knowledge transfer reflected in this discussion indicate a level of adaptation, operational flexibility, and organizational learning capacity among armed groups that warrants our attention. Knowledge transfer is facilitated within and between armed groups through an array of training camps, places of active conflict, prisons, and the Internet. Tactics demonstrated as effective by one armed group are often adopted by others, while certain individuals within each group serve as leaders of knowledge transfer, through the resources they author (both in print and in multimedia forms) as well as through personal relationships with key sources of knowledge.

What does this analysis suggest for our understanding of armed groups and of new ways to confront them? To begin with, it is important to recognize that **armed groups who are committed to the long-term training and education of their members can be more successful.** Clearly, the attributes of a learning organization (e.g., fostering the ability to adapt to a changing strategic environment) can be seen among the more sophisticated terrorist organizations, like al Qaida, Hamas, Jemaah Islamiyah, and the FARC. Through the development of doctrines, training manuals, military exercises, and educational programs (often, but not necessarily, provided at remote training camps), the most lethal terrorist organizations work hard to continually improve their lethal capabilities. Structure and membership of a group also have a significant impact on their learning capabilities. Thus, "capacity for learning" should be an element in determining which armed groups may pose a greater threat to us than others.

As armed groups learn, we should expect some level of transformation in their tactics for recruitment, acquisition of material and finance, and attack. We must understand and anticipate the type of organizational dynamism reflected in the examples provided in this chapter. In other words, we should never assume that a particular armed group relies on any single static list of tactics; rather, we should assume the group is capable of—and perhaps actively seeking avenues for—learning and adapting. Thus, we need to identify the patterns and pathways of a group's learning, as well as what kinds of learning are influencing the members of the group and why.

Successful armed groups learn from the strategies and tactics of other organizations through technology and personal contact. As described in this chapter, groups learn by studying each others' training manuals, videos, and other forms of

information (particularly via the Internet), and they also learn from media accounts of terrorist events (both successes and failures) carried out by other organizations. As seen in the examples of Jemaah Islamyiah members training in al Qaida's Afghanistan camps, or members of the Lebanese Hezbollah aiding the Palestinian group Hamas, a global network of information and knowledge sharing plays a key role in developing the operational capabilities of learning organizations. Further, while the formal means and locations of knowledge sharing are important (for example, training camps), it is the informal knowledge networks among terrorists and their organizations that contribute the most to learning in the terrorist world. In this regard, the insurgency in Iraq—which attracted thousands of foreign fighters, who have learned urban terrorist tactics—requires extensive analysis to determine where these fighters go when they eventually leave this region.

Further, **we must gather all the information we can about the individual-level human dynamics within an armed group that facilitates knowledge transfer.** Trust is a critical component of human networks—indeed, according to noted terrorism scholar Brian Jenkins, "To work well, networks require strong shared beliefs, a collective vision, some original basis for trust, and excellent communications."[62] The trusted handshake, established by various social mechanisms and shared beliefs, provides the means by which network members agree to collaborate in achieving the network's objectives. Trust is also vital for the transfer of knowledge from teacher to learner, both within a group and between groups. Recognizing this, it is important to identify the most knowledgeable and trusted members of a particular armed group or network, in order to gain insights into the pathways and types of learning that take place within the group, and to learn what terrible things they may be capable of.

Given that the trusted handshake establishes the means by which knowledge transfers are validated, **we must focus our counterterrorism and intelligence-gathering efforts toward identifying and apprehending key knowledge brokers;** beyond the traditional focus on the group members who pull triggers, detonate explosives, or plan attacks, we must place greater emphasis on finding those who transfer knowledge both within and beyond the group. We need to locate and neutralize the principal conduits of knowledge transfer that enable armed groups to become more sophisticated and effective. For example, key learning leaders of al Qaida like Abu Musab al-Suri, Sheikh Yusuf al-Uyayri (whose advice on what to bring to Iraq was mentioned earlier), Abu Qatada, and Muhammed Atef should be at the top of our list of individuals to apprehend.

