



Blogs and Military Information Strategy

James Kinniburgh
Dorothy Denning

Joint Special Operations University
357 Tully Street
Alison Building
Hurlburt Field, FL 32544

<https://jsou.socom.mil>
<https://jsou.socom.mil/gateway/>



JSOU Report 06-5
June 2006





Joint Special Operations University and the Strategic Studies Department

The Joint Special Operations University (JSOU) provides its publications to contribute toward expanding the body of knowledge about Joint Special Operations. JSOU publications advance the insights and recommendations of national security professionals and Special Operations Forces' students and leaders for consideration by the SOF community and defense leadership.

JSOU is a subordinate organization of the US Special Operations Command (USSOCOM), MacDill Air Force Base, Florida. The mission of the Joint Special Operations University is to educate SOF executive, senior and intermediate leaders and selected other national and international security decision makers, both military and civilian, through teaching, outreach, and research in the science and art of joint special operations. JSOU provides education to the men and women of Special Operations Forces and to those who enable the SOF mission in a joint environment.

JSOU conducts research through its Strategic Studies Department where effort centers upon the USSOCOM mission and these operational priorities:

- Preempting global terrorist and CBRNE threats
- Enhancing homeland security
- Performing unconventional warfare and serving as a conventional force multiplier in conflict against state adversaries
- Conducting proactive stability operations
- Executing small-scale contingencies

The Strategic Studies Department also provides teaching and curriculum support to Professional Military Education institutions—the staff colleges and war colleges. It advances SOF strategic influence by its interaction in academic, interagency and US military communities.

The JSOU portal is <https://jsou.socom.mil>.

Joint Special Operations University Brigadier General Steven J. Hashem, President

Editorial Advisory Board

John B. Alexander
Ph.D., Education
*The Apollinaire Group and
JSOU Senior Fellow*

Joseph D. Celeski
Colonel, U.S. Army, Ret.
JSOU Senior Fellow

Gilbert E. Doan
Major, U.S. Army, Ret.
*JSOU Institutional
Integration Division Chief*

Thomas H. Henriksen
Ph.D., History
*Hoover Institution Stanford
Univ. and JSOU Senior Fellow*

Russell D. Howard
Brigadier General, U.S. Army, Ret.
*Director of the Jebesen Center for
Counter-Terrorism Studies, The
Fletcher School, Tufts University
and JSOU Senior Fellow*

George Emile Irani
Ph.D., International Relations
*Toledo International Center for
Peace and JSOU Senior Fellow*

John D. Jogerst
Colonel, U.S. Air Force
USAFSOS Commandant

Brian A. Maher
Ed.D., Education
JSOU Vice President

Michael C. McMahon
Lt Colonel, U.S. Air Force
*JSOU Strategic Studies
Department Director*

William W. Mendel
Colonel, U.S. Army, Ret.
JSOU Senior Fellow

Alvaro de Souza Pinheiro
Major General, Brazilian Army, Ret.
JSOU Associate Fellow

Kenneth H. Poole
Colonel, U.S. Air Force, Ret.
JSOU Senior Fellow

James F. Powers, Jr.
*Director of Homeland Security,
Commonwealth of Pennsylvania
and JSOU Associate Fellow*

Stephen Sloan
Ph.D., Comparative Politics
University of Central Florida

Robert G. Spulak, Jr.
Ph.D., Physics/Nuclear Engineering
*Sandia National Laboratories
and JSOU Senior Fellow*

Joseph S. Stringham
Brigadier General, U.S. Army, Ret.
*Alutiiq, LLC and JSOU
Associate Fellow*

Joseph A. Stuart
Ph.D., Educational Leadership
JSOU Dean of Academics

J. Paul de B. Taillon
Ph.D., International Affairs
*Royal Military College of Canada
and JSOU Associate Fellow*

Graham H. Turbiville, Jr.
Ph.D., History
*Courage Services, LLC and
JSOU Senior Fellow*

Jessica Glicken Turnley
Ph.D., Cultural Anthropology/
Southeast Asian Studies
*Galisteo Consulting Group and
JSOU Senior Fellow*

William S. Wildrick
Captain, U.S. Navy, Ret.
JSOU Senior Fellow



*Blogs and
Military Information
Strategy*

James Kinniburgh

Dorothy Denning

JSOU Report 06-5
The JSOU Press
Hurlburt Field, Florida
2006



Comments about this publication are invited and should be forwarded to Director, Strategic Studies Department, Joint Special Operations University, 357 Tully Street, Alison Building, Hurlburt Field, Florida 32544. Copies of this publication may be obtained by calling JSOU at 850-884-2763; FAX 850-884-4732.

The Strategic Studies Department, JSOU is currently accepting written works relevant to special operations for potential publication. For more information please contact Mr. Jim Anderson, JSOU Director of Research, at 850-884-1569, DSN 579-1569, james.d.anderson@hurlburt.af.mil. Thank you for your interest in the JSOU Press.

This work was cleared for public release; distribution is unlimited.

ISBN 1-933749-14-8

The views expressed in this publication are entirely those of the author and do not necessarily reflect the views, policy or position of the U.S. Government, Department of Defense, USSOCOM, or the Joint Special Operations University.

Previous Publications of the JSOU Press

2004–2005 JSOU/NDIA Essays, April 2005

Special Operations Forces Reference Manual, June 2005

Russian Special Forces, August 2005

Graham H. Turbiville, Jr.

The Evolving Requirements of the

Canadian Special Operations Forces, September 2005

J. Paul de B. Taillon

Operationalizing COIN, September 2005

Joseph D. Celeski

Theoretical Perspectives of

Terrorist Enemies as Networks, October 2005

Robert G. Spulak, Jr. and Jessica Glicken Turnley

Logistic Support and Insurgency, October 2005

Graham H. Turbiville, Jr.

Dividing Our Enemies, November 2005

Thomas H. Henriksen

The War on Terrorism, December 2005

James A. Bates

Coast Guard SOF, February 2006

Gary R. Bowen

Implications for Network-Centric Warfare, March 2006

Jessica Glicken Turnley

Narcoterrorism in Latin America, April 2006

Alvaro de Souza Pinheiro

The Changing Nature of Warfare, the Factors Mediating Future
Conflict, and Implications for SOF, April 2006

John B. Alexander

Civil-Military Operations and Professional Military Education,
May 2006

James F. Powers, Jr.

Contents

Preface	ix
Foreword	xi
1. Introduction	1
2. Blogs and the Blogosphere	5
3. Implications for Influence Operations	19
4. Conclusions	27
Endnotes	29
About the Authors	33

Preface

Joint Special Operations University publications focus on topics pertinent to Special Operations Forces' role in the ongoing global conflict, the Global War on Terror—or as it has recently come to be called, the Long War. This short pamphlet looks at a particular segment of the information operations campaign and the importance of the internet, blogging in particular, within information operations.

This is a different type of war. It is the first major and long-term conflict where the use of the global communications tool, the internet, plays a prominent role. The authors examine blogging from a definitional point of view as well as its suitability as a potential tool in the U.S. military's information operations quiver. In their conclusion, the authors explicitly lay out the limitations of this work but clearly indicate areas for further potential work and research on the topic. JSOU hopes the community finds this work of interest and it sparks additional research into blogging as an information operations venue.

In many ways, the role of the internet is as significant as the role of newspapers in the 18th and 19th century and of television during the Vietnam War. Anything that helps understand this media's impact on the public and the Long War is important. We firmly believe this publication adds to these discussions.

Lieutenant Colonel Michael C. McMahon
Director, Strategic Studies Department
Joint Special Operations University

Foreword

U.S. information operations (IO) in Iraq have run up against a formidable cyber-savvy foe in the fight to influence and control cyberspace. The insurgent cyberforce has fought well against the highly-financed and organized U.S. IO community. Major James Kinniburgh and Dr. Dorothy Denning offer another avenue in this Joint Special Operations University report for IO specialists to bring to the fight, namely the blogosphere.

A blog is a journal available on the Web that comes in many forms of potential influence: political, online diary, video, spam, mobile (Internet postings from a mobile phone, etc.), or travel, among others. The authors offer a balanced critique of the positive and negative aspects of blogging, and then offer the opportunities of this trend for influence operations.