We need to deter individuals from participating in knowledge transfer transactions. Some countries have attempted legal remedies to thwart the transfer of lethal knowledge. For example, the U.S. statute *U.S. Code* 18, section 842(p), states,

> It shall be unlawful for any person:
>
> (A) to teach or demonstrate the making or use of an explosive, a destructive device, or a weapon of mass destruction, or to distribute by any means information pertaining to, in whole or in part, the manufacture or use of an explosive, destructive device, or weapon of mass destruction, with the intent that the teaching, demonstration, or information be used for, or in furtherance of, an activity that constitutes a Federal crime of violence; or

> (B) to teach or demonstrate to any person the making or use of an explosive, a destructive device, or a weapon of mass destruction, or to distribute to any person, by any means, information pertaining to, in whole or in part, the manufacture or use of an explosive, destructive device, or weapon of mass destruction, knowing that such person intends to use the teaching, demonstration, or information for, or in furtherance of, an activity that constitutes a Federal crime of violence.

Thus, it is illegal to demonstrate how to build explosives; and yet individuals are doing this online regularly worldwide. On 29 March 2004, Canadian police arrested Mohammed Momin Khawaja, a 24-year-old computer programmer, and charged him with involvement in what Canadian and British authorities described as a transatlantic plot to bomb targets in London and Canada. British prosecutors alleged in court that Khawaja met his acquaintances online, where he showed them images of explosive devices found on the Web and told them how to detonate bombs using cell phones.[63] Can we prosecute Web-site-hosting services for providing the means by which this knowledge transfer is taking place? In years past, we devised new legal frameworks in which all countries agree to apprehend and prosecute purveyors of Internet child pornography; can we not do something akin to this in response to the global proliferation of online instruction manuals and videos for conducting violent attacks?

In addition, we should examine new and creative strategies to negatively impact the usefulness of this knowledge transfer by damaging the trust upon which it's built. For example, there may be ways to undermine the credibility of a group or its members by highlighting strategic blunders, infiltration by authorities, financial incompetence, and so forth. Negatively impacting the "street perception" of a group can be just as important as confronting it with kinetic force. Given the importance of the "trusted handshake" as discussed above, individuals are less likely to trust the information received from a source whose credibility is suddenly called into question.

We must also address the various environmental conditions that enable knowledge transfer between armed groups. From training camps to prisons and places of ongoing conflict, there are literally dozens of locations around the world in which knowledge transfer is taking place daily among and between armed groups and individuals of various ideological and criminal orientations. What sociopolitical factors or security environments enable this learning? What do places like the Bekaa Valley, the Afghanistan-Pakistan border region, or the island of Mindanao have in common? In addition to a remote and rugged terrain, they are places where local sociopolitical conditions create a climate of tolerance (or even support) of armed-group training. Specific countries, like Afghanistan, Bosnia, and Iraq, have played a critical role in facilitating the advancement of knowledge and its dissemination throughout the world, while other countries—like Iran, Libya, and Syria—have even provided strategic and tactical expertise to armed groups of various ideological persuasions.

An array of criminal organizations, militias, and terrorist networks are prominently found in weak or failing states. Thus it is unsurprising to find that these states play a key role in the global trade in drugs and weapons, which is facilitated by critical security vulnerabilities—porous borders, corruption, inadequate law enforcement, and an environment of extreme scarcity. Overall, understanding the environmental conditions—to

include physical and human geography, economics, culture, and the political landscape—that may facilitate training camps for armed groups is an important dimension of our ability to combat the existence of such places of knowledge transfer.[64] Our response to enabling environments for armed-group learning requires many levers of national power, including diplomatic, financial, and legal. Governments must be pressured and equipped with the means to locate and destroy training camps, combat corruption, monitor prison activity, and work collectively to reduce the sheer number and scope of the world's places of conflict

Finally, **we need to constrain the ability of armed groups to obtain knowledge that would give them strategic or tactical advantages.** We must make it harder for armed groups to predict how we will confront them, or how we will react to their threats or attacks; in other words, we need to make it harder for them to learn how to effectively anticipate our actions, and make it harder for them to learn things about us that might give them an advantage. Security and law enforcement personnel are already keenly aware of the need to avoid being open about operating procedures, but the media and the Internet have created new challenges for maintaining operational security. The Internet in particular provides a wealth of information about societies, institutions, governments, the details of physical locations (for example, the Google Earth imaging service), and so forth, which allows armed groups to learn far more about us than we can learn about them. From professional reporters to amateur Web-site moderators, in today's information age we must all learn to identify sources of new knowledge that are (or would be) attractive to armed groups, and employ some sort of self-censorship to ensure our own security. This is perhaps the greatest challenge of today's global security environment—how to confront an actively learning armed group while maintaining some semblance of open society.

As this cursory overview reveals, there is a swirling world of knowledge transfer activities among armed groups—an opaque cloud, in which it is difficult at best to pinpoint patterns and pathways. Nonetheless, we must rise to the challenge and expand our efforts to understand the threat we face by such activities. This analysis highlights the need for more research and analysis on the role of knowledge transfer in the world of violent nonstate actors, in the hopes that doing so will enhance our ability to respond to the threat of armed groups with greater sophistication and success.

NOTES

This chapter contains a few small portions of material from *Teaching Terror: Strategic and Tactical Knowledge in the Terrorist World,* edited by James Forest (Lanham, MD: Rowman & Littlefield, 2006), particularly chapters 1, 4, and 10. In most cases, this material has been updated or modified from previous versions.

1. Larry C. Johnson, former deputy director, Office of Counterterrorism, Department of State, statement to the Committee on Foreign Relations, Subcommittee on International Operations and Terrorism, 107th Cong., 1st sess., 18 December 2001, 17, available at bulk.resource.org/gpo.gov/hearings/107s/77601.pdf.

2. For a detailed discussion on the types of learning sought by members of terrorist organizations, please see chapter 4 of *Teaching Terror* and volume 2 of *The Making of a Terrorist: Recruitment, Training and Root Causes*, edited by James J. F. Forest (Westport, CT: Praeger Security International, 2005).

3. Scott Johnson and Melinda Liu, "The Enemy Spies," *Newsweek,* 27 June 2005, available at www.msnbc.msn.com/id/8272786/site/newsweek.

4. Zachary Abuza, "The Role of Foreign Trainers in Southern Thailand's Insurgency," *Terrorism Monitor* 5, no. 11 (7 June 2007), available at www.jamestown.org/terrorism/news/article.php?articleid=2373451.

5. Brian A. Jackson, John C. Baker, Kim Cragin, John Parachini, Horacio R. Trujillo, and Peter Chalk, *Aptitude for Destruction,* vol. 2, *Case Studies of Organizational Learning in Five Terrorist Groups* (Santa Monica, CA: RAND Corporation, 2005), 103. Also, see Brian Jackson's chapter in this volume for a description of how the PIRA learned to use rocket-propelled grenades (RPGs)—and even developed its own improvised versions of commercial systems—with increasing lethality between 1981 and 1991.

6. Paraphrased from Brian A. Jackson, *Aptitude for Destruction,* vol. 1, *Organizational Learning in Terrorist Groups and Its Implications for Combating Terrorism,* with John C. Baker, Kim Cragin, John Parachini, Horacio R. Trujillo, and Peter Chalk (Santa Monica, CA: RAND, 2005), 37.

7. For more on this, see ibid., 37–47.

8. Paraphrased from Horacio Trujillo and Brian Jackson, "Theory: Organizational Learning as a Four-Component Process," in *Aptitude for Destruction,* vol. 2, *Case Studies of Organizational Learning in Five Terrorist Groups,* by Brian A. Jackson, John C. Baker, Kim Cragin, John Parachini, Horacio R. Trujillo, and Peter Chalk (Santa Monica, CA: RAND Corporation, 2005), 182.

9. See James Forest, introduction to *Teaching Terror: Strategic and Tactical Knowledge in the Terrorist World,* ed. James Forest (Lanham, MD: Rowman & Littlefield, 2006).