Their analysis rightly starts with the foreign information environment against which blogs would be generated. Here lies the crux of the issue: can U.S. bloggers properly use language and culture, and an understanding of how information is spread within a specific culture, to influence members or sectors of a population? This is an extremely sensitive topic requiring much finesse. The idea is so difficult to implement, the authors note, that it may require the U.S. to “clandestinely recruit or hire prominent bloggers or other persons of prominence already within the target nations, group, or community to pass the message.” Blogging for influence requires the ability to debate points that require inside knowledge about several topics. Insurgents, for example, have been instructed to explain on the Internet why advancing jihad is important and how to continue contrasting Islam from other religions.

Major Kinniburgh and Dr. Denning offer guidance on how to conduct Web-log intelligence collection and blog operations and how such units might advance the cause of influence. This indicates that conflict has moved into the virtual arena of open source confrontation. They add that methods for measuring the effectiveness of these techniques remain to be developed.

The spread of information technology is so rapid that this work on blogging will soon be outdated. Future reports on the impact of insurgents using “Voice over Internet Protocol” (for example, Skype) or the impact of new text-messaging procedures must now be

contemplated. IO specialists such as the authors will be very busy in the coming years.

This work is highly recommended for all IO personnel as well as PSYOP and deception specialists.

Mr. Timothy L. Thomas
FMSO, Analyst

Abstract

This paper explores the potential value of blogs to military information strategy. It examines whether blogs are influential, whether the information environment adequately supports blogging for an information campaign, and whether blogs offer a significant, reliable source of intelligence for information operations. While we can make reasonably certain statements about blogging in general that can be applied universally, the actual employment of tactics and techniques comes down to cases. The successful employment of blog operations depends on a number of variables that must be determined during intelligence preparation of the environment.

1. Introduction

September, 2004: The 2004 presidential campaign is in full swing and the producers of the television news show *60 Minutes Wednesday*, at CBS, have received a memo purporting to show that the sitting President, George W. Bush, had used his family connections to avoid his service obligations. The story, given the controversy and ratings it will generate, is just too good not to run. On cursory inspection, the documents and their source appear legitimate. On September 8th, *60 Minutes* producer Mary Mapes and anchorman Dan Rather decide to air it ...

Within minutes of airtime, posted discussion participants at the conservative Web site FreeRepublic.com posited that the documents were faked. Bloggers at Power Line¹ and Little Green Footballs (littlegreenfootballs.com) picked up these comments and posted them and their associated hyperlinks on their own blogs. The clues to the now infamous Killian memo forgeries, the bloggers pointed out, were the superscript 'th' and the Times New Roman font; both indicated the use of modern word-processing programs rather than a 1972-era typewriter. The signatures on at least two of the documents appeared to have been forged, and some with experience called into question the very format of the memo, purported to show

The clues to the now infamous Killian memo forgeries ... indicated the use of modern word-processing programs rather than a 1972-era typewriter.

orders issued to then-Lieutenant Bush. The story was given even greater attention after noted pundit, Matt Drudge, posted a link to the Free Republic thread on his own Web site, The Drudge Report (www.drudgereport.com).

What followed initially was what is known as a “blogswarm,” where the story was carried on multiple blogs, and then later a “mediaswarm.” As a result of these phenomena and CBS’ inability to authenticate the documents, several CBS employees, including producer Mary Mapes, were asked to resign. Within a month, Dan Rather announced his own retirement.

What garnered considerable interest afterward was how a group of nonprofessional journalists was able to outperform and “bring down” two icons of the traditional media, CBS and Dan Rather. CBS executive Jonathan Klein said of the bloggers, “You couldn’t have a starker contrast between the multiple layers of checks and balances (at *60 Minutes*) and a guy sitting in his living room in his pajamas writing.”²

Some columnists, like Corey Pein at the *Colombia Journalism Review*, explained the spread of the story (a.k.a., “Memogate,” or “Rathergate”) as the result of journalistic haste and the rapid coalescence of popular opinion, supported and enhanced by a blogging network of Republican story spinners.³

CBS offered its own explanations for the problems surrounding the story in its final report on the matter. The CBS reviewers found four major factors that contributed to the incident: weak or cursory efforts to establish the documents’ source and credibility, failed efforts to determine the document’s authenticity, nominal efforts at provenance, and excessive competitive zeal (the rush to air).⁴

Despite the fact that the initial questions about the CBS story were posted on a discussion forum instead of a blog, the partially erroneous attribution of the entire “Memogate” incident, and other stories that followed, to “bloggers” likely increased public awareness of blogs and blogging, and their potential power to influence. Governments have noticed this potential, and many authoritarian governments censor blogs believed to threaten their regimes. Iran has imprisoned bloggers who offended the ruling mullahs. At the same time, however, Iranian officials recognized the value of blogs to information strategy, holding the Revolutionary Bloggers Conference to promote pro-regime blogs in February 2006.⁵

The rise of military bloggers from deployed areas such as Iraq has raised concerns with U.S. Department of Defense officials that information posted in a blog could compromise operations security (OPSEC). *Stars and Stripes*, a newspaper that caters to the overseas military personnel, quoted a recent memo from the Army Chief of Staff, General Peter Schoomaker:

“The enemy aggressively ‘reads’ our open source and continues to exploit such information for use against our forces,” he wrote. “Some soldiers continue to post sensitive information to Internet Web sites and blogs. ... Such OPSEC violations needlessly place lives at risk and degrade the effectiveness of our operations.”⁶

This paper explores the possibility of incorporating blogs and blogging into military information strategy, primarily as a tool for influence. Towards that end, we examine the value of blogs as targets of and/or platforms for military influence operations and supporting intelligence operations. Influence operations are a subset of information operations (IO) that includes the core capabilities of Psychological Operations (PSYOP) and Military Deception (MILDEC), and the related capabilities of Public Affairs (PA), Military Support to Public Diplomacy (PD) and Civil Affairs/Civil-Military Operations (CA/CMO).

To evaluate the IO potential for blogs, we seek answers to two questions:

1. Are blogs truly influential, and if so, in what manner?
2. Does the information environment support blogging as part of an information campaign?

Before addressing these questions, however, we first review the nature and structure of the blogosphere.

2. Blogs and the Blogosphere

The *blogosphere* is the world of blogs, bloggers, and their interconnections. It lies mostly within the Web, but it intersects traditional media and social networks as well. To illustrate, *The Washington Post* features several blogs on its Web site alongside the newspaper's traditional editorials and op-ed columns, and blog entries often make their way into social networks through e-mail.

Entrenched Inequality and Hierarchy

The Web is generally considered egalitarian, in that anyone can set up a Web site. In practice, however, not all nodes are equal. Indeed, the network formed by Web pages and their links to each other is often said to follow a power law, meaning that the probability that any given node (Web page) is linked to k other nodes is proportional to $1/k^n$ for some constant n (about 2 for the Web).