10. For a case study of knowledge transfer activities between the IRA and the FARC, please see Kim Cragin, Peter Chalk, Sara A. Daly, and Brian A. Jackson, *Sharing the Dragon's Teeth: Terrorist Groups and the Exchange of New Technologies* (Santa Monica, CA: RAND, 2007), 71–91.

11. Martin Hodgson, Rosie Cowan, and Richard Norton-Taylor, "Suspected IRA Trio Held in Colombia," *The Guardian,* 14 August 2001, available at www.guardian.co.uk/Northern_Ireland/Story/0,2763,536573,00.html; and Jerry Seper, "Colombia Upholds IRA Convictions," *Washington Times,* 31 March 2007, available at wpherald.com/articles/4023/1/Colombian-Supreme-Court-upholds-IRA-convictions/Ex-IRA-members-convicted-for-supporting-FARC.html.

12. BBC News, "Congress Hears Damning IRA Report," 24 April 2002, available at news.bbc.co.uk/1/hi/northern_ireland/1949484.stm.

13. Wong Chun Wai and Lourdes Charles, "Indonesian Radical Groups Learning Chechen Terrorist Tactics," *The Star* (Singapore), 27 September 2004.

14. David S. Cloud, "Iraqi Rebels Refine Bomb Skills, Pushing Toll of GI's Higher," *New York Times*, 22 June 2005.

15. Brian A. Jackson, Peter Chalk, R. Kim Cragin, Bruce Newsome, John V. Parachini, William Rosenau, Erin M. Simpson, Melanie Sisson, and Donald Temple, *Breaching the Fortress Wall: Understanding Terrorist Efforts to Overcome Defensive Technologies* (Santa Monica, CA: RAND, 2007), 124; Horacio R. Trujillo, "The Radical Environmentalist Movement," in *Aptitude for Destruction*, vol. 2, *Case Studies of Learning in Five Terrorist Organizations,* by Brian A. Jackson, John C. Baker, Kim Cragin, John Parachini, Horacio R. Trujillo, and Peter Chalk (Santa Monica, CA: RAND Corporation, 2005), 141–75; and Brian A. Jackson, "The Provisional Irish Republican Army," in *Aptitude for Destruction*, vol. 2, *Case Studies of Learning in Five Terrorist Organizations,* by Brian A. Jackson, John C. Baker, Kim Cragin, John Parachini, Horacio R. Trujillo, and Peter Chalk (Santa Monica, CA: RAND Corporation, 2005), 93–140.

16. For example, see Sean O'Callaghan, *The Informer* (London: Corgi Books, 1999), 305.

17. See Paul Cruickshank and Mohannad Hage Ali, "Abu Musab Al Suri: Architect of the New Al Qaeda," *Studies in Conflict and Terrorism*, January 2007, 1–14.

18. For more on this, please see Murad Al-shishani, "Abu Mus'ab al-Suri and the Third Generation of Salafi-Jihadists," *Terrorism Monitor* 3, no. 16 (11 August 2005), available at jamestown.org/terrorism/news/article.php?articleid=2369766.

19. Many of al-Suri's books and lectures have been translated by the Combating Terrorism Center at West Point, and are available to researchers at www.ctc.usma.edu.

20. Steve Coll and Susan B. Glasser, "Terrorists Turn to the Web as Base of Operations," *Washington Post,* 7 August 2005, A01, available at www.washingtonpost.com/wp-dyn/content/article/2005/08/05/AR2005080501138.html.

21. Jarret Brachman and James J. F. Forest, "Terrorist Sanctuaries in the Age of Information: Exploring the Role of Virtual Training Camps," in *Denial of Sanctuary: Understanding Terrorist Safe Havens,* ed. Michael Innes (London: Praeger Security International, 2007).

22. See Erich Marquadt, "Jihadi Website Advises Mujahideen on Equipment to Bring to Iraq," *Terrorism Focus* 4, no. 12 (1 May 2007).

23. Ibid.

24. Ibid.

25. Chris Heffelfinger, "Online Jihadi Forums Provide Curriculum for Aspiring Mujahideen," *Terrorism Focus* 3, no. 41 (24 October 2006), available at jamestown.org/terrorism/news/uploads/tf_003_041.pdf.