The power law implies that for any given node in the network, the odds are that it will have relatively few connections, but there will be a few favored nodes with a disproportionately large number of connections. A network that follows a power law distribution is said to be *scale free*.⁷

Research has shown that the blogosphere itself approximates a scale-free net. This is illustrated in Figure 1, which shows the middle part of the curve as computed by Technorati in 2006.⁸ However, the power law may not be an exact fit to the blogosphere. Daniel Drezner and Henry Farrell found that the distribution of links among political blogs was closer to a lognormal distribution rather than a straight power law.⁹

Regardless of whether the power law or lognormal distribution better models the full blogosphere, both distributions are highly skewed. This inequality reflects a hierarchy among blogs. Simply put, a few blogs are extremely popular (have lots of inbound connections), while the majority are hardly noticed or lie somewhere in between. This hierarchy is generally reinforced through a process called "preferential attachment." As a scale-free network grows, the established nodes that are already highly connected tend to pick up the new links. In short, the "rich get richer." The nodes with few connections also gain links, but the overall inequality is reinforced.¹¹ This does not imply that new nodes cannot rise to prominence or

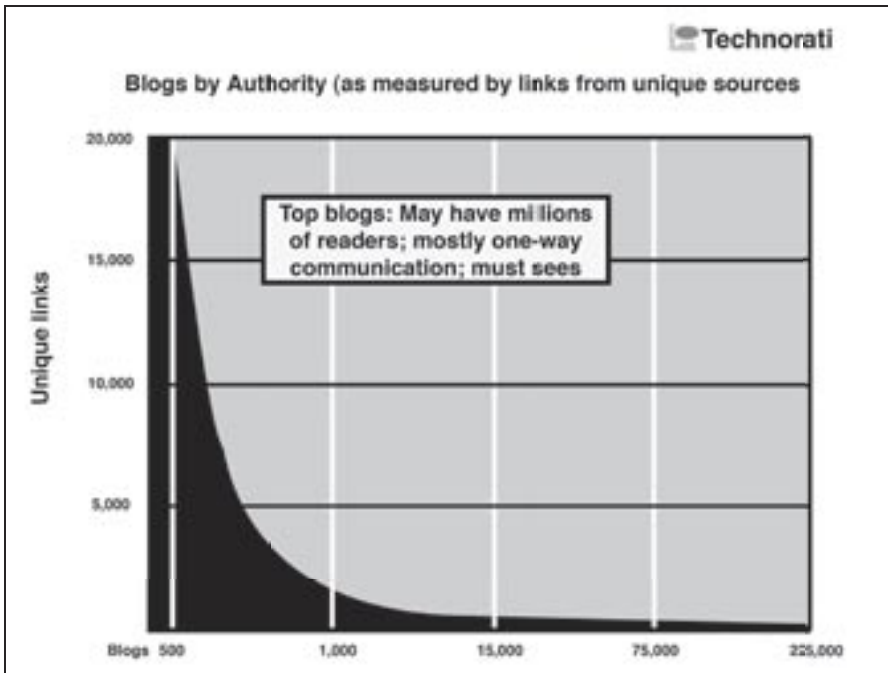


Figure 1. Number of Blogs by Number of Links. (Used by permission from Technorati¹⁰)

that established ones will never lose their position, only that change is likely to be slow and that the overall shape of the distribution will be retained. Drezner and Farrell suggest that the lognormal distribution is more suited to change than the power law, allowing poorly linked nodes to increase their ratings.¹²

The implications of the entrenched inequality of the blogosphere for influence operations are threefold.

- First, other things being equal, the blogs that are linked to the most often are likely to be among the most influential.
- Second, the vast majority of blogs can be ignored, concentrating efforts on the most popular blogs.
- Third, bringing a new blog into prominence is likely to be slow and difficult. It is not, however, impossible.

Technorati, which ranks blogs in terms of the most links from unique sources, found that the third and fifth ranked blogs in February 2006 did not even make the top 100 in April 2005.¹³

It is also useful to consider that the preferential attachment reflected in the growth of the Web and blogosphere is the result of individual users' choices. Links are added by people, not some abstract network entity implementing a formula for network growth. The decision to add a link is based on social considerations, such as trust, reputation or social pressure, as well as on personal preferences. Thus, the forces underlying the structure of the Internet and the blogosphere are ecological and selective.

Who Blogs and Why

According to the Pew Internet and American Life Project (PIP), between February and November of 2004, the numbers of blog readers and blog creators both increased by 50 percent or more, reaching about 7 percent and 27 percent respectively of Internet users.¹⁴ However, more recent data from Technorati.com indicates that the blogosphere doubled in size about every six months during a three-year period ending in March 2006 (Figure 2).¹⁵ As of April 2006, Technorati.com was tracking 35.3 million weblogs and recording 75,000 new ones each day. Some of these sites are “splogs” (spam blogs)

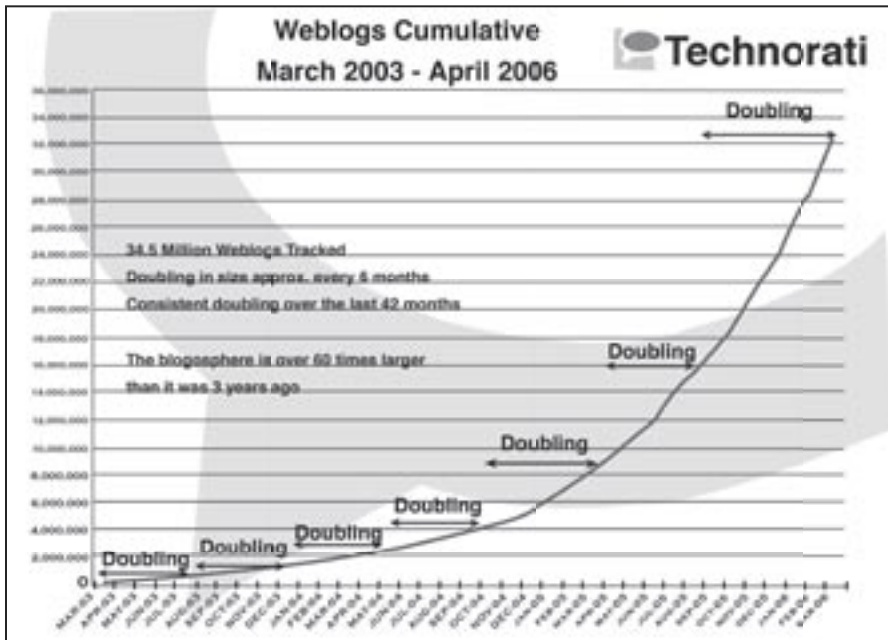


Figure 2. Growth of Blogosphere. (Used by permission from Technorati¹⁷)

and not actual blogs. Splogs mimic blogs, but contain entries full of hyperlinked text that directs readers to other sites. From 2 percent to 8 percent of the blogs created daily in late 2005 were said to fall into this category.¹⁶

Even subtracting the splogs, we are left with millions of blogs. However, this should only be interpreted as indicative of blogging's popularity as a format for information dissemination, and not as a measure of blog influence—just as reporting the number of PSYOP leaflets dropped says nothing about their effectiveness at influencing a target audience.

With regard to the bloggers themselves, several studies exist that quantify and qualify American Internet users.^{18,19} Nearly 75 percent of Americans use the Internet regularly, and those who use it most regularly tend to be young, male, have some degree of college education and generally are in or from the middle to upper-middle income brackets. These are the people who tend to be the most politically active, as well. Blog creators follow this trend, being generally young, affluent, educated males with broadband access and at least six years' experience online.²⁰

A study by Nardi et al. identifies five major motivations for blogging:²¹

- Documenting the author's life and experiences.
- Expressing opinions and commentary.
- Venting strong emotions.
- Working out ideas through writing (In the words of Sherry Turkle,²² using the blog and computer as "objects to think with.")
- Forming and/or maintaining virtual communities.

Another motivator may be the potential for financial gain, as Internet advertisers seek to capitalize on bloggers' status and reputation by placing static, banner, and pop-up ads on their sites. Moreover, the number of professional bloggers is likely to increase as the media comes to accept them as legitimate "citizen journalists." It is in this role of citizen

... the number of professional bloggers is likely to increase as the media comes to accept them as legitimate "citizen journalists."

journalist and media watchdog that bloggers like Glen Reynolds, creator of the highly hyperlinked blog, InstaPundit.com, revel. Precisely because of a perception that the big media are motivated less by the pursuit of truth and more by profit, cor-

porate interest, and political agendas, many blogs and their authors have cultivated reputations as vigorous challengers of the mainstream media.

Instapundit's Reynolds is more than just a successful blogger. He is a law professor at the University of Tennessee, and an author of several books and articles on political ethics, environmental law and advanced technology. These credentials no doubt contributed to his success. In general, a blogger's objectives; qualifications and life experiences; skills at writing, framing arguments and making use of the Web page medium; personal attributes such as integrity; networks of personal contacts; and levels of interaction with the audience all contribute to the audience's assessment of the merit and credibility of his or her blog. These qualities are communicated to the audience through the blog, establishing the writer's online persona and reputation. Influence, therefore, starts with the characteristics of the blogger. According to researcher Kathy Gill of the University of Washington, the most influential blogs were generally written by professionals with excellent writing skills.²³ Just as during World War II, the military recruited the top Hollywood directors and studios to produce films about the war (in effect conducting domestic influence campaigns in the name of maintaining the national morale and support for the war effort), waging the war against terrorism and its underlying causes, as spelled out in the National Security Strategy, may require recruiting the prominent among the digirati (probably those native to the target region) to help in any Web-based campaign.