26. Bruce Hoffman, *Inside Terrorism* (New York: Columbia University Press, 1998), 203.

27. For more on this, please see Madeleine Gruen, "Innovative Recruitment and Indoctrination Tactics by Extremists: Video Games, Hip Hop, and the World Wide Web," in *The Making of a Terrorist: Recruitment, Training and Root Causes,* vol. 1, *Recruitment,* ed. James J. F. Forest (Westport, CT: Praeger, 2005).

28. Coll and Glasser, "Terrorists Turn to the Web as Base of Operations."

29. Ibid.

30. For example, see Lisa Myers, "Al Qaeda Web Message Offers Missile Tutorial," MSNBC.com, 30 March 2005, www.msnbc.msn.com/id/7339768/.

31. BBC News, "Tamil Tigers Claim Tanker Attack," 31 October 2001, news.bbc.co.uk/1/hi/world/south_asia/1628218.stm.

32. BBC News, "Yemen Says Tanker Blast Was Terrorism," 16 October 2002, news.bbc.co.uk/1/hi/world/middle_east/2334865.stm; and BBC News, "Craft 'Rammed' Yemen Oil Tanker," 6 October 2002, news.bbc.co.uk/2/hi/middle_east/2303363.stm.

33. See Cindy C. Combs, "The Media as a Showcase for Terrorism," in *Teaching Terror: Strategic and Tactical Knowledge in the Terrorist World,* ed. James Forest (Lanham, MD: Rowman & Littlefield, 2006); and Brigitte Nacos, "The Role of the Media," in *The Making of a Terrorist: Recruitment, Training and Root Causes,* vol. 1, *Recruitment*, ed. James J. F. Forest (Westport, CT: Praeger, 2005).

34. Combs, "The Media as a Showcase for Terrorism."

35. Department of State, *Country Reports on Terrorism 2006* (Washington, DC, April 2007), chap. 3, available at www.state.gov/s/ct/rls/crt.

36. Ibid.

37. Charles A. Russell, Leon J. Banker, Jr., and Bowman H. Miller, "Out-Inventing the Terrorist," in *Terrorism: Theory and Practice*, ed. Yonah Alexander, David Carlton, and Paul Wilkinson (Boulder, CO: Westview, 1979), 8–9; Edward Heyman and Edward Mickolus, "Observations on Why Violence Spreads," *International Studies Quarterly* 24, no. 2 (June 1980): 299–305; Edward Heyman and Edward Mickolus, "Imitation by Terrorists: Quantitative Approaches to the Study of Diffusion Patterns in Transnational Terrorism," in *Behavioral and Quantitative Perspectives on Terrorism,* ed. Yonah Alexander and John M. Gleason (New York: Pergamon Press, 1981), 175–228.

38. U.S. Department of State, *Patterns of Global Terrorism, 1993* (Washington, DC, 1994), available at www.hri.org/docs/USSD-Terror/93/statespon.html.

39. See "IDF Action in Syria," Israel News Agency, 5 October 2003, www.israelnewsagency.com.

40. For more on this, please see Michael Kenney, *From Pablo to Osama* (Pennsylvania State University Press, 2006).

41. Council on Foreign Relations, "Libya," Terrorism: Q&A, cfrterrorism.org/sponsors/libya.html; and "Libyan Training Camps," GlobalSecurity.org, www.globalsecurity.org/intell/world/libya/facility.htm.

42. See Rohan Gunaratna, *Inside Al Qaeda: Global Network of Terror* (New York: Berkley Publishing Group, 2002); Peter Bergen, *Holy War: Inside the Secret World of Osama Bin Laden* (New York: The Free Press, 2004); Michael Scheuer, *Through Our Enemies' Eyes: Osama bin Laden, Radical Islam, & the Future of America* (Washington, DC: Brassey's, 2003); and Martha Brill Olcott and Bakhtiyar Babajanov, "Teaching New Terrorist Recruits: A Review of Training Manuals from the Uzbekistan Mujahideen," in *The Making of a Terrorist: Recruitment, Training and Root Causes,* vol. 2, *Training,* ed. James J. F. Forest (Westport, CT: Praeger Security International, 2005), 136–51.