The importance of credibility and reputation to blog influence must be taken into account when considering using a blog as a vehicle for information operations. This is especially critical given the apparent poor image and reputation of the U.S. government in countries we want to influence.

Blog Influence

Examples of the increased influence of blogs the last two years include not only "Memogate," but also "Gannogate" and "Jordangate."

- When President Bush invited Jeff Gannon (a.k.a. James Gale Guckert)—a blogger known to be sympathetic to the Bush administration—to join the White House Press Corps, the major media vilified him as an administration stooge, and por-

trayed his inclusion in the corps as an attempt by the President to subvert the free press. Subsequent media scrutiny of Guckert revealed his lack of any “real” journalistic background and various sordid personal activities. The attention and negative publicity forced Guckert to retire from running his blog “Talon News” in February of 2005.²⁴ Nevertheless, the fact of the White House reaching out to bloggers brought credibility to blogging and helped thrust the phenomenon into mainstream awareness.

- Military bloggers are credited with the fall of Eason Jordan, a senior executive at CNN who resigned earlier in 2005 over his remarks that U.S. troops were deliberately targeting reporters in Iraq.

Nardi et al. cite two other examples of the political influence of blogs: Senator Trent Lott’s loss of office and presidential candidate Howard Dean’s success at campaign fund raising.²⁵ The major question that arises from these cases is how could (to paraphrase CBS’ Klein) “some guys in pajamas writing at home” succeed in influencing not just the careers of prominent journalists, producers and media executives, but also potentially the course of an entire election or public opinion about a war?

As previously observed, blog influence can be affected by the structure of the blogosphere, in particular, the network of hyperlinks connecting one blog to another. To illustrate, imagine starting at any random blog. By following a series of links from one blog to another, one is likely to hit one of the top blogs within a few hops. Moreover, information on that top blog may have propagated out to some of the blogs that linked to it, and so on from there, perhaps even reaching the blog from whence one started. Thus, even if one is not initially aware of a particular blog, one may end up there or being exposed to information posted on it. Overall, one is more likely to encounter a well-connected blog, or information posted on it, than one that is not.

*... imagine starting
at any random blog.
... one is likely to hit
one of the top blogs
within a few hops.*

The interactions with traditional media and social networks can further extend blog influence. For example, consider the following sequence of events. A blogger posts an eyewitness account of events during Hurricane Katrina. A reader e-mails the story to associates, who forward it on to others. One recipient is a television reporter,

who reports the story on the evening news. Other journalists, bloggers, and the public pick up the broadcast. Soon it is all over the Internet, with commentary on some of the top blogs.

This behavior of jumping networks is common. It is illustrated by the CBS Memogate story in our introduction. In that case, the story jumped from a Web-based discussion group to blogs and traditional media.

Given the multiplicity of networks, their internal connectedness, and the ability of information to hop from one network to another, it would seem that information posted in a blog or elsewhere could reach anywhere. In practice, however, an entity's influence—whether a blog, Web site, newspaper, television station, person, etc.—is seldom so broad. In one study of six social networks, researchers found that individuals were unlikely to be aware of what others in the network were doing if they were more than two hops away. Thus, one's "sphere of observability" was restricted to direct connections and indirect connections involving at most one other person.²⁶

The converse is that one's "sphere of influence" may likewise be limited to roughly two hops on average. If so, bloggers who are read by journalists working for broadcast media with large audiences can have a potentially much larger sphere of influence than those who are read only by other bloggers or Internet users. We will return to this point in the discussion that follows.

Blogs vs. Traditional Media

There is a fierce debate both among bloggers and traditional journalists about which media form is most important. Some bloggers, such as Reynolds and other media watchers, cite a declining viewership of network news broadcasts,²⁷ and a drop in circulation of daily U.S. newspapers (2005 circulation was 55.2 million, down from 62.3 million in 1990²⁸) as clear evidence that traditional media are on the way out, to be replaced by increasingly influential blogs and other Web-based media. Another data point is the number of bloggers linking to top news and media sites vs. the top blogs. Technorati found that the New York Times, CNN, and The Washington Post still garnered the most links, but the top blog (Boing Boing) beat out such media sites as PBS, Fox News, and Time magazine.²⁹

The existence of a virtual universe of readily available, easily accessible, and good quality information sources may partially explain the dismal ratings traditional news media sources receive.

Some Internet theorists (most notably, Howard Rheingold³⁰) and market analysts have predicted that the plethora of choices for information consumers means that they will choose only those sources that confirm their own biases without challenging them; moreover, consumers will customize their newsfeeds so as to focus exclusively on a narrow band of interests. However, a recent Pew study³¹ found that most Internet users do not consciously filter out opposing viewpoints, and tend to encounter many diverse viewpoints through sheer accident. Further, many news consumers in the Internet age want interaction, to be able to debate the stories and analyses that interest them. Interactivity is what blogs (and discussion groups) offer that video and print media do not.

On the other hand, there are good reasons to believe that reports of the traditional media's imminent demise are at best exaggerated, and at worst, misleading. For example: The same industry data cited by blog proponents to show the decline in U.S. newspapers' circulation from 1960–2003 actually shows that the decline occurred only for evening editions, whereas morning circulation actually grew and Sunday circulation remained generally constant.³²

Another reason is that despite the hype surrounding the emergence of blogs as a journalistic format, blogs have been clearly influential in only a few instances, while many other equally compelling stories never made the transition to the mainstream. And this is an important point: Without the "mainstream" media's attention, Memogate and the others might never have amounted to anything more than interesting, but obscure historical footnotes.

W.L. Bennett's model of the infosphere (Figure 3) provides a theoretical framework that explains why this is so. Bennett stratifies the Infosphere into three layers: "the conventional layer of mainstream, mass media; the middle layer of prominent blogs, webzines, advocacy groups, etc.; and the micro layer of e-mail, mailing lists, and personal blogs. The most successful communications strategies involve methods of getting a story to *access and activate all three strata.*"³³ (Italics ours.)

Bennett's model is particularly useful, because it offers a holistic view of the infosphere that incorporates everything from the mass media to the small-time blogger, and taps into the social network to effect transitions between the layers. In this model, the mass media is vital to effective national political communication, consensus building, and mobilization.

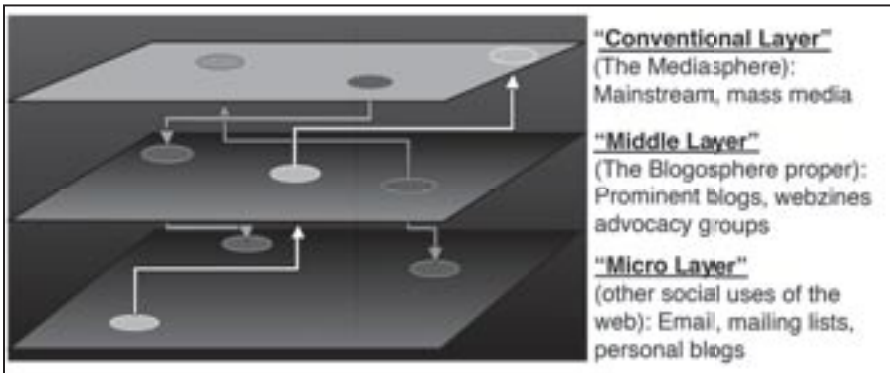


Figure 3. Bennett's Model. Stories can originate in any layer. The most successful—and influential—are those that spread to and prompt activity on all three layers. (Used by permission.)

Drezner and Farrell make the point that “under specific circumstances—when key weblogs focus on a new or neglected issue—blogs can socially construct an agenda or interpretive frame that acts as a focal point for mainstream media, shaping and constraining the larger political debate.” They further note that a blog’s influence has as much to do with the interactions between significant blogs and traditional media outlets as with the skewed distribution of links.³⁴

Ultimately, each type of player has a vital role that benefits the system as a whole. The traditional media affect the *Zeitgeist* through print and broadcasting, whereas blogs and other Internet-based middle and micro-layer media do the same online.

Measuring Influence

If we can agree, based on the anecdotal evidence, that blogs can be influential and may become more so in the future, it becomes important—as a determinant of the effectiveness of blogging as an IO weapon—to find a way to measure a blog’s influence. This section describes various measures that are available today or worth considering. It is not exhaustive of all commercially available products and services, but attempts to cover the major metrics and some of their principal providers.

We have divided measures of influence into two categories: measures based on site visits and measures based on links and citations.

Measures based on site visits include:

- **Visitors (aka Reach).** This is the number of different users who visit a blog over a given period of time. Alexa (www.alexa.com) computes this measure, which they call Reach, on a daily basis for Web sites (not just blogs) visited by users of its toolbar.
- **Page Views.** This is the number of pages viewed on a blog site over a given period of time. Alexa computes this measure on a daily basis for Web pages viewed by their toolbar users.
- **Traffic.** This is defined by Alexa as the mean of Reach and Page Views averaged over a three-month interval and is the measure used to rank Web sites.
- **Interactivity.** This is the degree to which a blog's readers offer feedback and participate in discussions with the blogger and other readers.

Alexa is the only source we found for metrics based on site visits. However, its metrics are not specific to blogs and are generally offered at the level of domain names rather than individual pages. Further, they apply only to site visits by users of their toolbar. While the user base is fairly large (several million), it may not be representative of the total Internet population, which is about a billion.

We are not aware of any efforts to formalize a metric based on interactivity or to rank blogs accordingly. Nevertheless, this measure is potentially valuable, as high interactivity would suggest that visitors to a blog are sufficiently engaged and influenced to respond.

Measures based on links and citations include:

- **Inbound Blog Links (aka Authority).** This measures the number of other blogs with explicit links (URLs) to a particular blog. Technorati (technoratic.com) ranks blogs on this basis, which it calls Authority. Blogstreet (www.blogstreet.com) also uses this measure to compute a Blog Influence Quotient (BIQ); however, it only counts links in blogrolls (lists of blogs), not links within blog posts.
- **Blog Favorites.** This measures the popularity of a blog by its inclusion in a Favorites list. Technorati has a Favorites ranking based on information provided by their members.
- **Inbound Web Links (aka In-Links).** This is similar to Inbound Blog Links, but includes links from anywhere on the Web: blogs, news sites, articles, personal pages, etc. Google (www.google.com) computes this measure through its advanced search fea-

ture, but does not offer a ranking of Web sites based on the measure. PubSub (www.pubsub.com) has a similar measure, which it calls In-Links. Tools such as Link Survey© also compute this measure.

- **Weighted Inbound Web Links (aka Page Rank, Link Rank).** This is similar to the preceding, but gives more weight to links from high ranking sites. Google's Page Rank metric falls in this category, as does PubSub's Link Rank. Blogrunner (www.blogrunner.com) is also said to have used a scheme of this type to determine influential bloggers. Their metric was calculated across posts over a 60-day period.³⁵
- **Search Hits.** This is the number of hits obtained by searching on the blog name, with qualifiers as needed to distinguish it from other entities, while eliminating hits within the blog's own site (the latter is easily specified with the advanced search option in Google). Search hits will pick up references to a blog that do not include explicit links, but it may also pick up things unrelated to the blog.
- **Media References.** This is the number of references to a given blog found in the non-Web media, to include radio, television, magazines, journals and newspapers.
- **Infosphere References.** This is the total number of inbound links and references from all sources at all three layers of the infosphere.

The preceding measures offer different perspectives on blog influence. For example, on April 19, 2006, Technorati showed BoingBoing to be number one in terms of Authority (Inbound Blog Links) but only third in terms of Blog Favorites. Google showed about 91,900 Inbound Web Links and a Page Rank of 9 (out of 10); it returned 10.5 million Search Hits for "boingboing -site:boingboing.net," which excludes internal references. On the other hand, Alexa reported a Traffic Rank of only 1,692, showing that whereas the blog may indeed be popular among bloggers, it is viewed less frequently by Alexa users than almost seventeen hundred other Web sites.

We are not aware of any efforts to measure Media References or Infosphere References. However, these broader measures are important for determining influence. Looking back to Bennett's model, for a blog to be truly influential on a national scale, it has to reach and stimulate activity on all three layers of the infosphere, and it has to do this in a skewed system. New blogs constructed for the purpose

of conducting PSYOP may have difficulty attracting enough links to reach all three layers. Moreover, the information content must stimulate interest and activity on all three layers, with the limitation that it cannot do so effectively if it appears to be propaganda. This last is especially difficult because of the role that news bloggers tend to adopt: citizen journalists and media watchdogs.

Although most metrics are generic and not tailored to any specific topic, a corporate team comprising Market Sentinel, Onalytica, and Immediate Future has developed metrics for measuring the influence of bloggers with respect to a particular issue. Using keyword searches, they first build a list of *stakeholder* sites that have addressed the issue more than once and are cited by multiple sources. Then they examine three measures: citations by other stakeholders, how often a particular stakeholder serves as a broker of relevant information to another stakeholder (called *information influence*), and the amount of influence given to a stakeholder by other important stakeholders (called *issue influence*). The third metric appears to be related to the weighted metrics listed above. The metrics were used to show that Jeff Jarvis's blog, Buzzmachine, was the most influential source of information on the Internet regarding complaints about Dell Corporation's customer service in 2005.³⁶

Being able to restrict the scope of a metric would be useful for influence operations. Besides topic area, metrics could be tailored to criteria such as nationality or demographics. For example, one might be interested in the most influential blogs written by Iraqi authors, read by Iraqi's under 30, or receiving the most links from Arab bloggers. The most popular blogs overall might be irrelevant in certain regions or among certain audiences.

Another metric that could be useful, particularly when combined with those outlined above, is the frequency of postings on a particular topic or containing given key words and phrases. BlogPulse (www.blogpulse.com), for example, monitors the content of posts in the blogosphere in order to measure which topics are "hot." Users can also request a chart of the percent of blog posts on a given topic plotted over a one to six month time interval. A chart on the topic "Danish cartoon" computed in early February 2006 showed a sharp upward spike in posts following eruption of the cartoon controversy. Being in a position to direct an already influential blog onto a hot topic could give an IO advantage in that domain.

In order to select or design a useful blog for conducting IO, developing measures of the blog's ability to reach and activate the conventional, middle and micro layers of the entire infosphere, as well as the development of a method for measuring the change in attitudes, thinking, beliefs and ultimately actions that are directly attributable to the blog, is critical in order to fine tune military efforts. Selecting or creating a likely candidate blog is the first step, since the hard measure of effectiveness must necessarily come after an operation.

As previously noted, a blog's popularity and credibility will be affected by the blogger's perceived reputation, knowledge, and skills. In addition, it is likely to be affected by the perceived quality and credibility of the blog itself. Factors that could affect readers' assessments of a blog include:

- **Design:** the general appearance and functionality of a blog, measured according to the standards of the target audience. This includes such factors as quality of the graphics, professionalism, and ease of use.
- **Utility:** the relevancy of a blog's contents to issues of interest to the target community.
- **Accuracy and consistency:** whether information provided by a blog is generally correct or consistent with other information accepted by the target audience.
- **Currency:** the frequency with which a blog is updated.

Although we know of no studies that correlate these or other blog criteria with blog popularity or influence, we can draw on research conducted at Stanford on factors that affect the credibility of Web sites. They found that viewers paid particular attention to design, but that utility and accuracy also mattered.³⁷ Postings that are well researched and thoughtful, and that bear out this initial assessment, may draw more links than ignorant diatribe, although this is not always the case.

A note of caution is due. As we will see later, the demographics of Internet penetration and use in a given country limits the ability of Web-based media like blogs to reach some target groups, unless the information is picked up by traditional media. A careful analysis of the media environment within the target country must be done before commencing operations.