43. See, for example, C. J. Chivers and David Rohde, "Turning Out Guerrillas and Terrorists to Wage a Holy War," *New York Times,* 18 March 2002.

44. BBC News, "Al-Qaeda Camps Trained 70,000," 4 January 2005, news.bbc.co.uk/2/hi/europe/4146969.stm. For more on terrorist training in this region, see "FBI: Al Qaeda Plot Possibly Uncovered," *CNN.com,* 9 June 2005, www.cnn.com/2005/US/06/09/terror.probe; and "Terrorist Training Camp Destroyed, Five Terrorist[s] Killed," Press Trust of India, 27 May 2005 available at www.hindustantimes.com/news/181_1378250 ,000900010002.htm.

45. Brian Ross and Jill Rackmill, "New Questions about Al Qaeda Training Camps in Pakistan," ABC News, 8 June 2005, abcnews.go.com/WNT/Investigation/story?id=831750&page=1&CMP=OTC-RSSFeeds0312.

46. For more on al Qaida's terrorist training camps in Afghanistan, see Rohan Gunaratna, "The Al Qaeda Training Camps of Afghanistan and Beyond," in *The Making of a Terrorist: Recruitment, Training and Root Causes*, vol. 2, *Training,* ed. James J. F. Forest (Westport, CT: Praeger Security International, 2005).

47. Maria Ressa, *The Seeds of Terror: An Eyewitness Account of Al Qaeda's Newest Center of Operations in Southeast Asia* (New York: Free Press, 2003), 110.

48. Ibid., 133–35.

49. Zachary Abuza, *Militant Islam in Southeast Asia: Crucible of Terror* (Boulder, CO: Lynne Reinner, 2003), 97.

50. Abuza, "The Role of Foreign Trainers in Southern Thailand's Insurgency."

51. Department of State, *Country Reports on Terrorism 2006.*

52. Douglas Jehl, "Iraq May Be Prime Place for Training of Militants, CIA Report Concludes," *Washington Post,* 21 June 2005.

53. Daniel Benjamin and Gabriel Weimann, "What the Terrorists Have in Mind," *New York Times,* 27 October 2004.

54. David Brooks, "The Terrorist Advantage," *New York Times,* 18 May 2007; also, for more on the topic of knowledge sharing among armed groups, see John Robb, *Brave New War: The Next Stage of Terrorism and the End of Globalization* (Hoboken, NJ: John Wiley & Sons, 2007).

55. Marcia Christoff Kurop, "Al Qaeda's Balkan Links," *Wall Street Journal Europe*, 1 November 2001.

56. Sami Yousafzai and Ron Moreau, "Unholy Allies: The Taliban Haven't Quit, and Some Are Getting Help and Inspiration from Iraq," *Newsweek,* 26 September 2005.

57. Ibid.

58. Ibid.

59. I first introduced these thoughts on the "trusted handshake" in a paper delivered at the International Summit on Threat Convergence, held in Zurich, Switzerland, in March 2007. Some parts of this section are drawn from that paper.

60. See J. Bowyer Bell, *The IRA, 1968–2000: Analysis of a Secret Army* (London: Frank Cass, 2000); see also David E. Smith, "The Training of Terrorist Organizations," GlobalSecurity.org., www.globalsecurity.org/military/library/report/1995/SDE.htm (accessed 24 July 2003).

61. Thom Shanker, "U.S. Fears Abu Ghraib Is 'Jihad University,'" *International Herald Tribune,* 15 February 2006.

62. Brian Jenkins, "The New Age of Terrorism," in *The McGraw-Hill Homeland Security Handbook* (New York: McGraw-Hill, 2006), 123.

63. Ibid.

64. For a more complete discussion of these issues, please see James Forest, "Terrorist Training Centers around the World: A Brief Review," in *The Making of a Terrorist,* vol. 2, *Training,* ed. James J. F. Forest (Westport, CT: Praeger Security International, 2005).