Another obstacle to analyzing blogs by ranking is the recent emergence of "splogs," or spam blogs, mentioned earlier. As Kesmodel points out, some blog hosting services may lack sufficient controls to

prevent automated software from creating splogs in bulk.³⁸ Because many page-ranking systems (not just blogs) are based on a site's number of inbound links, as described above, splogs can artificially inflate a site's Web status. It is incumbent upon the analyst, therefore, to ensure that all of the measures indicated above, including the additional factors, are collected and correlated to avoid improper targeting for collection or exploitation.

3. Implications for Influence Operations

We began with two research questions:

1. Are blogs truly influential, and if so, in what manner?
2. Does the information environment support blogging as part of an information campaign?

The answer to the first question is that a small number of blogs are, or have the potential to become, influential in the broadest sense. A blog's influence depends in large part upon the reputation of its author and its content, but also upon the mathematical laws that govern the Blogosphere, and the blog's ability to reach and activate the three primary layers of the infosphere. Blogs that score high in the metrics identified above seem most likely to have influence or become influential.

The answer to the second question is: It depends. One factor to consider is Internet penetration among the population of interest. In some parts of the world, only a small minority of the population has Internet access, and those that do may have similar wealth, education, experiences and outlooks. In such cases, one cannot expect to reach the masses, and intelligence derived from blogs cannot be held to represent views of the majority of the population. On the other hand, as noted earlier, information posted to blogs can jump to traditional media and travel through social networks. Hence, even if members of a population do not have access to the Internet or read a particular blog, they may be influenced by it if local elites, including mainstream media elites, do.

Some countries such as China censor the Internet, prohibiting their citizens from publishing certain information on a Web site or blog, or from accessing certain sites. In that environment, it may be hard to get a complete intelligence picture from bloggers inside the country or to influence the population with a blog that may be subject to censorship.

On the other hand, blogs that serve a small community, or that fill a specific niche may be useful for monitoring and targeting select elements. People may and do serve in more than one social capacity; they may represent a class of community or peer opinion lead-

ers—useful as both targets of influence operations and as vehicles for disseminating strategic communications.

This discussion of communities leads us to another point of difficulty in using blogs for IO. Segmentary opposition and its gentler cousin, in-group/out-group dynamics, may prevent a foreign audience from taking an overtly U.S. government-run or sponsored blog seriously. Even American blogs show a high incidence of ethnic clustering,³⁹ and the deep-seated fissures between major tribal groups, and often between subgroups, frequently define traditionally tribal societies like those in Afghanistan. Even if there is no widespread preconception about U.S. use of propaganda, it may be easy for foreign audiences to dismiss the U.S. perspective with “Yes, but you aren’t one of us, you don’t really understand us.”

In this regard, information strategists can consider clandestinely recruiting or hiring prominent bloggers or other persons of prominence already within the target nation, group, or community to pass the U.S. message. In this way,

... information strategists can consider clandestinely recruiting or hiring prominent bloggers ...

the U.S. can overleap the entrenched inequalities and make use of preexisting intellectual and social capital. Sometimes numbers can be effective; hiring a block of bloggers to verbally attack a specific person or promote a specific message may be worth considering.⁴⁰ On the other hand, such operations can have a blowback effect, as witnessed by the public reaction following revelations that the U.S. military had paid journalists to publish stories in the Iraqi press under their own names.⁴¹ People do not like to be deceived, and the price of being exposed is lost credibility and trust.

An alternative strategy is to “make” a blog and blogger. The process of boosting the blog to a position of influence could take some time, however, and depending on the person running the blog, may impose a significant educational burden, in terms of cultural and linguistic training before the blog could be put online to any useful effect. Still, there are people in the military today who like to blog. In some cases, their talents might be redirected toward operating blogs as part of an information campaign. If a military blog offers valuable information that is not available from other sources, it could rise in rank fairly rapidly.

Any blogs and bloggers serving an IO mission must be coordinated and synchronized with the overall influence effort in time and

message. However, they must be prepared to argue and debate with their audience successfully and independently on behalf of the U.S. policy stance. In this sense, bloggers must be able to “circumvent the hierarchy” as blogger George Dafermos put it.⁴² This means that they must be trusted implicitly to handle the arguments without forcing them to communicate “solely by means of marketing pitches and press releases.”

There are certain to be cases where some blog, outside the control of the U.S. government, promotes a message that is antithetical to U.S. interests, or actively supports the informational, recruiting and logistical activities of our enemies. The initial reaction may be to take down the site, but this is problematic in that doing so does not guarantee that the site will remain down. As has been the case with many such sites, the offending site will likely move to a different host server, often in a third country. Moreover, such action will likely produce even more interest in the site and its contents. Also, taking down a site that is known to pass enemy EEIs (essential elements of information) and that gives us their key messages denies us a valuable information source. This is not to say that once the information passed becomes redundant or is superseded by a better source that the site should be taken down. At that point the enemy blog might be used covertly as a vehicle for friendly information operations. Hacking the site and subtly changing the messages and data—merely a few words or phrases—may be sufficient to begin destroying the blogger’s credibility with the audience. Better yet, if the blogger happens to be passing enemy communications and logistics data, the information content could be corrupted. If the messages are subtly tweaked and the data corrupted in the right way, the enemy may reason that the blogger in question has betrayed them and either take down the site (and the blogger) themselves, or by threatening such action, give the U.S. an opportunity to offer the individual amnesty in exchange for information.

There will also be times when it is thought to be necessary, in the context of an integrated information campaign, to pass false or erroneous information through the media, on all three layers, in support of military deception activities. Given the watchdog functions that many in the blogging community have assumed—not just in the U.S., but also around the world—doing so jeopardizes the entire U.S. information effort. Credibility is the heart and soul of influence operations. In these cases, extra care must be taken to ensure

plausible deniability and nonattribution, as well as employing a well-thought-out deception operation that minimizes the risks of exposure. Because of the potential blowback effect, information strategy should avoid planting false information as much as possible.

This brings us to an even more fundamental issue. Because the U.S. military is prohibited from conducting information operations against U.S. persons, it is reluctant to engage in Internet IO operations that might be characterized as PSYOP or deception. Once information is on the Internet, it can reach anyone, including those in the U.S. Thus, while the military offers factual news on the Internet through Public Affairs, it generally stays away from commentary and IO. At least initially, this challenge might be addressed by sticking with accurate, factual information of value to readers. Blogging can support PA and focus on improving communications and building trust with local communities and the public. A blog can be used to solicit and respond to questions and concerns from target populations. In addition, military leaders might offer personal commentary on nonmilitary blogs, with the usual disclaimers.

To use blogs effectively for an information campaign may require a new intelligence tool, one that can monitor and rapidly assess the informational events occurring in a specific portion of the blogosphere and their effects (if any) on the three layers of the local infosphere.

Blogs and Intelligence

Weblog derived intelligence can be considered a subset of both communications intelligence (COMINT) and open-source intelligence (OSINT). We would expect to see it used primarily in support of information operations, although it does offer a broad range of possible applications. It may consist of computer network exploitation (CNE) done in support of integrated PSYOP, PA, PD, MILDEC, and CA/CMO operations. The value of using blogs and blogging in support of a military information strategy depends heavily on the target region's Internet penetration and regulation (especially censorship). Further, if the number of Internet users is small, it is necessary to determine who is using the capability and why. Again, this very basic information should be collected as a part of the initial intelligence preparation of the environment, but once obtained it becomes a significant part of the baseline assessment for determining the need for, and the value of, conducting blog-based information operations.

If assessment of the information environment indicates the presence of blogging activity, the next step is to look at the bloggers and their audiences, determine the blogs' functions (per Nardi et al.⁴³), and construct a preliminary analysis in terms of the metrics (blog visits and incoming links and references) and indicators of quality and credibility (design, utility, accuracy, and currency) identified earlier. Questions that must be answered include:

- How large is the blogging community?
- Who are the bloggers? And what are their positions and status within their communities and within the country as a whole (their general public roles and reputations)?
- Who is the target community or audience for each blog?
- Do the blogs address issues of social and political importance to the community they serve?
- What biases are observed in each blog? Do they reinforce or challenge the biases of their audience?
- Do any bloggers invite and engage in free and open interaction with their audience?

Answering these questions will require appropriate responses from intelligence agencies at all levels. National level agencies are perhaps best suited to conduct comprehensive media, human factors and social network analyses to identify and characterize the prominent and/or influential bloggers within their social networks, and their connections to the larger community of traditional media journalists. These agencies should also examine the frequency with which each blog is referenced in the other media in the target region, and perhaps engage in CNE to study reactions and references in the micro layer. Certain other existing assets, most notably the Foreign Broadcast Information Service (FBIS) and the Armed Forces Information Service (AFIS), already cull through thousands of broadcast and print news pieces from around the world, based on topic, and could with relative ease look for blog references as well.

The importance of interactivity to a blog's influence is proportional to the size of the blog's potential audience. In areas where Internet access is limited to top government officials only, interactivity may be of relatively low importance. In areas where a ruling or elite social class has access, interactivity can be more important. In countries where Internet access is widespread, but free exchange of ideas is limited and/or discouraged, interactivity becomes golden. Again, the application of the general theory and principles must be

flexible enough to account for differing political, social, and cultural conditions. Social network analysis and human factors analysis must be combined and correlated to craft specific messages to target specific bloggers and members of their audiences. Combined with a good sociological, psychological and cultural framework for interpreting and predicting attitudes, behaviors, communications and actions, intelligence derived from and/or about blogs can be highly effective in supporting influence and counterinfluence campaigns.

The entrenched inequality that characterizes the blogosphere has some implications for intelligence analysis and assessment. On the positive side, the fact that the most influential blogs generally will be the most authoritative (i.e., have the highest number of links) limits the number of blogs that must be read to glean the key or most widely held perspectives, concerns, attitudes and knowledge that motivate the audience. A survey of only these blogs can provide a rapid method for assessing the effectiveness of other influence operations in much the same way that a Civil Affairs soldier can assess general attitudes and mood by reading the graffiti on the walls. On the down side, in heavily Internetted regions, the tendency toward monopoly that results from systemic self-optimization will result in increasing homeostasis. Authors of top blogs in these environments may become disconnected from the content of their blogs and the concerns of their audience. This is because the needs of maintaining the blog may override the ability of the blogger to survey other blogs, conduct research and maintain interactivity. Because of this tendency, and in areas where only the elites or the government have Internet access, the content of the top blogs may not correlate well with majority concerns/opinions. As always, intelligence drawn from blogs may be invalid without confirmation from other sources.

Analysts working with blog intelligence must have access to the operational disciplines that they support; the closer the better. We recommend the creation of small special operations units with operational authority and integrated intelligence collections and analysis to conduct blog-based operations.

Recently, analysts at the Open Source Center (OSC) under the auspices of the Director of National Intelligence (DNI) have been monitoring and following significant foreign blogs and bloggers with the primary goal of exploiting them as sources of intelligence. A February 2006 posting on the organization's "Blog on Blogs" about Iranian expatriate blogger Hossein Derakhshan ("Hoder"), described

him as “one of the most influential Iranian bloggers.”⁴⁴ OSC analysts used Traffic (based on Reach and Page Views) from Alexa; Authority (Inbound Blog Links) from Technorati; and frequency of postings from Blog-Pulse. All three sources share the advantage of ready availability, but are limited for reasons discussed earlier.

Besides these and other metrics described earlier, there are other tools that can help the intelligence analyst. BlogPulse’s Conversation Tracker and TalkDigger (www.talkdigger.com), for example, track conversations as they spread through the blogosphere. TouchGraph (www.touchgraph.com) provides a tool for visualizing links among sites.

Blog-Based Operations

To function most effectively, units conducting blog-based operations must be staffed appropriately. Ideally, such units would be drawn from the special operations and intelligence communities, because of their historical experience in and ability to conduct (when tasked) sensitive operations. Linguists and intelligence analysts (preferably analysts who are also linguists), who are commanded or advised by qualified PSYOP or IO officer should form the core of such a unit. These capabilities must be augmented through liaison relationships with the other influence organizations, those responsible for planning and conducting PSYOP, PA, PD, CA/CMO and MILDEC. Because of the unique nature of blog-related intelligence, comprising both open and highly classified sources and producing an output intended for open distribution, a blog operations unit should have solid information, operations, and network security programs in place. It also needs oversight.

In order to act and react efficiently in managing bloggers and blogs, the intelligence specialists and planners who have the knowledge should be the ones running the actual blog. Or, in cases where indigenous bloggers and their blogs have been identified and recruited, the blog operations cell should also house the case officer managing the asset, having done the work to cultivate and recruit him or her. The same metrics used to select a blog can also serve as indirect measures of effectiveness; for example:

- Once blog operations have begun, does the blog attract new inbound links?

- Is there an increase over time in the blog's ranking via various metrics?
- Through polling and media analysis, can a change in public opinion be correlated with growth in the blog's indicators?
- What does content analysis of the interaction that occurs with the blogger on the site reveal (change in opinions posted by readers? positive or negative?)
- Do the comments on the blog correlate with public opinion results obtained by polling and/or portrayed in the mainstream media?
- Does the blog get referenced by the mainstream media in the target country, and with what degree of frequency?
- Do other sources of intelligence confirm these indicators?

Like any other influence operation, blog operations must be given time to work. There are no magic bullets. We would suggest quarterly reviews of the blog's effectiveness along these lines and then adjusting fire to reverse any negative trends and accelerate positive trends.

This fusion of intelligence and operations is the cost of and the requirement for operating in a medium that rewards the efficient distribution of knowledge and information above all other considerations, and is also in the best traditions of the intelligence and special operations communities. Pushing operational authority out to those best equipped to receive, analyze and act in a dynamic information environment maximizes both efficiency and effectiveness. Although a blog-based operations unit could be based either domestically or in theater, the best option is to forward deploy it as a cell, just as we deploy our PSYOP analysts and production and dissemination capabilities.

4. Conclusion

Over the course of this paper, we have shown some of the potential uses of the blogging phenomenon for military information strategy. While we can make reasonably certain statements about blogging in general that can be applied universally, the actual employment of tactics and techniques comes down to cases. The successful employment of blog operations depends on a number of variables that must be determined during intelligence preparation of the environment. In environments that support them, properly conducted blog operations have the potential to be extraordinarily powerful, as demonstrated by the high profile incidents involving blogs during the 2004 presidential campaign.

Some of the possible techniques we have explored in our discussion of the military use of blogging require a certain degree of subtlety, finesse, and yes, covert action. By giving military blog-based operations to the Intelligence and Special Operations communities, these uses become less risky and more feasible. However, military operations must necessarily remain only a part of a larger effort. Given the current state of U.S. and international law, and the distribution of the necessary authorities among many (often competing) government agencies, any future conduct of influence operations through the blogosphere will require a truly integrated interagency approach, and thus belongs properly at the national level as a part of an overarching Strategic Communications effort.

We have also identified several areas that may be of interest to other researchers. Chief among these are the questions of how various blog metrics relate to each other and to actual influence as determined by changes of behavior in a target population. Also, while we have identified what we think are significant indicators of a blog's influence, techniques for measuring them and testing our hypothesis largely remain to be explored. Finally, the suggested techniques for using computer network attacks against blogs in support of influence operations are hypothetical as well, and require testing before they can be employed.

One of the significant limitations of this paper, as an initial foray into military use of the blogosphere, is that much of the information available concerns American blogs, run by Americans, largely for an American audience. Military use of the blogosphere must necessar-

ily focus on foreign blogs, bloggers and audiences. However, because some factors, such as the scale-free nature of the Internet and the psychological basis of influence are universals, we hope to lay a general basis for military use of the blogosphere that can be adapted to specific tactical circumstances by information operators.

Endnotes

1. "The Sixty-First Minute," Power Line, 9 September 2004, <http://powerlineblog.com/archives/007760.php> (accessed 19 April 2006).
2. Parker, K., "Bloggers Knew!" Article on TownHall.com, 15 September 2004, <http://www.townhall.com/columnists/kathleenparker/kp20040915.shtml> (accessed 20 September 2005).
3. Pein, C., "Blog-Gate: Yes, CBS Screwed Up Badly in 'Memogate' — But So Did Those Who Covered the Affair" Columbia Journalism Review Online, January-February 2005, <http://www.cjr.org/issues/2005/1/pein-blog.asp> (accessed 20 September 2005).
4. Thornburgh, T. and Boccardi, L., Report of the Independent Review Panel on the September 8, 2004 60 Minutes Wednesday Segment "For the Record" Concerning President Bush's Texas Air National Guard Service, 5 January 2005, http://www.image.cbsnews.com/htdocs/pdf/complete_report/CBS_Report.pdf (accessed 19 September 2005).
5. Kenny, S., "The Revolution Will Be Blogged," Salon, 6 March 2006, http://www.salon.com/news/feature/2006/03/06/iranian_bloggers/index_np.html (accessed 18 April 2006).
6. Shane, L., "Military Issues Content Warning to Combat-Zone Bloggers," Stars and Stripes, 4 October 2005, <http://www.estripes.com/article.asp?section=104&article=311111&archive=true> (accessed 6 October 2005).
7. Barabási, A.L. and Bonabeau, E., "Scale-Free Networks," *Scientific American*, May 2003, pp. 60-69.
8. Sifry, D., "State of the Blogosphere, February 2006, Part 2: Beyond Search," Technorati Weblog, 13 February 2006, <http://www.sifry.com/alerts/archives/000420.html> (accessed 8 May 2006).
9. Drezner, D. and Farrell, H., "The Power and Politics of Blogs," presented to the 2004 American Political Science Association, July 2004, <http://www.utsc.utoronto.ca/~farrell/blogpaperfinal.pdf> (accessed 2 October 2005).
10. Sifry, D., "State of the Blogosphere, February 2006."
11. Barabási and Bonabeau, "Scale-Free Networks."
12. Drezner, D. and Farrell, H., "The Power and Politics of Blogs."
13. Sifry, D., "State of the Blogosphere, February 2006."
14. "The State of Blogging," Pew Internet and American Life Project, January 2005, http://www.pewinternet.org/pdfs/PIP_blogging_data.pdf (accessed 19 Apr 2006).
15. Sifry, D., "State of the Blogosphere, April 2006, Part 1: On Blogosphere Growth," Technorati Weblog, 17 April 2006, <http://technorati.com/weblog/> (accessed 18 Apr 2006).
16. Kesmodel, D., "'Splogs' Roil Web, and Some Blame Google," *The Wall Street Journal Online*, 19 Oct 2005, p. B1, <http://online.wsj.com/pub>

- lic/article/SB112968552226872712-8b51_fjhNltE4s7DX6tvLI9XNo_20061025.html (accessed 26 October 2005).
17. Sifry, D., "State of the Blogosphere, April 2006."
 18. "A Decade of Adoption: How The Internet Has Woven Itself Into American Life," Pew Internet and American Life Project, 25 Jan 2005, http://www.pewinternet.org/PPF/r/148/report_display.asp (accessed 21 September 2005).
 19. Lebo, H. and Wolpert, S., "First Release of Findings from the UCLA World Internet Project Shows Significant 'Digital Gender Gap' in Many Countries," UCLA News, 14 January 2004, <http://www.uclanews.ucla.edu> (accessed 14 January 2004).
 20. "The State of Blogging," Pew Internet and American Life Project.
 21. Nardi, B., Schiano, D., Gumbrecht, M. and Swartz, L., "I'm Blogging This: A Closer Look at Why People Blog," submitted to Communications of the ACM, 2004, <http://www.ics.uci.edu/~jpd/classes/ics234cw04/nardi.pdf> (accessed 15 September 2005).
 22. Turkle, S. *Life on the Screen: Identity in the Age of the Internet*. New York: Simon & Schuster, 1995.
 23. Gill, K., "How Can We Measure the Influence of the Blogosphere?" 2004, p. 8, http://faculty.washington.edu/kegill/pub/www2004_blogosphere_gill.pdf (accessed 29 September 2005).
 24. "Jeff Gannon," Wikipedia, http://en.wikipedia.org/wiki/Jeff_Gannon (accessed 5 May 2006).
 25. Nardi et al, "I'm Blogging This."
 26. Friedkin, N.E., "Horizons of Observability and Limits of Informal Control in Organizations," *Social Forces*, vol 62:1, September 1983, pp. 54-77.
 27. Lazaroff, L., "Audience Decline an Old Story," *Chicago Tribune Online*, 24 November 2004, http://www.csupomona.edu/~jrballinger/448/readings/News_Audience_decline.htm (accessed 15 August 2005).
 28. Will, G. F., "Unread and Unsubscribing." *The Washington Post*, 24 April 2005, p. B07, <http://www.washingtonpost.com/wp-dyn/articles/A10698-2005Apr22.html> (accessed 15 August 2005).
 29. Sifry, D., "State of the Blogosphere, February 2006."
 30. Rheingold, H., *Smart Mobs: The Next Social Revolution*, New York: Perseus Publishing, 2002.
 31. "The Internet and Campaign 2004," Pew Internet and American Life Project, 6 March 2005, http://www.pewinternet.org/pdfs/PIP_2004_Campaign.pdf (accessed 8 May 2006).
 32. "Facts About Newspapers," Newspaper Association of America, 2004, <http://www.naa.org/info/facts04/circulation-daily.html> (accessed 8 May 2006).
 33. Scott, D., "Tempests of the Blogosphere: Presidential Campaign Stories that Failed to Ignite Mainstream Media," MIT, 2005, <http://web>.

- mit.edu/comm-forum/mit4/papers/scott.pdf (accessed 20 September 2005).
34. Drezner and Farrell, "The Power and Politics of Blogs."
 35. Gill, "How Can We Measure the Influence of the Blogosphere?"
 36. "Measuring the Influence of Bloggers on Corporate Reputation," Market SentinelTM, Onalytica, and Immediate Future, December 2005, <http://www.marketsentinel.com/files/MeasuringBloggerInfluence61205.pdf> (accessed 8 May 2006).
 37. Fogg, B. J. et al., "How Do People Evaluate a Web Site's Credibility?" Consumer Reports WebWatch, 29 October 2002, <http://www.consumerwebwatch.org/dynamic/web-credibility-reports-evaluate-abstract.cfm> (accessed 5 October 2005).
 38. Kesmodel, D., "Splogs' Roil Web, and Some Blame Google."
 39. Choi, H., "Ethnic Clustering in Blogging Communities," 2003, <http://www.students.haverford.edu/hchoi/final%20project.htm> (accessed 30 September 2005).
 40. Lyons, D., "Attack of the Blogs," Forbes Online, November 2005, http://www.forbes.com/forbes/2005/1114/128_print.html (accessed 5 November 2005).
 41. Mazzetti, M. and Daragahi, B., "U.S. Military Pays to Run Stories in Iraqi Press," Los Angeles Times, 30 November 2005.
 42. Dafermos, G., "Blogging the Market: How Weblogs are turning corporate machines into real conversations," 2004, <http://opensource.mit.edu/papers/dafermos3.pdf> (accessed 28 September 2005).
 43. Nardi et al, "I'm Blogging This."
 44. Khanon, B., "Hoder: One of the Most Influential Iranian Bloggers," Blog on Blogs, DNI Open Source Center, Washington, DC, 12 December 2005, <https://www.opensource.gov> (accessed 9 May 2006.)

About the Authors

Major James Kinniburgh is an Air Force officer currently serving as Information Operations Branch Chief at the Joint Special Operations University, Hurlburt Field, Florida. Areas of special research include cybersociology, intelligence, influence and information operations, and special operations. He received his M.S. in Defense Analysis from the Naval Postgraduate School.

Dr. Dorothy Denning is Professor of Defense Analysis at the Naval Postgraduate School in Monterey, California and author of *Information Warfare and Security*. Her areas of research include influence and information operations, cybercrime, terrorism, information security, and trust. She received her Ph.D. in computer science from Purdue University.

